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Bridging Public Space and Corporate Identity. Landscape architecture and visual design for the Redevelopment of the Cervia Natural Park (Emilia-Romagna region, Italy). *Enrica Dall'Ara*

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Bridging Public Space and Corporate Identity. Landscape architecture and visual design for the Redevelopment of the Cervia Natural Park (Emilia-Romagna region, Italy)

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Keywords: Brand landscapes, corporate gardens, environmental graphic design, natural parks

The work is a discussion about potential virtuous relationships between landscape architecture and brand-related issues (corporate identity), within parks and gardens design processes. Amusement and theme parks, in which iconography is a key aspect, constitute specific open spaces categories that require careful landscape design, able to go beyond a simple well-kept greening. Moreover, nowadays, corporate gardens and public parks managed by private companies are spreading out. In these contexts, communication plays a significant role.

The design approach we propose is based on the following criteria. It is crucial to develop interdisciplinary projects - establishing partnerships between landscape architects and specialized visual designers - in order to define a unitary framework in which planting design, furniture, pathways, signage, together with branding design, are conceived in an integrated way. The above-mentioned elements can constitute a coordinated system of communication and way showing, so as to generate multiple reverberations between places, programs, events, and corporate identity. Site-specific design solutions should be sought to avoid negative environmental impacts and visual pollution.

The discussion is supported by the illustration of the Redevelopment Project of the Cervia Natural Park, in the Emilia-Romagna region (Italy). It is a public park characterized, since the '60s, by the presence of animal enclosures. Currently it hosts various theme areas, including an adventure park with treetop trails. The site is part of the Cervia Pinewood, an area of high conservation value within the Po Delta Regional Park. The Redevelopment Project aims at designing facilities for a new range of recreational and cultural activities, respecting the natural environment and enhancing its scenic value. In particular, the main interventions concern the park entrances, a new bicycle path, a petting zoo, and a tree-houses playground. Within the Redevelopment Project, Visual Design is an essential aspect, tightly integrated with Landscape Architecture, and acts as a narrative echo connecting the various episodes of the park. The work includes the definition of a new park logo, environmental graphic elements and signage. A specific study investigated the relationships between images, materials and colors, starting from the observation of the fauna and flora of the place, with a focus on their colors, shapes, textures, and their narrative potential. A coordinated palette was defined for both graphics and architectural elements, interpreting the surrounding landscape identity. The paper aims to draw attention to how landscape architecture and visual design can be combined to create clear, ironic and playful public spaces.

Immersive Narratives: Bridging Video Game Technologies with Landscape Representation Methods–An Interactive Study

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Keywords: representation, gaming technologies, immersive environments, landscape narrative

Over the past 40 years the emergence and evolution of gaming technologies has immersed users into virtual worlds using realistic graphics, rich narratives, and the authority to control their own digital experiences. In landscape architecture, there has been a shift in the ways landscapes are represented – challenging conventional techniques such as plans, sections, and perspectives and exploring interactive, dynamic media to express the ephemeral and atmospheric qualities inherent in the landscape. The introduction of free and accessible game development software such as Unity 3D, has made it possible for anyone to design their own game environment. However, the use of these available technologies largely remains isolated within the gaming design disciplines, focusing primarily on the outcome of a "playable" consumer driven game. The advantage of these technologies is that there is an opportunity to integrate various "methods and processes" of designing immersive environments into current practices of representing landscape design. This presentation will focus on the initial explorations of using these new methods to conceive, create and represent landscape through immersive 'gaming' technologies.

To better understand the medium of games in the context of landscape representation, several steps were used to analyze its potential. First, a review of the "immersive" qualities of gaming environments, focusing primarily on its atmospheric and ephemeral abilities. Second, an evaluation of the advantages and disadvantages associated with current 3D immersive technologies such as Lumion and how it differs from the gaming design development platform, Unity 3D. Next, the study investigates the compatibility of conventional 3D modeling applications such as Rhino, revealing the necessary workflows to integrate a designed landscape into a full immersive "playable" experience. Lastly, the presentation speculates on the implications of integrating gaming technologies within the academic and professional settings.

This presentation ends with an "interactive" component that allows audience members to engage in the immersive environment of a previously designed landscape. This project is intended to instigate speculations on the future of representation in landscape architecture and how we as designers and educators can challenge and innovate the conventional techniques of visualizing landscape. The study acknowledges that it is a departure point for further investigations and that the presentation is a general overview into the uncharted territory of immersive gaming technologies.

Impacts of Immersive Virtual Reality on Three-Dimensional Design Processes: Opportunities and Constraints for Landscape Architecture Studio Pedagogy

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Keywords: immersive virtual reality, three-dimensional design, studio pedagogy

Over the last two decades, virtual reality (VR) has evolved from an experimental device to a powerful visualization tool (Portman, Natapov, & Fisher-Gewirtzman, 2015; Rahimian & Ibrahim, 2011). While traditionally used as an evaluative tool, the latest advances in immersive VR have made the medium available to a broader population than ever before (Castronovo, Nikolic, Liu, & Messner, 2013). The value of VR as a design creation tool, and its potential to improve student's abilities to think and design three-dimensionally is ripe for exploration.

Students often find spatial components of design difficult, particularly when taught using two-dimensional methods, either on paper or a computer screen. Consequently, students sometimes make ill-conceived design decisions because they fail to consider, assess, and visualize the three-dimensional qualities of their designs. By utilizing immersive VR, students may develop a better understanding of the three-dimensional spatial impacts of design decisions, which should result in improvements in students' design capabilities.

This study evaluates the potential of immersive VR to improve the design process and education of students in landscape architecture. Students were tasked with designing a micro-park using an immersive VR headset. Upon completion of the project, students were asked to evaluate their experience designing within VR, and compare it to their traditional design methods. A survey, questionnaire, and focus group discussion were utilized to solicit feedback from study participants.
Participants reported improved awareness of the three-dimensional nature of their designs and the spatial relationships between components of their design. Participants also reported that VR enabled them to better visualize their designs. In considering how VR might be integrated into their design process, students responded that it was particularly helpful developing initial design concepts, for use in understanding the spatial nature of their design, and to be able to immersively interact with their design. This study demonstrates the value of VR as a tool for design creation improving students' spatial awareness of their design decisions. As students reported VR significantly altered their design approach, further research is needed to determine the nature of these impacts and how wide-scale VR adoption might impact design outcomes and pedagogy. While VR helps students immersively visualize their designs, its abilities beyond the constraints of a small-scale space are unproven, especially when substantial topographic features are integral to the place. The technology's capability to navigate the myriad complexities of larger-scale sites will determine whether it transitions from entertainment to essential design tool.

Introducing Video and Film Studies as a Visual Tool into Landscape Architecture Curriculum

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Keywords: film, video, Landscape Architecture, design thinking, storytelling, landscape architecture curriculum

YouTube and video expressions are tools students are using on a daily basis. If this language is so prevalent in their culture, why are we not using film and video as a visual language in landscape architecture curriculums? The thought process in which landscape architects create landscapes is similar to a film director making films, the only difference is their craft is created at a much faster tempo. Directors carefully craft an idea into a theme using frames to portray a story. A landscape architect begins with a structure, often a circulation pattern, then proceeds to fill the story with framed images distinguished only by the pace of a visitor's eye.

How can studying film production strengthen an emerging landscape designers eye for detail and storytelling? Students in landscape architecture at Purdue University viewed planting design through a new lens and created a documentary about an ecologically significant local landscape. Learning objectives included developing design thinking skills, constructing framed views, building storytelling skills, as well as learning soft skills like editing software and film production. This exercise shows that film and or video production can be a powerful design tool landscape architecture student can add to their portfolio and design skills arsenal. The current generation of landscape architecture students are ready for this upgrade of graphic expression in their curriculum, is your program ready to provide this opportunity to them?

New Methods in Visualization Pedagogy

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Keywords: digital graphics, technology, representation, communication, drawing, learning,

"One the gains we owe to the great artistic revolution… in the first half of the twentieth century [is that] The first prejudice teachers of art appreciation usually try to combat is the belief that artistic excellence is identical with photographic accuracy."
Gombrich, E. H. Introduction. Art and Illusion; a Study in the Psychology of Pictorial Representation. New York: Phaidon, 2004. P 04. Print.

Landscape as a discipline has been quickly adopting and implementing new tools and methods of design representation, we need to be critical of our pedagogy. Drawings are one of our main communication and ideation tools in design, and a critical component to an academic curriculum. This panel seeks to analyze and critique two pedagogical approaches to teaching digital drawing and visualization, and evaluate if one technique over the other provides more thoughtful and relevant results.
We will examine two different pedagogical approaches commonly implemented in teaching digital representation, involving creation versus imitation. One approach tasks the student with re-representing a found object through the creation of new images based on a student's perception and ability to see. This approach, charges the student with mimicry, placing the metric of success on the crystal-clear translation of the found thing into its new images typically following a known procedure towards an end goal of visual and optic fidelity. An alternative approach is based on the instruction of a gamut of individual digital tools and techniques followed by tasking the student with finding form through generative drawing and procedural exploration. This approach places more encouragement on testing and experimentation with the media and manipulation of form towards an unpredictable end.
Our panel will compare student work developed using both approaches, using similar tools at different pedagogical sequences within the panelists' respective school's curricula. Our panel will evaluate the work based on, clarity of communication, interpretation, originality and adherence to the assigned objectives. Following these presentations, the panelists will discuss the benefits and downfalls to both approaches across disciplines and institution towards evaluating the student's readiness for design thinking as well as execution of tasks at a professional level.

Parametric Environmental Analysis Method Using Rhino and Grasshopper with Plug-in Programs: Case Study of Bogwang-dong in Seoul, Korea

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Keywords: Environmental analysis, algorithmic modeling, Rhino 3-D visualization, Grasshopper and Ladybug

Introduction

The introduction of computational site analysis processes in landscape architecture has transformed the manner in which we make design decisions, thus enhancing our understanding of a site. In recent times, parametric environmental analysis methods (PEAMs) have emerged as an effective analysis tool in the field of architecture and urban design. PEAM is in the initial stage of being used in the landscape architecture field. Rhino and Grasshopper, which are useful PEAM plug-in platforms that work in conjunction, facilitate instant and interactive site analysis by integrating open-source geospatial data and simulating results into 3-Dimensional (3-D) modeling.

Objective

This study demonstrates the use of PEAM with Rhino and Grasshopper platforms through a case study of Bogwang-dong in Seoul, Korea. Bogwang-dong is a low-rise residential area on a sloped topography that awaits the implementation of a new town development plan on the existing urban fabric. The study highlights the characteristics of PEAM using 3-D modeling and identifies the advantages of using PEAM for the landscape analysis process.

Methods

Environmental data are collected through open-source data sites and GIS. The study analyzes site components such as sun path, shade, slope, and windrose analysis using Rhino and Grasshopper with Ladybug plug-in program. The results are visualized in the form of 3-D images and compared with other output forms of conventional site analyses.

Discussions

PEAM is useful for complex site analysis, because it shows the cumulative results of the analytical elements in a simple 3-D visualization. Although algorithmic methods require higher programmatic skills from its users, PEAM enables designers to explore iterative design process effectively in conjunction with diverse plug-in programs. Although this formulative method is advantageous in terms of 3-D interpretation of site condition, it should not restrict the designer’s creativity.

Scenario visualization in landscape aesthetics of mountain in urban area take Fuzhou as an exam

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Keywords: Fuzhou city； landscape promotion； massif； scenic beauty estimation (SBE)

In order to scientifically and rationally promote the aesthetics of massif in urban areas, it obtained the basic data through a field investigation, and it used a scene visualization technology and adopted a participatory evaluation to acquire the preference of 287 respondents, so as to evaluate different stakeholders' preference of massif landscape development trend in urban areas. The results showed that: 1) The species of spring flowers and autumn magaphanerophytes are more plentiful rich in Fuzhou city and surrounding areas; 2) Almost all respondents believed that transforming the massif in urban areas makes sense, and enjoying scenery and relaxing the mind are an important social function of massif in urban areas; 3) As a whole, through a simulation, the sceneries' evaluation value has been promoted to a different extent, and among them, the landscape of autumn leaves is most stirring, followed by the landscape of spring flowers; 4) Different groups of landscapes have a different preference: the groups classified by age and permanent residence have a more apparent evaluation value difference.

Sectional Thinking: Considering Experience, Sequence and Spatial Development in the Design Process

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Keywords: Representation, Section, Landscape Sequence

Within the academic environment, courses in site analysis, site planning and site design often rely heavily on plan-based graphics to study and reveal context, influences, opportunities, constraints and design solutions. In Sullivan's Drawing the Landscape, the plan "represents the landscape from a single, aerial viewpoint. The landscape plan is a way to view the site from a measured distance, as if you were floating above it. Being able to see the landscape in this manner requires you to "get small" and visualize yourself flying above your design. It is magic and fun." (Sullivan, p. 209). The plan is a key drawing to inform, test and represent design ideas but requires the ability transform the aerial view into the visual, on-the-ground experience. For beginning design students, working in plan can prove challenging to the understanding and conception of landscape experiences, sequences and spatial development. Support drawings, including sketches, perspectives, elevations and sections in combination with three-dimensional studies (analog or digital models) can further comprehension and visualization efforts.

This project presents results of the use of sectional thinking over a two-year period within an undergraduate curriculum. Sectional thinking, prioritizes the use of the section, to focus student understanding of the experience of the landscape, the development of landscape spaces and the consideration of a sequence through the landscape. Sectional thinking was utilized throughout the design process, from inventory and analysis, design development, concept refinement and final presentation. This poster will provide a summary of the visualization approach and highlight examples of sectional thinking within each phase of the design process.

The Application of Visualization of Hydrological and Hydraulic Models based on the Platform of Autodesk Civil 3D

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Keywords: Visualization, Hydrological and Hydraulic Model, Autodesk Civil 3D

Cities in China today is faced with an increasingly serious river ecological crisis accompanying with the development of urbanization: water logging on account of the fragmented urban natural hydrological system; limited ecological function of the hydrological system caused by destruction of water system and waterfront ecological environment. Additionally, the eco-hydrological processes of rivers are affected by various environmental factors, which are more complex in the context of urban environment. Therefore, efficient hydrological monitoring and analysis tools, accurate and visual hydrological and hydraulic models are becoming more important basis for decision-makers and an important way for landscape architects to solve urban hydrological problems, formulating sustainable and forward-looking schemes.

The study mainly introduces the river and flood analysis model based on the platform of Autodesk Civil 3D. Taking the Huanghua River in Anyang City as an example, the 3D models of the landform, river, embankment, shoal, pond, underground stream and other land features were initially built through photogrammetry technology, with which the water transfer simulation analysis, river floodplain analysis and river ecology analysis were carried out, ultimately the real-time visualized simulation and analysis of river sin various hypothetical scenarios were realized. Through the establishment of digital hydrological and hydraulic model, the hydraulic data can be accurately and intuitively simulated, which provides basis for rational water system and benign urban ecological system design. Though, the hydrological and hydraulic model based on Autodesk Civil3D own its boundedness: the interaction between the model and other data and software is unfavorable; the huge amount of 3D data and the lack of basic data restrict the accuracy and application range. The hydrological and hydraulic model based on Autodesk Civil3D platform provides more possibility to access convenient and intelligent tool for urban planning and monitoring, a solid basis for further urban research and design.

The Combination of Virtual Environment and Simulation Based on Virtual reality technology: The Feasibility Study of the BaiCaopo Forestry Park

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Keywords: Digital landscape architecture; Virtual reality technology; Virtual environment; Simulation

Given the prediction of the total amount of forestation grounded, the provision of urban forestry park system becomes increasingly important for the designer and the decision maker in the program. For making sound decisions about the forestry park development, technology of the virtual scene model are thus necessary. In this paper, we show how the 3D GIS-based procedural modeling environment can assist in making the forestry park planning decision. The approach is illustrated in a program in Shanxi Province, Jinzhong city, a city was lack of forestry park in Loess arid region. The approach realized the forest virtual scene model of Baicaopo Forest Park nearby the city, 350 hectares. The Virtual reality technology and data created the virtual environment and implement the natural process simulation for the feasibility study about the BaiCaopo forestry park. Moreover, the simulation forecasted the development of the natural process in the site.

The Amap software package offered the possibility to explore the virtualization forest and achieve the plant form, color and biomass information in the forest with the help of its physical environment simulation system. The park has been completed in 2015 and the data can be collected for the Study to evaluate the effectiveness of the model.

The virtual scene model was established according to the growth time of plants. The 3D-GIS based restoration of forest can clearly show the process of vegetation growth and change of the planning site during the three periods of five, ten and fifteen years, reflect the spatial variation trend of plant community and the prediction of forest land restoration and restoration process.

Attempt to predict the total amount of forest vegetation and the distribution density using the model simulating the restoration process of forest. We show how forest park design scenarios can be generated in a set of indicators describing the provision of forestation. With the approach, the changes of the environment become explicit and easy to adapt to these uncertain.

The Research on Landscape Design Teaching of Thinking Visualization

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Keywords: Landscape Design, Teaching, Thinking Visualization

In the process of landscape design and teaching, by choosing and dealing with related knowledge, information, etc. the traditional landscape design is generally completed, featuring invisible design thinking processes of solutions to problem. as well as uncertain thinking direction. Landscape Design Teaching of Thinking Visualization, however, present clearly “invisible” thinking processes, directions and methods through technical forms like visible mind maps, rule models and process forms by doing so, designer can produce design inspiration and form laws of thinking, thus improving their design and teaching efficiency.

By combining with cases of landscape design, the thesis states and draws a visual thinking process. In the process, the centralized divergent thinking of design is embodied in four levels, point, line, plane and volume. Point is to determined design topics and main points; line is to design thinking routes which present design needs layer by layer and detail the “thinking tree” gradually; plane, something about classifications, mix design goals with elements by analysis of time, space and processes while volume is to form a visual design plans. Based on the above, LIM (landscape Information Modeling) fitting visual thoughts, are auxiliary tools for design thinking. In order to provide references for landscape designs and its teaching in various types and dimensions.

Visual communication of a quantitative landscape performance assessment: Jiading Central Park, Shanghai

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Keywords: Visual communication, landscape performance assessment, Jiading Central Park, Shanghai

This poster summarizes the quantitative findings of a one-year long post occupancy assessment of Jiading central park in Shanghai that was designed by Sasaki Associates and opened to the public in 2013. As a catalyst for the district, the 83-hectare Jiading Central Park is surrounded by civic and mixed use development and is conveniently connected to downtown Shanghai via Line 11 subway. Since its opening, abundant visual evidence shows that the park has not only successfully served much needed outdoor amenities to the broader communities, but all improve the environment quality such as air and water quality etc.

However, in order to measure and evaluate the environmental improvements, quantitative data are critical. This is not only to confirm the successful approaches in the design, but also to identify the missing opportunities and lessons learned so future practice can be improved. Funded by an independent research Grant at Sasaki, the design team collaborated with Urban and Regional Ecological Restoration lab at East China Normal University to conduct the field sampling and a series of analysis. The systematic monthly monitoring aimed to evaluate the ecological design interventions and hypothesis proposed during the design processes. The monitoring metrics include water quality, air quality, vegetation index and microclimate.

This poster uses infographics as a visual communication tool to translate the esoteric research findings to an easily understood format. So, they can reach a broader audience including the general public, stakeholders and the potential clients. Environmental metrics in this poster include Water clarity, BOD (Biological Oxygen Demand), COD (Chemical Oxygen Demand), Total Nitrogen, Total Phosphorus, Chlorophyll A, comparison of vegetation biomass between 2008 and 2014, comparison of Surface Land Temperature in the park between 2008 and 2014.

The summarized scientific outcomes of this research can serve as a benchmark for landscape architects and public awareness about ecological design.

Design Education and Pedagogy

“4321” Teaching Mode in Urban Design Course of Beijing Forestry University

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Keywords: Urban Design, Urban Public Space Planning and Design, Teaching Mode, Optimization

According to 2016 statistical data from National Steering Committee of Urban and Rural Planning Education in China, there are over 200 schools and institutions offering urban design courses, which is one of the core courses in professional urban planning teaching system. Compared with those in architecture & urban planning schools which have long history of setting such courses, the urban design courses opened in landscape schools have become the new growth point. For the integrated foundation of landscape architecture, the urban design courses in landscape schools were bound to explore a set of teaching mode suitable for its own characteristics. By comparing the difference among 8 well-known architecture & planning schools, the urban design curriculums were studied. It is thought that although the teaching contents and focus are quite different, the core content of teaching urban spatial organizational methods and establishing the concepts of healthy urban space development are still the same. The urban design course now has a relatively unified teaching process. On the basis of traditional urban design teaching mode, it is suggested to take the constructivist learning theory as theoretical basis of urban design curriculum, which is thought that situational teaching and cooperative learning approaches were the core teaching methods. In this paper, it is proposed that a “4321” teaching mode optimization was carried out in “Urban Public Space Planning and Design course” for grade three undergraduate students of Beijing Forestry University. Situational learning approach is used for "4" teaching contents and "3" teaching process arrangement. Cooperative learning approach is used for improve "2" and "1" teaching methods. “4” represented that teaching contents was fixed in 4 teaching unit modules. Except for the survey of urban public space that must be taught first, the remaining modules of traffic organization of urban public space, construction of public building & public space, public landscape & urban space construction could be arranged in different teaching order according to different teaching stage and curriculum theme. “3” means 3 teaching stages, which were rational analysis of site and planning, architecture design and landscape design. “2” refers to 2 levels of teaching counseling which means “teacher+ teaching assistant” mode, inviting postgraduate students as teaching assistant. “1” means a drawing comprehensive commentary arranged in the middle of the course. Through such teaching practice, Beijing Forestry University has made great achievement in urban design competition for undergraduate students.

5Di-Lab landscape architecture design methodology in graduate training

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Keywords: Design Education, methods, teaching model

The free access of internet and information provides almost the same educational resources for both teachers and students, thus one could find whatever they want as long as they exactly know what they are searching for. In this context, the traditional way “learn from teachers” (same meaning with Chinese old saying by Hanyu, “transmit doctrine, instruct knowledge, dispel doubts”) can no longer be the case in contemporary graduate education. Instead, teachers “learn with students” and illuminate their ideas through connecting research and design.

This paper presents a model integrating teacher-student participation and the process of study, which is an initiative practiced during the course of Landscape Architecture Core Studio (II) in College of Architecture and Landscape, Peking University. The model, called 5Di-Lab (laboratory of I-Decide-Discover-Define-Discuss-Design for Identity), is an interconnected system to enable research-design process step to step by all participators at multi levels. This model starts with personal making-a-decision, which is highly emphasized in the whole process. It is followed by discovering social and natural problems in the field survey; moves on by defining the questions to fit site characteristics; focuses on multi-levels of group discussions; and contributes to multiple design ideas appropriate for site identity. 5 Di-lab Model is further explained by the course practice.

A Comparative Study of BLA Curriculum System in USA and Implications to the Undergraduate Teaching of Chinese Landscape Architecture Program

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Keywords: BLA curriculum, US landscape architecture programs, implications for Chinese BLA

Since the first program on Landscape Architecture was established at Harvard University in 1900, landscape architecture education in the U.S. has been leading the program and curriculum building in this field across the world, with the Landscape Architecture Accreditation Board (LAAB) and the Landscape Architect Registration Examination system (L.A.R.E.) as the two major pillars for both education and practice. In comparison, China's landscape architecture education system is far from mature, despite a rapid growth in the number of BLA programs in the past 30 years. This study examines the BLA programs in the U.S. with a comparative case study of landscape architecture undergraduate programs at Pennsylvania State University (PSU), University of Illinois (UIUC), and Cornell University. The ultimate goal is to investigate what Chinese BLA programs can learn from their common practices.

First, based on web-based data of 44 undergraduate programs with LAAB accreditation in the U.S. and a consecutive survey on America's best landscape architecture programs conducted by Design Intelligence (2012-2016), this study analyzes the general characteristics of U.S. BLA programs with regard to their geographical distribution, disciplinary affiliation, student-to-instructor ratio, compliance with LAAB accreditation standards, professional ranking, program evaluation, as well as common characteristics in curriculum. Then, PSU, UIUC, and Cornell are selected for a comparative case study due to their different characteristics. The case study is based on documentation analyses and in-depth interviews with the key personnel from each university (e.g., department heads, program directors and/or core faculty members). The case study delineates the experiences of program development and key forces in building and (re)shaping their development. Although a parallel study of Chinese programs is warranted in the next step, the preliminary analyses reveal significant differences between the U.S. and China in BLA education, particularly related to curriculum building and reform, program evaluation, practice of accreditation, international collaboration, and connection with the practitioner world.

This study makes several contributions to both Landscape Architecture education and practice. It is among the very few studies that have systematically examined the Landscape Architecture Education programs with detailed case studies. It directly provides invaluable insights to China’s BLA program building. Beyond that, it also sheds much light on the institutional factors in developing Landscape Architecture education programs in both U.S. and the world. Furthermore, it helps strengthen the connection between academic and landscape architecture design industry, and the synergy between education and practice in this field.

A Study of Core Competencies of Selected Design Firms in USA and Its Implications for Professional Education in Landscape Architecture

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Keywords: Core Competency, Design Education, Professional Practice

A company's core competency is its unique knowledge system and capability that enable the company to keep its competitive advantages for long, can bring to the company economic benefits and profits, and cannot be easily duplicated by its competitors. This paper presents initial findings of case studies on the core competencies of selected successful landscape architectural design companies in United States and discusses their implications for professional education of landscape architecture.

Since the concept of core competency was first introduced by two famous American professors in business management on Harvard Business Review in 1990 (C.K. Prahalad and G. Hamel, 1990), it has drawn broad attention from academics in the field of business management. The concept has been ranked No.1 among the top ten most influential concepts in the field of economics and business management in China in the past ten years. However, most existing literature on core competencies focus on non-design related businesses and companies while publications on core competencies of design firms are limited. Such an important business management concept is not even mentioned in commonly used textbooks of professional practice in landscape architecture. Understanding of what core competency is, how it is formed, and how to develop a firm's core competency becomes extremely important for leaders in professional design practice and business management, as a design firm without core competency will not survive in today's increasing competitive market.

Based on four dimensions of core competence (i.e., skills and knowledge, technical system, management system, and company's culture) and analysis of the basic characteristics of design profession, design products, designers' personality, and design business operation in comparison to non-design companies, this study identifies three major components that form design company's core competency: quality design service, office culture, and client base. Focusing on these three components, a case study on the core competencies of well-known design firms in United States were conducted. The study reveals that while design quality is the foundation of design company's core competency, collective learning ability, management system, office culture, and healthy client base are also the important contributing factors in forming those design firms' core competencies. This study also identifies some topic areas that are important elements of design firm's core competency but are currently not addressed in many landscape architecture curriculums, specially in professional practice course teaching.

Advice and Conceiving for Opening the Course of Planning and Design of Leisure-Agriculture (Forestry) Industry Manor for The Major of Landscape Architecture in Agriculture and Forestry Universities

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Keywords: Course Set-up, Leisure-agriculture (forestry) manor planning and design, Landscape architecture major, Universities of agriculture and forestry

Universities of agriculture and forestry treat specialized subjects of agriculture and forestry as a focus, and the landscape architecture belongs to specialty of agriculture and forestry. Author think, municipal administration garden and real estate garden among China garden green industry will no longer became main type concerned by landscape architecture professional in teaching practice and talent training. On the background that leisure agricultural (forest) industry and village tourism have become new highlights and development boom in economic social development, landscape architecture professional of universities of agriculture and forestry has necessary attempts to bear responsibility for serving the development of leisure agricultural (forest) manor. Leisure agricultural (forest) manor has to be treated as a new type in teaching practice of landscape architecture professional, social needs for talents of planning and design of leisure agricultural (forest) manor have also become a new direction in talents cultivation of landscape architecture professional, therefore, the author recommends landscape architecture major in universities of agricultural and forestry to open "leisure agriculture (forestry) manor planning and design" course to ensure the curriculum is the newest, and to achieve the goal of training related talents for socio-economic development. The article tries to treat landscape architecture professional in Southwest forestry University as a case, analyze its currently target of talent training and the set situation of planning design class courses, point out the difference and contact between "leisure agricultural (forest) manor planning design" course and currently courses, then structure the target, positioning, course hours, content, method and way, etc. of "leisure agricultural (forest) manor planning design" course, to provide fresh thought and useful exploration into the design of an interdisciplinary course, and offer some reference for the courses setting in landscape architecture professional of agriculture and forestry universities.

Analog Experiment and Landscape Education: Bridging Experience and Design

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Keywords: analog media, experience-based learning, grounded speculation

In 1869, Charles William Eliot, the newly-elected President of Harvard University, published an essay called “The New Education,” which began:

What can I do with my boy? I can afford, and am glad, to give him the best training to be had. […] I want to give him a practical education; one that will prepare him, better than I was prepared, to follow my business or any other active calling. The classical schools and the colleges do not offer what I want. Where can I put him? Here is a real need and a very serious problem." (Eliot 1869)

Eliot was then 35 years old and the father of two boys, the older of whom—also named Charles—went on to become an important landscape architect. During the years that followed at Harvard, Eliot radically transformed undergraduate education following a principle of inquiry and research. That meant giving undergraduates an unprecedented degree of agency in shaping their education—for example, through electives and independent work, the development of concentrations or majors, and new pedagogical formats, such as the seminar. Following that model, American colleges began to experiment with “useful” or “relevant” education: for example, replacing Latin and Greek with living languages, or teaching geometry in relation to practical applications. Students were encouraged to ask how and why questions, to draw on personal interests, and to learn from experience.

In recent years, calls for “useful” or “relevant” education have taken on new urgency given the large-scale environmental and cultural problems facing communities worldwide. In the teaching of landscape architecture, digital tools have facilitated access to practical information and the representation of design ideas, but experience-based forms of learning are undervalued. This talk argues for greater incorporation of analog experiment in contemporary design pedagogy. Unlike digital tools, analog experiment helps students think about factors such as materiality, craft, scale, process, and economy in ways that make design more meaningful. It also correlates matter and experience, engaging students with dynamic realities and otherwise unknowable opportunities. Drawing on examples from fifteen years of teaching at the undergraduate and graduate levels, this talk suggests how such encounters are crucial to the development of new landscapes and, therefore, vital to landscape education.

Andragogy for Non-cohort-based Design Education: Lessons from the U.C. Berkeley Extension Certificate Program in Landscape Architecture

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Keywords: Andragogy, continuing education, professional development, pedagogy, online learning, hybrid courses

Adult continuing education and associated andragogy is an alternative, and often overlooked, model for landscape architecture education. Instructors in these programs must consider many of the same variables as online learning communities.

Across disciplines, teachers and academics are experimenting with online teaching platforms (Stephenson 2001). To date, almost all investigations for online learning efficacy and pedagogy extract lessons from traditional program counterparts, such as Stanford University's CS221 course in Artificial Intelligence (Rodriguez, 2016). At the same time, design disciplines, such as architecture, landscape architecture, and planning have been slower to adapt to online and hybrid programs (Herington, 2013). This paper argues that the traditional model of studio education translates poorly to online and hybrid programs due to a reliance on cohort and place-based learning processes. Instead, adult continuing education programs have more directly applicable methods to consider when developing online design courses.

This paper reviews the University California Berkeley Extension's (UCBX) Certificate Program in Landscape Architecture as a case study from an and ragogical perspective. In the context of rising education costs, the Certificate Program is a fraction of the cost of a typical MLA program, accomplished through night and weekend courses. The state of California recognizes accredited certificate programs as equal to MLA and BLA degrees. However, the lack of peer-to-peer interaction fundamentally challenges traditional teaching processes. As a result, Extension instructors must modify teaching techniques in order to prepare students to be competitive in the landscape architecture job market.

This paper follows introduction studios, advanced studios, construction technical courses, computer graphic courses, theory, and professional practice courses through entrance and exit surveys, course evaluations, student interviews, and accreditation feedback. Conclusions include content specific lessons and global methodological strategies.

With job placement rates of 80% and higher in recent years, and with Extension students successfully competing with traditional programs for ASLA awards, this program provides a viable alternative to MLA and BLA programs. As online education becomes increasingly popular, teaching methods must adapt to provide an effective design foundation with methodology that is not dependent on studio culture. Lessons learned from the UCBX Extension can provide a valuable precedent.

Applying Immersive-virtual-environment technology in design studio teaching of sense of scale

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Keywords: Immersive-virtual-environment technology, sense of scale; teaching module

Environment' spatial attributes, such as scale, can significantly influence users' perception and behaviors (Ewing, Handy, Brownson, Clemente, & Winston, 2006; Thwaites, 2001). In studio teaching, we need help students link the subjective spatial perception of a space and the objective spatial attributes of the space, namely, develop an accurate sense of scale. Immersive virtual environment (IVE) technology provides an efficient approach to train students' sense of sale.

Based on IVE technology, we developed a teaching module that allows students to experience indoor and outdoor environments with different scale in virtual environment. The module is developed with C# and students can experience the environment by wearing virtual glass of Oculus Rift CV1. Three parts comprise the module, they are space setting up, space experience, and performance evaluation. In the part of space setting up, three types of environments could be set up, including indoor room, outdoor trail and outdoor square, and main spatial attributes changeable consist of width and length of the space, and height of trees and buildings around the space. A master plan of the space with one-meter grid will appear, then teachers can place objects into the master plan, such as furniture for indoor rooms, and trees and buildings for outdoor trail and square. We provide the same kind objects with different spatial attributes, for instance, trees with height of three, seven and ten meters, and buildings with height of 10, 20 and 30 meters. After setting up the master plan, teachers can choose one or multiple observation points for students to experience the environment. The module could record all these spatial attributes automatically.

In space experience part, by wearing Oculus glass, students can experience the virtual environment as they are in the environment. Students need to report the spatial attributes of the environment, such as the width of the room or the trail, and the height of the trees and buildings around the trail. As they report, a teaching assistant will record their answers in the third part of the module- performance evaluation, which can calculate the score of the students automatically by comparing their answers with the spatial attributes of the environment. IVE technology provides an inspiring way to allow students to explore different environments and learn spatial attributes of these environments. More importantly, students can experience environments and designs that they do not have a chance to visit in reality, such as damaged historical sites.

Assessment and Recommendation of Continuing Education for Landscape Architects

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Keywords: Professional Development Hours, Continuing Education, Professional Development

Currently, 37 states in the US requires registered landscape architects to take specific credit hours in order to maintain their licensure. The main objective of this regulation is "to enhance and expand the skills, knowledge and abilities to practice landscape architects to remain current and render competent professional services to clients and the public" (LACES, 2013). Several factors of pedagogy like course content, structure, etc. are taken into considerations to design an effective continuing education courses. There are, however, important questions yet to be answered in order to fully understand the effectiveness of the education being provided.

We do not know the priorities of practitioners in terms of course contents and the course providers. Do they prefer instructors with university credentials or ASLA or vendors? Does the online course get preference over in-person hands-on lecture or workshop? And most importantly, what are the unmet demands. What are the gaps in preference and the offers available? Although, the primary purpose of implementing continuing education is to ensure that the practicing landscape architects are aware of the primary factors of health, safety and welfare of the public in their work. However, it is important to assure if the practitioners are able to get the intended understanding at the end of the course. If not, then it is an utmost importance to find out the shortcomings and rectify it. Thus, this research aims to understand the larger landscape of continuing education by exploring the questions with people who have been taking the courses and thereby be able to project some recommendations accordingly.
In order to find out the answers, survey questions have been designed and distributed through web links and also face-to-face surveys. The survey consists of the major factor of continuing education which are: course contents, title, hours, cost, delivery method, and course providers. Each of these categories contains multiple questions that explore details of each domain. This study, as helps in answering the aforementioned questions in continuing education for landscape architects, the analysis and understanding are anticipated to provide some recommendation on these aspects of continuing education. Thereby, aiding in the improvement of the profession in larger context. The survey is expected to get accomplished by the end of the month October, 2016.

Bridging Design and Site Grading Principles in Teaching Site Engineering for Emerging Landscape Architects

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Keywords: Bridging; Design, Grading, Site Engineering, Creativity

There is an impression among students that design studio is about design, and the site grading course is about math. When students come to the grading class, they turn off the design side of their brains (Sharky, 2015). Grading, drainage and landscape technology courses can be dreadful to design students, as they involve mathematics and the technical aspects of landscape architecture.

The goal of this paper is to explore a new and more effective way to bridge landscape design and site grading principles in teaching site engineering for emerging landscape architects and allied design professionals. The logic behind this study is that site engineering is also design. Grading and site design are two highly related and inter-dependent processes. To achieve an appropriate as well as a successful final product, both must be integrated in a holistic manner at the outset of the project (Strom et al., 2013).

A majority of design students are visual learners (Sharky, 2015). Instead of an engineering approach with merely left-brain thinking, the new approach attempts to increase the right-brain learning activities by integrating visual and creative aspects to allow students to better understand site engineering principles and help them to utilize what they have learned in design studio when solving grading and drainage problems. Project examples and course materials are provided to illustrate the teaching method in advocating STEAM rather than STEM curriculum development. With design in mind, curricula are organized to provide students with progressive learning by embracing creativity in the following aspects:

• Introducing landscape technology concepts in a creative way with ample visual explanations;
• Studying unique built landforms designed by renowned landscape architects or land artists;
• Promoting creativity in topographic learning and landform explorations through model-making;
• Organizing field trips and site visits for students to gain firsthand experiences;
• Integrating design problem solving into site grading and drainage in-class exercises and homework assignments;
• Preparing final grading and drainage projects with integrated site design components.

Although further study is still needed to quantify the outcomes, this study provides helpful information in moving the dialog forward in regards to teaching site engineering, a subject continues to be further emphasized with the increase in landscape performance learning.

Building an Understanding How Design Studios Promote Cognitive Development and Creativity

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Keywords: education, cognitive development, creativity, studio instruction

The design studio is a very special forum for education. It is a place for one to one interaction between the instructor and the student. It is the place where problem-based instruction forces students to deal with ambiguity and commitment. Today design education around the world includes design studios that often employ problem-based instruction.

Another reality is that studio instructors often teach the way they were taught. Design instructors are usually experts in their field of design but may have very limited knowledge of learning theory and cognitive development.

This study employed a grounded theory research methodology. The goal of this qualitative research method is to build theory from qualitative data that is collected and analyzed systematically. For this study, the qualitative data came from open-ended questions presented to fifty alumni from a variety of design programs. The prompt for the questions was the following: “Please think of a specific time in studio where you had a realization/understanding that you feel significantly helped your development as a designer …”. The questions that followed related to the specific circumstances that led to the realization or understanding.

The data was then subjected to a systematic content analysis to identify common themes and trends. The results were organized under the schema presented in William Perry’s ground-breaking work “Cognitive Development in the College Years”. The participants selected for this study were nominated by design instructors who were asked to identify past students who they felt expressed significant development in their creativity and cognitive ability during their studies.

The analysis revealed that critical interactions related more to questions asked by instructors rather than information provided. In addition, often “extra” activities had a significant impact on changes in perception. The overall goal of this study was to lay a foundation for future research by beginning to identify and define the nature of studio interactions that contribute most to cognitive and creative development.

Building Sponge City in China: Examples of Landscape Architecture Curriculum on Storm Water Management in the United States

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Keywords: Low Impact Development, storm water management, education, Landscape Architectural Accreditation Board (LAAB)

As cities grow, land cover is changed extensively from pervious grasslands, agricultural lands, wetlands and forests to impervious pavements and rooftops, resulting in dramatic hydrological changes such as reduced infiltration and high flooding frequencies. These changes are occurring in many places in the world, certainly including China and the United States. Urban storm water is managed differently between China and the U.S. Briefly, China's storm water management still focuses primarily on drainage, while the U.S. has advanced to include quantity and quality controls. Starting in the early 1990s, the U.S. Environmental Protection Agency began to advocate the Low Impact Development (LID) techniques for developments.

China has been growing at an incredible speed, causing increasing frequency and magnitude of flooding events. To address this serious national challenge, China's Ministry of Housing and Urban Rural Development (2014) advocated building Sponge Cities to promote natural storm water storage, filtration, percolation, and purification. As a discipline plans and designs land uses and a dominant component in sustainable development, landscape architecture plays a pivotal role in building Sponge Cities. However, an inquiry among Chinese Master of Landscape Architecture students and visiting scholars who were studying or conducting research in the U.S. showed many landscape architecture programs in Chinese universities did not offer systematical storm water management and LID technique training. The purpose of this presentation was to study the implementation of storm water management training in landscape architecture education in the U.S. and discuss how the U.S. experience could contribute to building Sponge Cities in China.

This research was conducted in three steps. First, we studied accreditation guidelines of landscape architecture programs in the U.S. (LAAB, 2016). Second, we reviewed the curricula of accredited landscape architecture programs in the U.S. in terms of storm water management courses. Lastly, we illustrated landscape construction courses at Texas A&M University and Texas Tech University as an example and made recommendations on how to advance storm water management education in China.

The result showed storm water management/LID knowledge and skills in the U.S. landscape architecture programs were tightly related to building Sponge Cities and achieving its goal of promoting natural storm water storage, filtration, percolation, and purification. The most relevant topics included grading, earthwork, cut and fill, rainfall runoff estimation, erosion and sedimentation control, storm water best management practice, and LID. We recommended adding these topics to the BLA and MLA curricula in Chinese universities to train the next generation of landscape architects and contribute toward building Sponge Cities.

Comparison and Enlightenment of the ASLA Student Award to the Landscape Architecture Students Competition in China

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Keywords: landscape architecture, the United States, China, student competition, mechanism, statistical analysis

With the development of Chinese landscape architecture industry, the competition for students of landscape architecture is on the increase. The competition can cover the shortage of teaching, cultivate the student to be more creative and better at solving the complicated problem. Most of Chinese colleges and universities attach great importance to student competition. For the competition organizers, it's important to think about how to perfect the competition mechanism and promote discipline development. So, the author presents the recent situation of Landscape Architecture Students Competition in China, makes a comparative statistical analysis of American Society of Landscape Architects (ASLA) Student Award and Chinese Society of landscape Architecture (CHSLA) students design competition, including prize setting, assessment mechanism, types and quantity of prize works, design theme, origin institutions, source country, entry form, education background of winners, etc.

The findings show that ASLA student award sets awards according to the category, to guide students to focus on various fields of industry, and assessment criteria are open and clear, while CHSLA students design competition sets awards according to topics, to guide students to think about the leading-edge field of discipline and industry, the details of the assessment criteria is not clear enough, but the latter competition is more fair to be grouped to undergraduate and graduate students. The enlightenment from ASLA student award for the Chinese student competition in LA are as follows. Firstly, the concept of category award may be applied to the graduation design competition, secondly, clear CHSLA competition assessment criteria to guide students' values, thirdly, the awards jury should supplement the professionals from private and public practice, lastly, strengthen the network show and communication after the competition.

Comparison of Sino-Canadian Teaching Strategies: Impression and Experience at Dalhousie University

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Keywords: Pedagogy, Landscape Architecture Program, Sino-Canadian, Comparison, Hands-on Activities

Joint academic programs have been run by Dalhousie University (DAL) and Fujian Agriculture and Forestry University (FAFU) in the past decade. Approximately 90% of Chinese students in joint academic programs currently studying at DAL have taken considerable challenges in adapting to the differences in teaching and learning strategies for they were derived from different culture, Chinese from Confucius and Canadian from Socrates. This could be considered as the reason why a comparison of teaching strategies was necessary. The purpose of this study was to study and compare the teaching strategies between FAFU in China and DAL in Canada in their respective Landscape Architecture Programs. A sample of 30 undergraduate students who are attending DAL from China were invited to participate in semi-structured interviews and some brainstorming sessions at DAL were conducted. A Questionnaire of students' attitude on teaching strategies was issued and it was shown that there were five major differences in teaching strategies between these two Universities: 1) use of textbooks and selection of content; 2) proportion of hands-on activities; 3) variety of classroom strategies; 4) involvement of audio visual aids and use of internet; and 5) training of critical thinking. It was informed that hands-on activities and student collaboration remained two of the top differences between the two universities. By comparing the teaching strategies at these two universities, improvements can be made so that it will be beneficial for the Landscape Architecture undergraduate programs in both countries and the comparison would also have implications for North American instructors who are responsible for Chinese students and/or who are teaching in China.

Design Process Beyond Concept: Empowerment through Implementation

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Keywords: Design Thinking, Design Process, Collaboration, Exhibition, Leadership

The Pennsylvania Horticultural Society (PHS) stages an annual flower show dating back to 1829. Taking place in March each year, the show attracts approximately 250,000 visitors over the course of 10 days. The proceeds benefit urban greening programs throughout the city of Philadelphia. Invitations to participate are issued by PHS each spring, and include a $10,000 grant. The University of Delaware has been invited to participate in the Education Category since 2011. Past themes include water quality, in an exhibit titled "Who's Downstream?" and rain forest preservation, in an exhibit "Forest to 'Pharmacy'." Professors in University of Delaware's landscape architecture program coordinate various studios to enable exhibit design, documentation, and implementation. The design process begins in the spring with a multi-disciplinary studio that focuses on developing design thinking. The course seeks to enhance students' capacity to work collaboratively in diverse teams, iterate, and utilize user-centered methods to generate a design that is impactful and educational. This year, professors decided to increase the emphasis on execution through the addition of a design-build studio to the curriculum. The objectives are to enhance students' visualization and implementation of an idea through investigation of craft, scale, model-building and appropriate construction techniques. The presentation, "Design Process Beyond Concept: Empowerment through Implementation," focuses on the pedagogy of studio-based education; specifically, the theory of design process and the practice of hands-on implementation of an idea. The intersection of theory and application creates the space to empower students to explore leadership roles and make confident design decisions within in a fast-paced environment.

Developing a Standard for Curricular Evaluation in Landscape Architectural Education

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Keywords: Outcomes and assessment, design education, body of knowledge, curriculum measurement

The landscape architecture program at Purdue University has used the original landscape architecture body of knowledge (LABOK) as a curricular assessment tool to measure success of content delivery to students but has seen gaps or over-generalities in the existing data points. The LABOK has not been updated to reflect current issues, trends, and technologies in practice and is at risk of becoming obsolete in regards to the knowledge and skill base of current and future graduates.

Previous research (Barbarash, 2016) have used the existing LABOK to determine the value of extracurricular educational venues, namely Purdue University landscape architecture's 40-week managed cooperative internship program. Both student and professional mentor respondents found certain question areas too broad to illustrate the successes (or failures) in the nuances of professional performance and project realities.

This paper proposes a more granular data set for use in evaluating the strengths and weaknesses of academic programs for use in in-program outcome and assessment measures and for SER accreditation reporting. These proposed additions mainly focus on areas involved with Storm water & related issues, Ecology & Systems (human, animal, vegetative, energy, symbiotic, etc.), Planting design, and Performance Based Design. Results of a faculty survey demonstrating how the data can be used for curricular planning on both an individual class and holistic program scale are presented as a case study, with previous years of student data from preliminary studies informing calls for curricular change. With the understanding that the original LABOK was purposefully kept brief to avoid survey exhaustion and increase the response rate, an adaptation purely for curricular review is vital to understanding the specific strengths and weaknesses of design curricula in order to prepare students for post-graduation success.

Drawing Chaos: Living Experiments for the Design Studio

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Keywords: Design, Experimentation, Complexity, Curiosity, Resilience

By their second year, students of landscape architecture know that dynamic change is natural, constant, and that understanding change in the context of the built environment is a key mandate of theirs as inheritors of the design disciplines. While they easily recognize that change is happening all around, they often struggle to understand how - and more importantly why - such dramatic change materializes in the environment. And so, in order to better understand the complex nature of accruing and perpetually "self-modifying" landscapes, it can be useful to simplify and simulate the generation of certain patterns and processes into controlled constituent parts.

It is with that organized and reductive approach to learning in mind that students in my studios experiment with dynamic change through a series of non-representational studies. First, they are given ingredients: flour, salt, water, oil and yeast as media for an experiment. Then they create a series of replicable dough assemblages. They produce static containers for the dough based on formal parameters, then they observe - over the course of an afternoon - as the yeast devours complex sugars and forms organic volumes within the space they provide. Then in visual reproductions at a finer scale, they study and formally diagram stages of the newly created assemblage as it grows. Bubbling gases and soft inflated forms are produced at first; the dough becomes massive and it eventually swallows the now clearly too-small, monofunctional and static container they made for it. Eventually the form deflates and is reduced and hardened into a distinct structure.

Next, to extend the duration of the living experiment, the students are given alfalfa seeds to germinate. They create a transparent hydroponic terrarium for the sprouts to establish, and over the next two weeks, they observe and document the growth patterns in section, taking care to diagram root morphologies and spatial distribution. When their sprouts have developed, and are thriving, they introduce an ecological disturbance of their choice. Students initiate a process of dynamic change through a simulation of their selected disturbance. Flooding, extreme heat, cold, wind, drought, acute pollution or herbicides, etc., occur at a simulated scale within their terrarium. During the disturbance, they are able to trace the material and temporal effects through a time-based graphic analysis. Following the abrupt introduction of the disturbance, they are able to observe either a partial rebound of the resilient plant-life, or an irreversible degradation of conditions needed to support life. In both cases, transformational learning is evident.

This paper will evidence that students gain a conceptual appreciation for anticipation as a critical design tool through these two exercises. Taken together with other formal experimentation and foundational composition work, it will be argued based on several clear observations that students are better able to address issues of environmental adaptation, design intention vs. reality, material limitations and unintended consequences when living media and tangible dynamic forces are present in the design studio.

Engaging Complexity in the Design Studio

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Keywords: complexity, systems, technology

Engaging complexity is a defining trait of landscape architecture. Landscape projects contend with the complexity of social and environmental injustice, contaminated sites, fractured ecosystems, and policies and patterns of development that perpetuate issues in both scope and scale. While these challenges tend to be the outcome of complicated institutional practices, they have nevertheless created a complex set of outcomes—outcomes that are encountered as the new normal in most design commissions. At the same time, landscape architects find inspiration and leverage for innovation when investigating the complexity of these same landscapes.

As landscape architects confront the complex, and will increasingly continue to do so, design educators should equip students—in an explicit and unambiguous way—with a theoretical framework for actively engaging complexity. Educators should clearly distinguish complicated problems—problems addressed through formulaic decision-making—from complex problems—problems that require leveraging the unique relationships and emergent properties of each project. While most studio projects address the complexity inherent in every landscape in some way, students are often unequipped to recognize the differences in approach when acting on the complicated versus the complex.

To illustrate this difference, this paper borrows a set of analogies from a classic report in healthcare (1). The report's authors classify problems along a continuum from 'simple' to 'complicated' to 'complex'. They give the example of following a recipe as a simple problem, launching a rocket as a complicated problem, and raising a child as a complex problem. The key variable between each type of problem is the degree of certainty of the outcome. Good recipes ensure success and institutionalized knowledge supports a high degree of certainty that subsequent rocket launches will be effective. But recipes and formulae have limited application in raising children—raising one child provides valuable experience but due to the individuality of each child it does not presuppose success. In complex problems, such as raising a child, there is always uncertainty of the outcome, however this does not lead us to the conclusion that raising children is impossible. The problems, and possibilities, of landscape architecture are most like the analogy of raising a child, though students often take a rocket-launch approach to studio projects.

This paper will focus on the role of craft and technology in making available the unique possibilities presented by complex landscapes. These tools have been explored in a first-year graduate level studio project that builds methodologies for both crafting and engaging complexity. In an iterative analog-to-digital-to-analog sequence, students explore physical model building, photogrammetric scanning, digital exaggeration, and digital fabrication to craft complex forms. Ultimately, students appropriate the abstract forms created in the analog-digital sequence as a full-scale landscape project.

Exploration from Students' Design Competition to Practice Process

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In recent years, more and more Chinese students participate in various Landscape Architecture Design Competitions international or domestic）. Some of the competitions are only for students, others are organized for different groups including students' groups. In some domestic colleges and universities, students are encouraged to participate in the competitions as a way to cultivate their learning enthusiasm, improve innovative and logical thinking ability and team cooperation ability, strengthen their design expression skills, etc. While some scholars hold the view that competition training will lead students into fantasy thinking or even utopian dreams which are not conductive to project practice.
The research is mainly on two types of students' design competition. One is held and regularly organized by authoritative organizations, such as IFLA, IFLA-APR, ASLA (student design), JILA-CHSLA-KILA, CHSLA, which focus on theoretical innovation and demand on smart ideas dealing with the existing issues. The other is temporarily held or dominated by mega-events, such as the landscape architect garden of Garden Festival and Garden Expo, which are more practical and demand on optimal proposal.

Questionnaire survey and tracking survey are used on the previous winners—students (majoring in Landscape Architecture) and landscape architects (ever award-winning designers)—for their competition experiences and practices. Studies of the award-winning works in international and domestic students' competitions from 1990 to 2016 focus on their theme response, concept generation, design strategies and expression methods which can reveal the relevant impacts on their design careers. Comparative investigation is carried out on graduated students who have competition experiences and the others who don't for their employment situation and career development.

The results of the comprehensive analysis show that:
1. Participants always try to learn new ways of design skills and expression methods, which help them achieve successes in their careers;
2. Participants have a plenty of ideas to search for balance between sensibility and rationality, which let them make their logical abilities improved and get a more open vision for the future project practice.
3. Having experiences with two types of the competition has a more positive effect on project practice、professional achievement and future career.
Advices and suggestions are put forward for the current competition models and education system, that is how to provide a positive theoretical significance and application values for domestic landscape architecture education development.

Identifying and Creating Collaboration Opportunities with Diverse Departments Within a University and the Community Strengthens Landscape Architecture Pedagogy

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Keywords: Landscape Architecture, Design Education, Pedagogy, Collaboration, Design Thinking, Learning

Society stresses the importance of diversity for healthy communities. Landscape architecture programs are no exception and can benefit from diversity by creating learning partnerships outside of their departments by collaborating and sharing resources. Joining classes for an entire semester or for one exercise in the curriculum can heighten the learning experience for both parties. This collaboration style of learning provides perspectives from diverse stakeholders and it is these differences that strengthens learning opportunities. In this session, the instructor shares their experience of collaborating and mixing undergraduate classrooms with entomology courses, history courses and video production courses. By bringing their design thinking skills to a landscape architecture project, a collaboration provides an opportunity for them to see how their design training can solve issues with a different approach than their science-based colleagues. Not only do these types of collaborations help to develop the students' design skills, but they also get practice relating their skills to different audiences. Many opportunities are available on university campuses, this session explains how diverse opportunities were created and how partnerships were formed to reinforce learning opportunities.

Integration of Landscape Performance into Site Engineering curriculum

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Keywords: Landscape Performance, Site Engineering

The breadth and depth of the profession of Landscape Architecture merits a comprehensive professional curriculum. With time, intensive studio sequences and a myriad of supporting topics to introduce to students, typical landscape architecture curricula are tight. This challenge is expounded as pressures influence programs to consider changing from five years to four years, while most first professional graduate programs are already compressed to three years. Pedagogical goals and objectives need to be refined and synergies explored to continue to meet the core knowledge, skills, and applications of landscape architecture.

As a recent addition to LAAB, Landscape Performance joins the list of topics under "Assessment and Evaluation" in the Professional Curriculum section of the 2016 Accreditation Standards, making it necessary to address how professional programs are including this important topic in their already tight curriculum.

Through the Landscape Architecture Foundation's Landscape Performance Education Grant, there are resources to aid in the incorporation of landscape performance into specific studios, seminars, and special topics courses, but this paper seeks to explore the opportunities and constraints of integrating landscape performance into a core Site Engineering course while enhancing the learning experience in this technically challenging fundamental course.

The format and objectives of Site Engineering at the University of Arizona were modified to include Technical Communication, Design Decisions and Performance, and Comprehension and Skills with a focus of developing an understanding of design decision implications related to the four elements of Earth, Water, Fire, and Air with the means to measure and evaluate landscape performance in each. Classroom and field exercises introduced students to various grading challenges, and class discussions were centered around trade-offs and synergies for social and environmental welfare related to: (1) Human safety, comfort, and universal accessibility, (2) Surface water management, (3) Aesthetic and spatial perception, (4) Environmental health and stewardship. Understanding was tested through a comprehensive final project that required evidence-based design by measuring anticipated performance. The success of the course was measured through use of student surveys, interview with the teaching assistant, use of an assessment rubric and an instructor reflection. Findings indicate that Site Engineering is a good fit for introducing landscape performance as required by LAAB Accreditation Standards. While challenges with time and progress in fulfilling other course, objectives posed a challenge of prioritization, student understanding and awareness of measurable social and environmental aspects of the landscape helped enhance comprehension and meaning of typical site engineering course material.

Landscape Architecture in The Ag-Ed Classroom: Cultivating the Next Generation of Designers

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Keywords: Landscape architecture, Ag-Ed, Agricultural education, Landscaping, FFA, Agriculture

Landscape architecture education in schools have been focused primarily on elementary and secondary Common Core courses. In many states, career-oriented programs such as agricultural education serve as a platform to teach necessary skills to be successful in all aspects of the agricultural industry. With the shift in lifestyles and technology, agricultural education (Ag-Ed) today has branched out from the traditional farm management courses to food science, natural resources, and landscaping design as well as many others. At schools like Lennox High School in Lennox, South Dakota, students learn plant identification, fundamentals of landscape design, and design graphics. How comprehensive are students' awareness of the landscape architecture profession before, during, and after taking a landscaping course? What are the possibilities of reinforcing foundational skills learned in the landscaping coursework through an outdoor learning environment similar to practical application of other vocational-type courses? How could students be presented a snapshot of the landscape architecture profession that connects the current and future curriculum taught in the Ag-Ed classroom?

In order to better understand the landscape architectural aspects of current Ag-Ed, a mixed methods approach was used. First, national, state, and local Ag-Ed curricula standards were reviewed to track how Ag-Ed courses and priorities have changed over time. Next, Ag-Ed students were surveyed before, during, and after taking the Landscaping and Horticultural course offered at Lennox High School to assess potential changes in awareness. Lastly, students currently taking the landscaping course participated in a three-day workshop where they developed ideas for their outdoor learning environment to support current and future Ag-Ed courses and landscape architecture. After the workshop, these students took a post-survey to evaluate ideas produced in the workshop, the future implementation of the workshop, and their level of awareness of the landscape architecture profession.
Results from the surveys and workshop show a refinement and increase in landscape architecture awareness, a desire for more hands-on learning conducted outside, and an enthusiasm for using their creativity to design a project for future Ag-Ed students. In subsequent years, future iterations of the workshop will advance planning and design proposals toward implementation.

Landscape as Infrastructure: Bridging Between Design Projection and Design Performance

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Keywords: Green Infrastructure, Landscape Performance, Interdisciplinary Design Pedagogy, Design Competition, Landscape Infrastructure, Illinois

The purpose of the study is to develop a design studio pedagogy that bridges between design projection and design performance on the topic of hydrological landscape infrastructure, through interdisciplinary collaboration. Historically, the field of landscape architecture has expanded its disciplinary boundary through related disciplines. Contemporary theoretical frameworks and design thinking, derived from the field of ecology, are reframing landscape as a productive medium, capable of synthesizing conflicting systems and metabolizing exchanges between urban and ecological systems (1), to produce a range of social, ecological and economic services. Students of landscape architecture are trained to synthesize the complexity of interrelated systems that make up landscapes of the 21st century, and project imaginative ecological ideas through design drawings (2). Yet seldom do these ideas, rooted in notions of utility and performance, generate metrics of performance through design experimentation. The U.S. Environmental Protection Agency's "Campus Rain Works Challenge" (3), an interdisciplinary student design competition on innovative green infrastructure for campus landscapes, served as a method for this study on bridging design projection with design performance. The intent of the design competition was to foster interdisciplinary collaboration between students, their faculty advisor(s), and a campus facilities advisor(s) to produce innovative designs for green storm water infrastructure on campus landscapes. The design competition was conducted at the University of Illinois at Champaign-Urbana in the fall semester of 2014. The design team was composed of a majority of students in landscape architecture, with representatives from civil engineering and agricultural economics. Through the process of systemic analysis, the hypothesis emerged that a network of bio-retention plantings at the scale of the campus landscape, hybridized with existing subsurface drainage infrastructure would reduce runoff volume and velocity to a channelized urban creek, thus offering a design opportunity to transform the morphology of the creek to support living systems. Students of civil engineering proceeded to test this hypothesis through hydrological modelling of a sub-watershed of the creek, as a design experiment. Results of the hydrological modelling supported the hypothesis with metrics of design performance, producing new knowledge that the design would work best for 2-year design storm events. The study is important in that it simulates professional practice experience in the design studio by bridging between disciplines through collaboration, strengthens the theory of landscape as infrastructure through the application of a design experiment generating metrics of performance, and expands the knowledge base of landscape architecture into the field of civil engineering.

Landscape Professional Education Research on Chinese Agricultural Universities

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Keywords: Landscape architecture specialty, education

This essay clears up the task of landscape architecture specialty undergraduate education. Through the strengths and weakness analysis of the agricultural universities' landscape architecture specialty, it is proposed that the professional basic training should be focus on the first semester, and the main design course should be set through the whole period of students' college life. It emphasizes the necessity of providing an independent classroom for landscape students and advocates the departments recruit students by themselves. In recent years, China's agricultural colleges and universities generally added landscape architecture specialty. In China, there are different Chinese names for the specialty, like Gardening, Landscape or Outdoor Environmental Art, but they all correspond to the international standard terminology-- Landscape Architecture. In March 2011, the Ministry of Education of China classified Landscape Architecture as a first-class discipline, and pointed out that it is a profession which can comprehensively utilize science and art means to create a better human outdoor living environment. Based on biology and ecology, it is an integrated discipline combining with other non-biological disciplines (e.g. civil engineering, architecture, urban planning), philosophy, history and literature. Biology is the study of living systems at all levels of the type, structure, function, behavior, development and origin of biological evolution and the relationships between the organism and the surrounding environment. And ecology do research on the relationships between organisms and their environment (including the abiotic environment and biological environment). The author suggests that the essence of landscape architecture should be defined as outdoor space design, belonging to design classes rather than biological disciplines (including ecology). It is an active process delivers the landscape design, plan, and imagination by visual forms, considering the methods and results of architecture, urban planning theory, botany, ecology and aesthetics.

Making a Case for Including Community Engagement in the Curriculum

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Keywords: community engagement, curriculum design, learning assessment

Landscape architecture degree programs are under increasing pressures to describe and demonstrate the effectiveness of their teaching and learning activities. Challenged by their disciplinary and university accreditation bodies to demonstrate student learning across multiple goals and objectives, faculty are challenged to map their program and curriculum mission and objectives to authentic student learning. Programs have responded to increasingly pragmatic learning expectations reactively and proactively. Reactive responses have included justifying current course content and teaching practices, or narrowing these to more directly reveal and measure particular learning objectives. Proactive responses have involved expanding pedagogies to incorporate externally described student learning objectives as well as those unique to each degree program. This case study explores proactive uses of integrated approaches of community engagement across the curriculum to develop and embed student learning in the core knowledge, skills and applications of landscape architecture (LAAB Standard 3: Professional Curriculum) as well as those expected of a comprehensive university education (as defined by regional university accrediting bodies such as the Southern Association of Colleges and Schools).

Faculty from three programs that have included community-based projects into their undergraduate coursework were surveyed to track their degree program's curricula and pedagogy with a particular emphasis on how community engagement is used within the curriculum. Students were surveyed to query their sense of learning relative to their course's stated objectives as well as other less tangible educational benefits of their participation in community engagement projects. The case study analysis reveals real and potential impacts of incorporating community engagement within the curriculum across a spectrum of offerings, from single – one and done – activities, to an integrated curricula approach that builds from one activity to another. The learning assessments suggest that students working with external community members at various points within their program's curriculum reinforces – and sometimes introduces learning in particular core knowledge, skills and applications of landscape architecture as well as such less tangible learning related to social and cultural sensitivity, critical thinking, and working with others.

Mapping and Diagram- A Method in The Social Aspects of Landscape Design

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Keywords: Mapping, Diagram, Social survey, Social aspect of landscape design, landscape education

The education of landscape architecture in China is at a much earlier stage of development; the traditional Chinese garden design and teaching have not paid enough attention to sociology and social survey methods. The sociological courses in the education of landscape design have primarily aimed at introducing sociological theories. Although many scholars and designers have called for more attention to human behaviors and needs in the preliminary studies in landscape design program, these studies remain qualitative rather than quantitative because of the limitation of previous survey methods in landscape design. To solve this problem, this article introduces a mapping and diagram survey method into the landscape design and teaching.

In this article, I first elaborate the origin, advantage, and application of this method in the landscape design and teaching. The mapping and diagram survey method originates from environment and behavior research. Through observing and recording human behaviors on sites, this method can visually describe the track of human behaviors on sites and help users to find out underlying patterns of the track. By doing so the method facilitates effective and pertinent landscape design. Second, I use 3 case studies to explicate how to use this method to train students to observe human behaviors on sites, collect comprehensive data, and conduct quantitative analysis. In addition, I also describe how to use the method to conduct a survey and develop a design strategy based on the survey results. Finally, I discuss the difficulties and issues to note in the use of the method.

This article contributes to the literature of landscape design research and teaching by introducing a new mapping and diagram survey method. This method can increase the accuracy and relevance of survey data in the landscape planning and design; it can also enhance designers' understanding of the landscape elements. Moreover, this method can increase the effectiveness of collecting data and reduce over-design and non-pertinent design problems in the landscape design program. More importantly, this method can solve the problem in teaching that students often ignore the human behaviors and needs in their design project.

Meta, Meta: Curating Design Duluth

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Keywords: Curatorial approach, critical thinking, design process

'Information overload', first used by Alvin Toffler in the 1970 publication Future Shock, is a now commonly used phrase that refers to the surfeit of virtual and real "stuff" that flows through our daily lives. With the advent of the internet, production costs have dropped and modes of distribution (now also cheaper), and the number of producers, have multiplied. The task/responsibility of filtering or "curating" has moved to other parties, including the user/consumer. We now collect, re-source, and re-mix concepts, ideas, frameworks, and details from many sources. These virtual and material bits of data are often collected unconsciously and obsessively, are poorly documented and rarely cited. For all its problems, remix culture mimics, through the act of critical re-appropriation, historical modes of creation and production in design and the arts.

With this consideration, this talk will explore the pedagogic initiative of a single project, 'Meta, Meta' within an interdisciplinary (M. Arch and MLA) design studio entitled "Design Duluth". The greater project of the studio was initiated in part as a response to catastrophic flooding in the city of Duluth, Minnesota in June of 2012 and is rooted in developing, critical and creative topical responses to issues of resiliency and failure in and across architectural, ecological and urban systems. The studio operates on the premise that a sustainable and resilient future lies in identifying atomized and un-made connections and linking them in a robust, constructive, creative and interdisciplinary network and system. Within the context of this studio, the project of "Meta, Meta" situates the greater studio project by introducing the students to the city of Duluth through the work of previous studio projects and asking students to determine the links and gaps between data, material, facts, design concepts, and final design proposals from those projects. Through this inquiry and the subsequent translation of the curated archives into a series of data visualizations, the students familiarize themselves more subjectively to sets of data, site issues, and past design approaches, and begin to think more critically about the design approach taken by former students and the archival methods of the projects. Being both critical and curatorial of the design process, 'Meta, Meta' pedagogically reaches beyond the call of the issued assignment and has shown to help students reflect on the influences of 'the archive' on design communication and ultimately develop a more critical eye for their own designs and design processes.

Multidiscipline Scenario as A Teaching Methodology In Landscape Architecture Studio

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Keywords: Landscape architecture design studio, Multidiscipline scenario, Pedagogy

Design studio courses are the most important part of Landscape architecture education. It has a long history of exploring the interdisciplinary approach which can be traced back to Bauhaus. Nowadays, there is a common acknowledgement that the complexity of environmental issues requires knowledge from many different disciplinary fields and therefore landscape architects almost always work as part of a multi-disciplinary team. Accordingly, the exploration of design studio should be carried on from a multi-disciplinary perspective. But in China similar studies are still rare. This paper presents the education research conducted in Southwest Jiaotong University in master degree students. A teaching methodology of landscape architecture design studio is introduced with description of the course characteristics and content which includes a set of learning activities with multidiscipline scenario. Landscape architecture, architecture and urban planning are the important parts of science of human settlement, and a transdisciplinary teaching and design team was organized including professors and students from all this three disciplinary fields to approach goal of the course. And design critiquing from a multi-disciplinary perspective is also a part of this pedagogy.

With the method of questionnaire and interview, the feedback was collected. The test studio shows the students can get better understanding of other highly related disciplines and cultivate the design and communication skill in transdisciplinary environment. The research also shows that special instruction of efficient communication among different disciplines and a revised design process are important for the studio with multidiscipline scenario.

Neural Correlates of Design Thinking and Designers' Learning Styles: An Fmri Study

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Keywords: design thinking, learning experience, functional magnetic resonance imaging (fMRI)

"Design thinking'' is generally defined as an analytic and creative process which engages a person to experiment, create and prototype models, gather feedback and redesign (Rim Razzouk, 2012).

Existing research commonly recognizes that the prefrontal cortex represents the neural basis of high order cognitive functions, and is involved in complex planning and problem-solving (Alexiou et al., 2009), but the design thinking process of brain is still unknown. Individual design behavior is an expression of individualized thinking mode. Personal learning behavior and thinking mode in design are influenced by ''learning style'', which is a method that helps individual to observe the environment, think, judge and form values (Zull,2004; Kolb & Kolb, 2005; Demirbas & Demirkan, 2007). Understanding the relationship and role played by different brain regions during design help us make more informed decisions about teaching design and creative problem-solving abilities in schools.

Therefore, the purpose of this study is to depict which parts of the brain regions are related to design thinking when participants use different learning styles. First, we adopt Kolb's Learning Style Inventory to divide designers into 4 kinds of learning style: Assimilating, Diverging, Converging, and Accommodating, then using functional magnetic resonance imaging (fMRI) to scan designers' brain activities. Finally, we compare the brain activities of thinking process of 4 kinds of learning styles.

Nurturing Landscape Architecture Students Ethnographical Perspectives via Somatic and Semantic Experiences

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Keywords: Ethnography, somatic, semantic, landscape architecture, pedagogy

Ethnography provides systematic approaches and perspectives of people behavior and culture process, which is typically remiss in design education literature in China, particularly in landscape architecture. This situation may result in decision-maker centered pattern, over-simplified definition of actually diversified users, ignorance of designer's mental state, as well as segregation of sub-cultures and relevant places. Such potential consequences may emerge since the centrally planned economic and social system has been gradually changed since the 1980s in China.

With diversified user needs being more presented, more teaching innovations of landscape architecture are launched to response to more complicated issues during the globalization. The purpose of this study is to pilot ethnographical approach for design teaching at the undergraduate level in the existent landscape architecture pedagogy framework in China.

The authors describe preliminary attempts of design pedagogy pertinent to ethnography, conducting on about 200 landscape architecture undergraduates in Nanjing Forestry University of China. The experiments are conducted in courses of theory, studio and fieldwork across four semesters aiming to nurture ethnographical perspectives and approaches. Given the prevenient drawing-based and creating-oriented training, the students were not expected to have developed their professional skills from body and language experience that actually are the main perceptive source of daily life though. In the courses, the authors highlight three dimensions, place-people investigation, design state adaption, recalling and emotional narrative of physical environment, all emphasizing acquisition through somatic and semantic experiences. Feedbacks are collected from three sources, anonymous questionnaire, post-course interview, as well as the course works, with content analysis approach. The key criteria are growing-diversity of design concept, sensitivity of social setting and milieu of places, and versatility of presentation, etc. Due to the coincidence requirement of parallel classes, there is no comparison of controlled and experimented groups.

Judging from the authors' dozen years of teaching experience, the positive feedbacks are significantly presented, especially for scrutinizing the people-place relationships at various scales and settings, which is pivotal for landscape architecture pedagogy. This paper demonstrates the training experience which may provide insights for scrutinizing diversified and realistic people-environment as students' capability. The findings through the students' perspectives are also testimony to the prospect of such approaches in contemporary social context of China. [revised at Jan 24, 2017]

Opportunities and Obstacles in Online Teaching in Landscape Architecture

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Keywords: online education, history, learner experience

Increased usage of online teaching has inverted the classical teaching paradigm. Pressures for increased enrollment in landscape architecture programs, combined with advances in technology, have facilitated online models of teaching to increase distance learning capabilities (Hobbs, 2013). While the traditional lecture style of teaching remains the norm worldwide (Thomasian, 2011), new online pedagogies have been widely applied to aid instructors who teach large classes that cover vast amounts of material in a limited time. In landscape architecture, this approach is particularly salient for landscape history courses. While online approaches to teaching have gained substantial momentum, there is much debate as to the success of their application (Newman et al., 2016). Little research has been conducted to help settle these debates, specifically research which analyzes the effects that online teaching can have on learning (Moravec et al., 2010; George, 2015). To help fill this gap, this research seeks to answer the questions: 1) What are the effects of online instruction on learner experience and what are the inherent opportunities and obstacles inherent to online instruction?

To analyze a larger and more diverse population, this study utilizes data from pre-and post-surveys of students (n=208) from three undergraduate landscape history courses at multiple accredited landscape architecture programs. The courses are a general introduction to the history of human settlement and landscape design/planning, from prehistory to the nineteenth century. Each course used similar content delivery methods through online instruction and learning management system setup. In class performance was also analyzed through the combination of tests, quizzes, discussion forum/question postings, formative questioning scores and time spent on eCampus.

Preliminary analysis shows the two main factors contributing to the perception of online learning are age and year in school. While older students preferred distance learning more, they were also more prone to continue to take online classes and recommend online courses to others. Year level positively significantly affected communication with other students, ability to achieve high scores with limited professor access, and amount of time interacting with course materials. Students reported that online learning was more efficient than face-to-face learning, but did not see it as more engaging. There was a clear effect on learner experience and improved motivation to learn using online learning tools. Pre-course surveys show that 58% of students reported that online learning was stimulating, compared with 73% of students after the course. Primary obstacles to online learning included the length of lectures and problems with technology.

Pedagogy, Licensure, Practice: Bridging the Gap Between the Classroom and the Professional Design Team

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Keywords: professional practice, licensure, accreditation, examination, pedagogy, education

The transition from design education to professional practice in landscape architecture is a pivotal part of every landscape architect's journey. Accredited academic programs provide a variety of approaches aimed at supporting this transition. The Council of Landscape Architectural Registration Boards (CLARB) establish professional licensure standards and test prospective landscape architects with the Landscape Architect Registration Examination (L.A.R.E.), a four-part examination that ensures competency in order to protect public health, safety, and welfare. Once competency is proven, landscape architects are given license to shape spaces and places, actively engaged as participants in the construction industry.

The relationships between pedagogy (written texts, curricula, etc.), professional licensure (L.A.R.E. standards, code of ethics, etc.) and the realities of the commercial design office (multidisciplinary relations, negotiation, contingencies, etc.) are complex. These relationships are examined through a series of questions framed by the four L.A.R.E. topic areas: Project Management and Construction; Inventory and Analysis; Design; and Grading, Drainage and Construction Documentation.
Anecdotal accounts are used as a storytelling vehicle to frame these bridging experiences and illustrate how they may affect the transition from informal designer, to design student, to landscape architecture student, and finally towards the pursuit of landscape architecture licensure. These personal experiences will be contextualized by analyses of accredited degree programs in landscape architecture in order to compare approaches and the weight of professional practice focus in schools throughout North America.

These examinations help to explicate a number of findings. First of all, the volume of material within current curricula presents a challenge in providing an appropriate foundation for professional transition. Additionally, the severance of formal education at the completion of a formal degree presents challenges to continuity of professional growth. Furthermore, the idiosyncrasies of professional practice provide challenges to the standardization of curriculum as well as professional examination. Bridging the gap between formal education and professional practice not only presents a challenge for students seeking relevant knowledge, but also for educators preparing them for the variety of professional contexts of 21st Century landscape architecture. Based on these findings, a number of possibilities for addressing these challenges in educational pedagogy, professional licensure, or professional practice are presented.

Personality Type and Learning in The Design Studio - A Pilot Study

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Keywords: MBTI, personality type, learning style, design studio

Much research on student learning is based around the notion of 'learning styles', suggesting that we should modify our teaching to cater for particular styles since this will improve learning outcomes. However, work by other authors suggests there is little evidence to support a pedagogical approach based on learning styles.

One approach to understand how people learn best is to establish how they take in and process information. The Myers-Briggs Type Indicator (MBTI) reveals these preferences; 'personality type' may be a better identifier of appropriate strategies than 'learning styles'. A pilot study investigated student achievement and experience using different levels of content in two landscape architecture studio project briefs. One brief was deliberately open, allowing interpretation, while the second was detailed with explicit requirements.

Student MBTI types were established as predominantly Intuitive-Feeling (NF; 63%). NF students tended to prefer the 'open' brief, while Intuitive-Thinking (NT) and Sensate-Feeling (SF) students preferred the detailed brief. Teachers need to be aware that their own preferences for presenting information may need to adapt to the likely range of personality types in each student cohort, to appeal to the learning preferences of as wide a range of students as possible.

Place-Writing: Bring Topography into Landscape Architecture Education

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Keywords: Place-writing, Topography, Education

For decades has education of landscape architecture design drawn inspiration from interdisciplinary fields. Topography is one of them which is usually taught in the course of site engineering as grading. Although it is a very important technique which the students should be equipped with, it focuses more on engineering rather than sensing, which is unhelpful for expanding a designer's creativity. How to train students with subtle topographical ideas together with those skills of operation in LA design? In this paper, we present one approach named place-writing which comes from Greek "topographein" and expands topography into an interactive idea of subject-object to encourage the students to understand the technological principles of site engineering as well as ecological principles of nature and developing traces of human society through the observation on their daily phenomena surrounding in order to get the meaning of topographical design in those processes. The course is open to junior class in SEU. In order to meet the "Sensing, Intuitive and Thinking" learners, the course is designed to combine step by step the explanation of the theory, analysis and practice of the cases, lecture-reading and exercises with clear methods but open-ending requirements so that they can break their mindset, find their own way of expression from various perspectives. Such approach will inspire their creative viewpoint of topography in landscape architecture design while helping them form a preliminary idea about the interaction between reality, concept and media. We have found that the students have difficulties with: 1) freeing themselves from the routine survey of a site; 2) digging out the story of the site from the detail or the subtle change of topography; 3) representing the topography in their own way.

PPMSD as an Interdisciplinary Communication Design Toolkit

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Keywords: PPMSD, design research, interdisciplinary communication, design process

Design is a way of knowledge production and every human being has the talent to design. However, people who are from non-design background usually have difficulty in managing their design talent and exploring design process on their own. This paper introduces a design toolkit named “PPMSD”, which aims at helping people seeding their design ideas, triggering design process and promoting interdisciplinary communication. The PPMSD method is programmed as “P(Portrait-Photowork)— P(Prototype-Pattern)— M(Manifesto-Mapping)— S (Site Diorama-Site model)— D (Diagrammatic Plan-Detailed design)”. Step “PP” mainly focuses on the object of “Observing research and Knowledge projection”, and step “MS” deals more with “Reflecting analysis and Analogy synthesis”, step “D” focuses on the final design production. Each step provides a design process model that combines macro and micro process, and the whole process is being framed within a circular loop system. All of these exercises are interrelated and well-connected. In the end, this paper experiments with multidisciplinary student’s sample in order to compare the difference between the application on design and non-design background student. Meanwhile PPMSD methods also work as an open-ended self-educated system that users are able to design most of the design task independently by referring to the “PPMSD Toolkit Instruction”. To sum up, in comparison with other design approach, the PPMSD method emphasis on the improvisational design process and the necessity of cultivating the ability of designing the design process in design education. This method encourages spontaneous design making and the toolkits service as customized design talent tool which helps with managing design imagination and fostering creativity.

Project Based Learning in Landscape Architecture History

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Keywords: Project Based Learning, History

Project-based learning is defined as, “projects [that] are complex tasks, based on challenging questions or problems, that involve students in design, problem-solving, decision making, or investigative activities; give students the opportunity to work relatively autonomously over extended periods of time; and culminate in realistic products or presentations” (Thomas, 2000). This learning model should overflow from studio courses into ancillary courses such as landscape history. Landscape architectural history forms a critical component of landscape architectural education (Harris, 1997). The history of landscape architecture is also valuable to other disciplines as it exposes the greater university student body to world cultures and ideas made manifest through the manipulation of garden forms, symbols, and urban design. Project-based learning in landscape history courses provides design students with coursework that is directly applicable to their training. This project-based learning also gives general studies students a taste of a designedly education that enriches their learning experience. The purpose of this study is to showcase opportunities for integrating problem-based learning activities within a traditional lecture-based course.

Students were enrolled in a general introduction to the history of human settlement and landscape design/planning class, covering prehistory to the nineteenth century. After taking the regularly scheduled midterm students were given the opportunity to continue taking the remaining tests or to engage in project-based learning. The first project was to create a board game based on one of the time periods covered in class--incorporating key concepts, people, and signature projects of that time period. The second assignment tasked those students with revising their game and using a new time period. Students who had not participated in the first assignment were to modify an existing board game to incorporate a time period discussed in class. This provided all students the choice whether or not to engage in a project-based curriculum at multiple points in the semester. Projects were iterative in nature and groups were able to incorporate feedback from the instructor received during mid-project critiques. Board games were assessed on how well key concepts from the course were appropriately incorporated into the game. After each critique students were asked to submit a reflective essay on what they learned. Over the semesters, the project has morphed from open ended problem spaces to more regulated design briefs. This presentation demonstrates how incorporating project-based learning into the history of landscape architecture survey course allows students additional focused inquiry into the history of landscape architecture, as well as the opportunity to work outside the standard information and recall model to include application, synthesis, and creativity.

Promoting Ecological Landscape Architecture in Guizhou Province based on a Participatory Classroom Model

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Keywords: ecological design, pedagogy, participatory planning and design

The Guizhou Plateau mountainous area has become a tourist hotspot due to its biological and cultural diversity. In 2014, the Chinese central government appointed Guizhou Province as the first ecological civilization demonstration area. While the need for urban and rural ecological civilization construction projects are increasing in the area, the current quantity and quality of landscape architecture graduates in Guizhou is seriously inadequate. Guizhou remains one of the poorest provinces in China, and the quality of education and investment in higher education cannot meet the development demands of the province. Generally, landscape architecture studio courses contain around 50-80 students with one teacher. In order to improve the studio experience of landscape architect students at Guizhou Normal University, we began introducing participatory classroom concepts into the design studios in 2015. The participatory classroom subjects currently focus on stormwater management, low-impact public transportation, greenways, habitat restoration, and urban agriculture. It is very similar to participatory planning and design. We try to explore a new way based on the context of China. At the beginning of the design studios, we establish a WeChat official account (the most popular Chinese social media platform) and then regularly publish activities to attract the attention of community members and professionals from diverse backgrounds to become involved in the classes and design studios. Through organizing offline meetings and activities, students and the public who are interested in socio-ecological design issues work together to develop new ideas and reach agreements. Finally, we spread our events, activities, viewpoints, values, and outcomes online through our WeChat platform. Between 2015 and 2016, the participatory classroom cases we conducted included the Great Flower River Urban Greenway Participatory Planning and Design Project (2015.9-2015.12), Xiaoche Creek Biological Habitat Restoration and Environmental Education Based on Landscape Design (2016.3-2016.7), and the Farming Together Plan (2016.3-2016.7). The three studios involved over 200 students and attracted widespread media attention and local government and enterprise support.

Reclamation to Re-creation: A Hands-on Experience to Design and Construct Recycling Bins with Reclaimed Materials

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Keywords: Reclaimed materials, Plastic bottles, Sustainability, Creativity, Design implementation, Hands-on activity.

The purpose of this study is to demonstrate a sustainable practice, which is reclaimed materials can be reused in new design elements creatively. As background, reusing materials has been widely recognized as a sustainable practice, and using supposedly "waste" materials one more time postpones their disposal into a landfill, thus reducing waste. However, the practice of reusing waste materials has often resulted in products that lack the aesthetics expected in a professional environment.

This study began with an observation from OSU LA students that the design studios were lacking recycling bins for paper and plastic bottles. OSU faculty saw an opportunity: why not help ourselves by creating our own recycling bins with free reclaimed materials, while also learning about design in the process? Students who enrolled the Construction II: Sustainable Sites course were put to the task with the support by Facilities Management through cooperation with the Campus Landscape Planner along with the Assistant Supervisor of Recycling. The method of this study was to assign students to design and build five recycling bins for the studios with empty plastic bottles and reclaimed materials, and evaluate them for their function and aesthetic value. Students were paired in groups and given four weeks to brainstorm, design and build the recycling bins from collected plastic bottles and other reclaimed materials. Students completed a detailed design packet and constructed their design into built recycling bins focusing on the design process, visual art principles, and product design. They were required to document all their materials and construction processes to record their thinking process, group discussions, design and build process.

After the project had been completed, the re-created recycling bins were jury reviewed by design experts and exhibited in the highly-trafficked Orange Wall Art Gallery at the OSU Student Union. They remained on display in this highly-trafficked area throughout the year as creative and sustainable artwork to promote sustainability.

This study showed that students were able to creatively use plastic bottles and other reused materials to design and build functional and beautiful recycling products. In a larger context, it is important for people to realize the importance of the "Three R's" for waste reduction – reduce, reuse, and recycle. While consumption of plastics has increased every year, landscape architecture students learned about the harm caused to the environment and proactively conceived creative, sustainable solutions to reduce the amount of waste going into the landfill.

Reflections on the space education mode of Landscape Architecture in Art Universities

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Keywords: landscape architecture, space, education mode, art universities

Spatial characteristic is one of the core features of Landscape Architecture, and it is the most important content of the landscape education. As a representative of art Universities in China, Central Academy of Fine Arts has been exploring the space education mode in landscape architecture and innovating it for many years and has a lot of experiences in this area. For the space education in Landscape Architecture, a systemic method of teaching process has been built in Central Academy of Fine Arts during recent years. The purpose of this teaching research is to find a special and efficient way for the Landscape Architecture education in ART Universities in China. This paper begins with a brief overview of the landscape architectural curriculum in CAFA and the other ART universities in China, and then analyzes the basic spatial types of Landscape Architecture: Horizontal Ground and Vertical Layered Space, and summarizes their characteristics. After that, with the tool of diagram, an educational mode aiming to space as the object of knowledge is established, which starts from case study or specific site with defined background and object, then develops to abstract analysis stripped the background, and then to be converted. The education mode is a process from concrete to abstract and then into concrete rational. Through the reflection of space education of Landscape Architecture in Art Universities such as China Central Academy of Fine Arts, we put forward to an innovative and particular mode for space education of Landscape Architecture.

Regulating Lines: making use of imaginary lines and design principles in the studio

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Keywords: Design, Regulating Lines, Creativity, Process

Regulating lines are visible or implied lines used to compose and construct artifacts, buildings, landscapes or other objects (Doczi, 1981, Kolarevic, 1997). The Mona Lisa by Leonardo da Vinci, for example, has various regulating lines and patterns such as the golden spiral and rectangle. In his Robe house, Frank Lloyd Wright used regulating lines abstracted from the grid-like arrangement of seeds on a head of wheat. The wheat "grid" was used in the pattern and arrangement of windows, doors and the entire structure (Hale, 1994). Regulating lines were commonly used in architecture prior to the Victorian era and today some argue for a return to their use (Hale, 1994, Mallgrave, 2006). In landscape architecture, regulating lines have been used from antiquity. During the renaissance for example, French formal gardens strongly expressed alignments of geometrical designs with bi-laterally symmetry and secondary regulating lines. The Ryōan-ji temple in Japan (circa 1488) makes use of regulating lines in an asymmetrical arrangement. Contemporary use of regulating lines can be observed in the works of Dan Kiely, Peter Walker, Andrea Cochran, Marth Swartz and others.

In landscape architecture education, the use of regulating lines and the articulation of a method to design with regulating lines is not well developed. There are a few introductory landscape architecture design books that mention regulating lines (Booth, 1983, Motloch, 2001, Reid, 2007), but there is little development of how they can be used in landscape architecture to generate design forms and evolve a harmonious composition. This session explores the use of regulating lines in the design studio as a tool to assist students throughout the design process. As an exercise in the design studio, landscape architecture students were given assignments to make a landscape design, with the use of regulating lines. Examples from studio assignments are presented to demonstrate a method to explore the use of regulating lines in the studio. In professional practice, regulating lines may be not be appropriate for all types of design problems. Regulating lines are well-suited to projects with a simple site context. Diverse and complex settings however, may be difficult to resolve with emphasized regulating lines or grids. The design of some informal compositions may not be aided by regulating lines such as meandering designs. This session aims to encourage the dialog and critique of using regulating lines as a teaching tool, and demonstrate its appropriateness and usefulness.

Research on Advanced Knowledge Structure Model in Basic Teaching of Landscape Architecture Design：Based on the Architecture Platform

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Keywords: Research on Advanced Knowledge Structure Model in Basic Teaching of Landscape Architecture Design ：Based on the Architecture Platform

Chinese landscape architecture is born out of three disciplines of agriculture forestry discipline, architecture and art. Different disciplinary platforms give different disciplinary characteristics. "Landscape Architecture Basic Design" is the introductory core of the professional design courses. But its teaching content and methods are too dependent on the main line of architectural design in the background of architecture disciplines platform. Professional knowledge, ability and training are relatively weak. So, this course lacks a basic method of teaching. Firstly, we construct the knowledge structure system in the basic teaching of landscape architecture design, including professional knowledge and skills. The professional knowledge includes space construction method, recreation behavior law, botany and garden aesthetics basic theory. The professional skills include research methods, drawing methods, sketching skills, photography methods, hand-painted skills, model making, Sketch Up and other design software, PPT production, environmental collage and other methods. Then, it discusses how to combine the characteristics of the junior students to build an advanced model of knowledge structure and gradually integrate knowledge and skills into different teaching links which include cognitive research, design research, expression of results. Finally, we reform the design course arrangement and teaching methods based on this advanced model. And build a teaching integration program by full-cycle and multistage special subject exercises.

Research on Teaching Methods Through Practice Feedback—Case Study of Landscape Architecture Studio on Storm Water Management In Beijing Forestry University

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Keywords: Low Impact Development, Storm water Management, Curriculum, Teaching methods, Practice feedback

Sponge City is a newly initiated design ideology in China with the increasingly severe urban flooding issues in China. It advocates using Low Impact Development (LID) techniques to retain and treat storm water runoff on and out of site (Luo and Li, 2016; China's Ministry of Housing and Urban Rural Development, 2014). Since its inception, Sponge City has been attracting growing attention and controversy in both industrial and academic sectors. In order to prepare our graduate students for the storm water management challenges they will face in future urban planning and design practice, we have introduced storm water management design classes into the curricula of school of landscape architecture in Beijing Forestry University.

In this article, we describe the methods that we used to teach storm water management by integrating scenario simulation and practice feedback into the project-based design process. The method consisted of three main steps. First, we addressed the cognition of storm water management function by offering systematical storm water management knowledge such as site engineering, hydrology simulation, landform design and soil science; Second, we encourage students to put forward different designed plans/scenarios for the aim of reducing 80% of total runoff in the planning region of Qian'an. Scenario simulation was carried out to compare the data of the rate of overall storm water runoff release from site, overall volume of release limitations and storm control rate under different planning scenarios; Third, practical projects performed by school of Landscape Architecture in Beijing Forestry University become performance feedback for the curricula research achievements. We found that the scenario in which we collect storm water in central Qian'an and store the storm water in suburb area performed better in the simulation. The practical projects have tested the validity of the simulation. And the curricula provided quantitative data support for project practice. This research could provide attempt and exploration in support of forming new mode of graduate education in Landscape Architecture while adapting to Chinese education and market environment.

Research on the Combination of "Law" and " Technology " in Planting Design Courses

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Keywords: planting design, law, technology

Planting design is not only a science but also an art. The natural law which hiding behind the planning and design are Scientific. Plant species' characteristics caused by different climatic zones, geographical reasons for plant community, biological features of plants, ecological laws of plants' performance, these things don't be changed by the will of designers. The designers working in artificial ways aim to enlarge the beauty of plants. To make people feel good is its artistry of planting design. Many parts of design such as the number of a planting group, the arrangement of planting, the application of plants' color, the distance between visitors and plants, the texture of plants need mastering.

The planting design seems to be complicated. The whole process is essentially a natural system-simulation which is built by human technology. So, we just know how the plant looks like, but haven't grasped how the system run yet. It is hard to learn and analyze such a mass of data, especially in 64 class hours. Therefore, how to sort out the information is the key point in teaching. The feedback from students in the classroom pointed students' attitude out. Some think that law is unrealistic, useless, and they do not want to spend much time on these issues. They believe that technology is closely related to the practical operation must be mastered. Under the guidance of such thoughts, the gap between law and technology will become larger and larger. Therefore, the integration of law and technology are necessary. What we worked in a highly efficient way to improve this situation is scene construction and Picturing.

Through summarizing and researching in teaching time of recent years, this method has got good results. The first step is to construct a natural vegetation scene. What teachers and students thought over are which kind of trees growing in this climatic zone, what proportion in each of them, how they performance in the plant community, and what leads to the result. To catch these points, the teachers lead a group of students to each climatic zone all around China to watch and learn how the natural law runs every year. There is a range that plants will die if they live out of there, and there is a circle in which plants grow well. Students have found the clues of natural law easily by going through the step. The second step is to construct a beautiful image. Designers use variable plants to build a 3 D scene, such as trees, shrub, annuals, perennials, bulbs, tropical and so on. They are arranged to work together in a proper scale of space. Many different species of plants are used to construct these spaces provide texture, aroma and color expression. The design required ingenious techniques based on natural laws. By evaluating plants landscape in greenspace, students had made sense of landscape quality. They can use these good ones in their design. The third step is to picturing the plants on the paper. It's also a language in which designers use blueprints to speak. The students were asked to draw a sketch with accurate illustrations and to learn how to use graphic layers.

The innovation of this paper lies in combing the relationship between plant landscape laws and technology in class. Through the training, most students can understand the law of plant growth, and they also had enough skills to paint plants landscape drawings.

Revisiting Scholarly Production Among Recently Tenured Landscape Architecture Faculty

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Keywords: Scholarship, Faculty, Tenure, Academia, Productivity

The career development and success of landscape architecture faculty hinges increasingly on their scholarship. Research performance is emphasized by academic institutions, whose assessments of faculty productivity are based on quantifiable research behaviors. Landscape architecture does not easily fit the traditional academic department model. As a result, it often becomes necessary for landscape architecture faculty to describe the academic context in which they engage in scholarship and may place them at a disadvantage when evaluated. The purpose of this study was to revisit a study of landscape architecture faculty scholarly productivity by replicating a study conducted of the 2008 to 2012 academic years with faculty tenured since 2013 to establish a current understanding of the trajectory of faculty scholarly productivity.

The study employed direct content analysis of the curriculum vitas of landscape architecture faculty members who were awarded tenure at public universities in the 2013-14 academic year or thereafter. Common scholarly outputs, such as refereed journal articles, juried competition participation, reports, etc., were defined by the research team. Two researchers independently analyzed each vita, thereafter comparing the individual results, and negotiating any discrepancies with a third researcher.
The results describe the mean scholarly productivity of landscape architecture faculty during the tenure evaluation period and after the awarding of tenure. The findings suggest landscape architecture faculty members' scholarly productivity continues to be relatively low in comparison with other academic disciplines. An emphasis on traditional academic refereed products is pronounced. Landscape architecture as an academic field is in need of greater training in conceptualizing, acquiring support for, conducting, and reporting research to be successful in an academic environment and provide a much-needed foundation for current practice.

Schoolyards as Outdoor Environmental Laboratories: Urban Water Quality Training in Primary and Secondary Schools

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Keywords: green infrastructure, outdoor education, next generation science standards

Expectations for environmental and scientific literacy in schools are getting higher. The US National Academy of Sciences and several partnering organizations developed Next Generation Science Standards for K-12 schools (NGSS Lead States. 2013). In 2011, Maryland became the first state to require environmental literacy standards for all students' grades (MAEOE, 2012). Landscape architecture is uniquely positioned to design school grounds to support these educational initiatives.

School grounds are microcosms of both urban and environmental systems. They make excellent laboratories to study human impacts on environmental systems. Recognizing this opportunity, the US EPA Urban Waters Partnership funded a two-year project in 2014 to 1) design green infrastructure storm water management solutions for four primary and secondary schools within an impaired urban watershed, and 2) develop lesson plans aimed at teaching students the science and technology behind the green infrastructure solutions. The focus of the lesson plans is on improving local water quality through schoolyard interventions. The interventions include rain gardens, rain barrels, green roofs, permeable paving, etc. Environmental topics include hydrology, soil properties and plant communities. Science lessons are practiced through repeated observation, analysis and systems modeling.

Each lesson plan lists NextGen Science Standards and Maryland Environmental Literacy Standards that relate to the given lesson. The lesson plans were developed in collaboration with school teachers from elementary, middle and high schools located in the Anacostia River watershed of Maryland and Washington, DC. With increased attention given to Green School Certification and other school sustainability initiatives, making direct connections between educational standards, curriculum driven learning objectives, and landscape processes in the schoolyard can help build a foundation on which these forms of recognition can stand. Outdoor environmental laboratories can be an important part of a school system that hopes to meet the expectations of environmental education.

Shaking Hands with The Landscape: Integrating Perceptualist Theory into A Studio Curriculum

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Keywords: Perceptualist theory, inventory/analysis, aesthetic response, site character, communication

The paper introduces and provides a rationale for the perceptualist method of site engagement used by the authors in a vertical, undergraduate landscape architecture studio in fall 2014 and recounts some of the successes and the challenges of adopting this phenomenological and drawing-intensive approach. The studio drew on perceptualist theory as the means for understanding patterns, perceptions and processes on the Mt. Kessler Preserve in Fayetteville, Arkansas, a newly conserved 400-acre public resource. According to perceptualist theory, subsequent qualitative and quantitative data and knowledge enrich and frame our phenomenological impressions of a landscape. Too often a 'checklist' approach to site inventory and analysis is adopted with little thought to the emotional and aesthetic responses a site elicits. However, the discrete elements that make up a checklist inventory are, in fact, overlays, interactions, or reinforcements that combine with aesthetic perceptions to define landscape character.

This studio emphasized the importance of personal perceptions and reflections in identifying what is 'special' or 'important' about a landscape, with the objectives of developing a means of deeper understanding and demonstrating that both qualitative and quantitative data and knowledge enrich and frame our perceptions of a landscape's qualities. Since landscape architects are often solely responsible for communicating the aesthetic value of a landscape so that it can be conserved or developed to best fit the needs of users, students were instructed in various methods of communicating poetics of place to the public, including sketching on site, temporary land-art installations, painting, composite analogue/digital graphics, and character mapping. While the studio work, itself was well-received by both art galleries and local land conservation organizations, the greatest benefit for the students and the department was a shift in understanding and process using these new drawing techniques, which have subsequently been used by students and professors alike throughout the curriculum.

Site Habitat Design with Space Creation & Scenery Perception: Research for Series on Planting Design Training of L.A. in Architecture School Background

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Keywords: Planting Design. Landscape Plantation; Site Habitat Design; Landscape Perception; Spatial Thinking

The landscape architecture education of bachelor's degree in Xi'an University of Architecture and Technology, has explored for almost 13 years. the concept, view and method of planting design training and related courses, such as plants ID, is summarized as following: Along the 5 years of core design practice training courses, focus on the process of planting practice and experimental observation. From the first design course of "introductory landscape architecture studio", students were trained to understand the plants and planting design in every design course. its design is reasonable, moderate and clear design approach and to explore effective teaching and learning methods. In "Introductory Landscape Architecture Studio" courses, design thinking training steps of "landscape perception", and "spatial organization", "elements of landscape", through "theory, cognition, practice and practice, proposal and presentation ", to understand the "time thinking and space thinking" of plants as living elements in design. the 4th training "finding the stop for scene and its landscape spatial structure, the multi role of plants in these 4 training topics and steps. In the process of landscape perception learning, to understand the ways and methods how others may feel, grasp, be moved and perceive " the scenery created through landscape Design" by landscape designers. To create the scenery and the perception, as the design objectives, the role of plants functions, guiding and inspired the passion to perceive more plants information and habitat principle of natural system.

Snail Farming in Georgia, USA: Teaching Geodesign with ESRI GeoPlanner®

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Keywords: geodesign, landscape planning, evidence-based design, collaboration

Geodesign, environmental design at geographic scale, by necessity engages a wide range of natural and social systems. It is also a domain in which design solutions are expected to be supported by evidence—of the land use changed, the ecosystem services increased or reduced, and of their contribution to environmental justice. The site selection for a hypothetical edible snail farm was used to introduce GeoPlanner® as a geodesign platform, the unfamiliar topic chosen deliberately to engage students in LAND4360, Applied Landscape Ecology, in bringing landscape performance metrics to evidence-based design scenarios. GeoPlanner® is an interactive geodesign tool supported by on-line resources delivered by the ArcGIS Online repository. Potential advantages include access to a wide range of data resources, design at geographic scale unencumbered by complex design interfaces, and support of collaborative design and decision-making. In the classroom, a combination of Google Docs® to support Delphi-like priority setting, ESRI GeoPlanner® for spatial analysis and ESRI Story Maps® supports students in creating design narratives that critically engage the problem of concurrently protecting valuable habitat and yet promoting economic development on under-used land on and around the University of Georgia campus. The snail farm project provides a "double-loop" learning structure in which student participants, through repeated attempts to solve problems, modifying the original goals, learn to design from the perspective of their own values while maintaining explicit awareness of the many others in play. This paper will illustrate benefits and challenges in the use of the fully on-line GeoPlanner design platform and discuss its potential as a community design tool.

Student Expectations and Perceptions of Learning in Off-Campus Internships: A Comparative Analysis of Traditional Placement and Faculty Mentored Experiences

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Keywords: internship, learning expectations, pedagogy

Internship experiences play an important role in higher education for student learning. Benefits include bridging classroom based knowledge with practice in a real-world work setting, creating a high impact learning experience for students, fostering soft skill development and enhancing employability for new graduates (Hurd & Schlatter, 2007; O'Neil 2010; Silca et al 2015; Thompson 2014). This study explores student expectations (pre) and perceptions (post) of learning in a traditional placement internship model and a faculty mentored living-learning model in Detroit, Michigan. The 14 learning goals studied range across elements of professional skill development, personal growth, understanding the urban environment and sense of community among the interns. In the summer of 2015, 91 students (89% undergraduate, 11% graduate) participated in internships across the Detroit area and all of the students were enrolled in course credits. Forty students participated in a traditional work placement with the employer functioning as the primary contact for the students. Fifty-one students participated in a pilot DETxMSU program that included group housing, local work experience related to their chosen discipline, and weekly (or more) connections with faculty to mentor their learning. Students began the summer with high expectations about what was important for their learning (pre-survey). Students anticipated the most highly important (rated 5 on a 1- 5 Likert scale) learning benefits to be: working with practitioners in a real-world experience (83%), professional development (72%) and personal growth (78%). The students also recognized the unique opportunities of living in Detroit for the summer to help them with understanding the Detroit context (69%) and creating a sense of community with the other students (53%). In the post-survey, participants rated their perceived learning for each of the goals on a 5 point Likert scale, with 5 as learned a lot. DETxMSU participants rated their perceived learning in 11 of the 14 learning goals closer to their expected learning importance and the traditional placement participants rated 3 of 14 learning goals closer to expected importance. The biggest differences between the DETxMSU and traditional groups was: 1) understanding Detroit history, 2) creative process skill development, 3) personal growth, 4) understanding of urban culture and 5) professional development. Findings for the 14 learning goals will be discussed in terms of strengths and weakness of both traditional and faculty mentor models with implications for improving both. Statistical findings will be augmented with student quotes to provide context and richness of interpretation.

Studio Yangon: Engaging Urban Change

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Keywords: design pedagogy, landscape architecture, urban change, Yangon, Myanmar

This paper describes the pedagogy and experiences of Studio Yangon, a multi-semester teaching and research effort focused on exploring the role of landscape architecture and planning in Yangon (Rangoon), the largest city and commercial capital of Myanmar (Burma). The studio draws on the instructors' experience in design and planning in the region; it builds on ongoing research and strengthens relationships with local partners; it is at the front of a larger effort within the home faculty for establishing responsible working relationships within Myanmar; and it is a vehicle for teaching landscape architecture in the context of large-scale urban transformations. The studio provides students hands-on, experiential learning opportunities in which they must engage local knowledge and communicate potential scenarios with the city's planners, professionals and local inhabitants.

The paper details the structure of the design studio and the stepped approach to landscape design at urban/territorial scales in politically/economically charged contexts. We first contextualize our pedagogy with respect to design education. We then present documentaries of the student engagement exercises, describe the evolution of the studio, and reflect on the challenges to success encountered in the context of developing urban sites.

The studio makes the argument for landscape education as cultural and environmental engagement. Studio Yangon, is able to instill material (as opposed to abstract) lessons about place and process as students are able to witness landscape process in a high-stakes environment, with social and ecological transformations occurring in real-time. The collective work of the studio becomes a potential instrument of influence through the dialogue and scenario building exercises. We conclude with reflections on how the studio might engage in other regions under similar developmental pressures and appeal for a network approach among landscape educators in building and sustaining similar teaching efforts around the world.

Tangible Landscape: a hands-on method for teaching grading and geomorphology

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Keywords: topography, grading, geomorphology, hydrology, tangible user interfaces, geospatial modeling, education, embodied cognition, serious gaming

We present a novel, hands-on method for teaching grading, geomorphology, and hydrology using Tangible Landscape – a tangible interface for geospatial modeling (Petrasova et al. 2015). Typically grading is taught with a mix of physical methods – such as hand-made models and fieldwork – and digital methods – such as computer-aided design, digital fabrication, and geographic information systems (GIS). Tangible Landscape bridges both approaches by seamlessly coupling a physical and digital model of a landscape through a real-time cycle of hands-on modeling, 3D scanning, geospatial computation, and projection (see http://tangible-landscape.github.io/). This system is an integrated hardware-software solution powered by a free, open source GIS. With Tangible Landscape students can sculpt a topographic model of a landscape with their hands and immediately see how they are changing geospatial analytics like contours, hillshading, and water flow. By kinaesthetically feeling and manipulating the shape of the topography students can intuitively learn about 3D topographic form and explore how topography controls physical processes like water flow. Tangible Landscape enables embodied cognition – thinking grounded in bodily experience – in spatial modeling. Theoretically this should enhance spatial performance and learning. We conducted a series of experiments testing users' performance in 3D modeling tasks with different technologies. Based on quantitative and qualitative measures including raster based statistics and semi-structured interviews we found that Tangible Landscape can significantly improve users' 3D spatial performance (Harmon 2016, Harmon et al. 2016). In this paper, we propose tangible teaching methods using real-time geospatial analytics such as contour modeling, simulated water flow, landform recognition, cut-fill analysis, and landscape evolution. We also discuss how these methods can be integrated into landscape architecture and geomorphology curriculums and present a case study of a grading class using Tangible Landscape.

Teaching Creative Confidence in Design Education: A review of literature and implications for beginning landscape design and planning studios

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Keywords: creativity, confidence, landscape architecture, planning, design education, studio, pedagogy, literature review

Many people believe that creativity is something that you are born with. This myth often leaves some students to conclude that creativity cannot be learned or improved upon (Plucker & Dow, 2010). This myth persists even though there is ample evidence that creativity can be learned (Sternberg & Lubart 1996; Westberg, 1996; Dow & Mayer, 2004; Kelley & Kelley, 2013). Students who do not have confidence in their ability to think creatively struggle to come up with innovative answers to problems (Plucker & Dow, 2010; Kelley & Kelley, 2013). Inspiring creativity is needed if we want to "push the limits of what seems possible" and develop new ideas for solving the problems that our professions and society face (Seelig, 2012). The goal of this research is to identify pedagogical practices that encourage confidence in thinking creatively in beginning design studios and apply these practices to a teaching setting. Specifically, this paper reviews literature on the psychology of creativity and teaching creative confidence and recommends strategies to incorporate this information into the classroom.

For the purposes of this research creativity refers to ideas that are both novel and appropriate (Sternberg & Lubart, 1996). Evaluating creativity is subjective. Further, it can be argued that evaluating creative products has more to do with evaluating the communication of ideas rather than evaluating the actual ideas (Amabile, 1996). Therefore, this research is concerned with encouraging confidence to think creatively rather than on the creative outcomes themselves. Further research should evaluate the application of the implications in a beginning design studio.

Research methods included a search of related literature using creativity, teaching, design and confidence as key words for the search. Articles and books that did not apply to general knowledge about creativity were excluded in order to focus on the literature most pertinent. The literature was then compared for similarities and differences and key findings were summarized.

Based on the literature, some key findings that encourage creative confidence include: creating opportunities for inspiration, making creativity a habit, encouraging experimentation, eliminating the fear of failure, convincing students that growth is possible, breaking tendencies to conform, providing encouragement, and diminishing fear of being judged (Sternberg & Lubart, 1996; Cropley, 2001; Sternberg, 2006, 2010; Kelley & Kelley, 2013). These key points will be highlighted in a first-year studio setting, with the hopes that nurturing creativity from the beginning of a student's career facilitates growth and encourages confidence.

The Design Competition as a Form of Scholarship

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Keywords: design competitions, scholarship, design pedagogy

In the spring of 1980, five years after the U.S. withdrawal from Saigon, its Congress authorized the creation of a memorial to the veterans of the Vietnam War on Washington's National Mall. A year later, an eight-member jury — three sculptors, two landscape architects, two architects and a writer — selected four prize-winning entries from a sequentially decreasing field of 1,421 anonymously authored competition proposals. One hundred and twenty-four years earlier, an 11-person board of commissioners undertook a similar exercise to solicit design ideas for a major public park in central Manhattan. Today, the Vietnam Veterans Memorial and New York's Central Park are two of the most culturally significant public spaces in the United States.

Competitions are a projective approach for design scholarship. Rigorous and impactful, competition frequently attract scores of entries, often internationally, and are juried by prominent thought and practice leaders. Further, proposals need not garner 'the top prize' to have lasting influence on design thinking, as OMA's 1982 proposal for Paris's Parc de la Villette and Field Operation's 2000 scheme for Toronto's Downsview Park illustrate. For landscape architecture faculty in particular, competitions present an opportunity to undertake peer-reviewed research beyond the traditional realm of publications; an additional vehicle to advance knowledge in the field.

Given the virtues of the competition format, together with their recent and significant role in advancing landscapes architecture as both discipline and profession, there is surprisingly little scholarly literature addressing their role within the field, and virtually no effort to address their value as scholarship. Using Mark Francis' case study methods (2001) as an organizing framework, this presentation will address this key gap in the literature. Reflective example will include, Landscape Architecture Magazine's 1995 Visionary and Unbuilt, the 2005 Flight 93 National Memorial, the Van Alen Institute and National Park Service's 2007 Envisioning Gateway, the Arid Land Institute's 2012 Drylands Design: Retrofitting the American West, Kiev's 2015 Terra Dignitas, the 2015 Peace Corps Commemorative, Arch Out Loud's 2016 New York City Aquarium and Public Waterfront, and the Van Alen Institute, National Park Service, and National Capital Planning Commission's 2016 Memorials For the Future. Individually and together, these cases envision courses of action aimed at changing existing situations into preferred ones (to borrow from Herbert Simon), and illustrate the value of design competitions as a scholarly pursuit.

The Desk Critique: Assessing the role of teaching styles in the cognitive development of students

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Keywords: Desk Critique; Crit; Design Studio; Cognitive Development; Pedagogy; Teaching Style

Desk critiques, the term that refers to the on-going conversations between teachers and students in design studios, has been the lifeblood of design education for centuries. In a typical five-year design-based degree, it can be expected that a student will partake in well over 300 desk critiques, often lasting 15-30 minutes each. However, despite the significant role that desk critiques play in the education of design students, instructors often enter academia without any training as to how their own style of teaching can promote or hinder the cognitive development that is necessary for a student to progress as a designer.

This study takes a mixed-methods approach that aims to better understand the influence of teaching styles on the cognitive development of students, as they were observed in a semester-long graduate-level landscape architecture studio. Modeled after various studies conducted at Harvard by Professor William Perry, a combination of surveys and one-on-one interviews were used both pre- and post-semester in order to evaluate the cognitive state of each student in relation to a nine-stage positional framework (Perry, 1970). Throughout the duration of the semester, desk critiques were audio-recorded and subjected to a content analysis through a categorical coding scheme of the verbalizations (Goldschmidt, Hochman & Dafni, 2009). In doing so, this study was able to identify teaching styles of the faculty, and then overlay this information with the pre- and post-semester cognitive evaluations of each student. Preliminary results point to trends that link typologies of teaching styles in desk critiques with observed changes in the students' cognitive state over the course of the semester. It is the belief that the proposed framework in this study can be used to advance and refine pedagogical approaches to the desk critique.

The Educational System Design of 'Architecture for Landscape' Course Abstract

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Keywords: Design of Architecture for Landscape, Educational System, Problem- Oriented Method

The conception of Architecture for Landscape has transformed from the architecture in gardens to the architecture with the characteristic of landscape, then develops into the architecture which is closely associated with exterior environment. Meanwhile, the focus of the education of architecture for landscape is transformed from designing architecture in gardens to coordinating the relationship between architecture and exterior environment.

The instructional process aims to clarify the process of design with problem-oriented method. The process decomposes the designing process into units that are easier to manipulate and understand, combined with targeted training, in order to progressively consolidate students' understanding of the interaction between various elements.

The relationship between an architecture and its exterior environment includes the relationship between the architectural body and exterior space, the transition and connection of interior and exterior space, the cognition of the exterior space with interior perspective, the role courtyard plays in organizing the space. When it comes to the relationship between architecture and its exterior environment, several factors are integrally involved, such as function, configuration and material. These factors should be emphasized in every step and be regarded as a vital part of the integrated design, rather than being simply placed in the final stage of the designing process.

The Plan(t)ed Cube: a hands-on educational approach

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Keywords: architecture, landscape, education, design-build

Following an invitation for AR-TE 2014, an open-air art and architecture exhibition, students and teachers from the Neapolis University School of Architecture, Land and Environmental Sciences constructed a small-scale installation in Limassol, Cyprus. The result was a collaboration among undergraduate students in the Program of Architecture and postgraduate students in the Program of Landscape Architecture, and a hands-on exercise on applying ideas and skills from both academic tracks on a single structure. The main purpose of this study is to assess this workshop as a hands-on educational alternative.

The AR-TE forum asked teams of architecture students to build their installations based on 2.5x2.5x2.5 m metal frames over two days, and provided basic materials and skilled work. The Neapolis team, formed by students and tutors from both programs, shaped an idea that would showcase the strengths of that combination. The Plan(t)ed Cube emerged as a response to the urban character of the site and the ephemeral nature of the installation. Its parti is a surprise within a surprise, a veiled box of natural colors and scents as a contrast to the hard-urban surfaces. Recycled materials were chosen, and durable plants, acclimated to Cyprus's weather. The structure was completed in a day by a group of twenty students and four teachers.
Participating students were interviewed by the tutors after the project's completion, in order to evaluate the effectiveness of hands-on learning on knowledge acquisition, skill development, and outcome satisfaction. The results reveal that design-build projects can significantly improve a student's understanding of construction processes, planting and recycled materials, and sustainable development. Different perceptions of class assignments and tutor involvement between architecture and landscape architecture students were discussed. Students also mentioned enhanced communication and collaborative skills, as well as added confidence in their abilities and ideas.

More than a public art installation, the Plan(t)ed Cube became an intensive course on teamwork, on-site decision-making and last-minute adjustments, and community interaction. The students had the rare opportunity to bring a design to life, shape a space that is experienced by them and other people, and discuss those experiences. More than a temporary urban folly, the Plan(t)ed Cube is a valuable educational addition in the design/build toolkit and an example of inter-disciplinary collaboration beyond the traditional classroom experience.

The Significance of the Course of "Cases Interpretation of YUAN YE" in the Development of Landscape Architecture

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Keywords: Yuan Ye, course, cases interpretation, Chinese landscape architecture theory, planning and design

YUAN YE is the first ancient Chinese landscape architecture monograph, written by the landscape architect JI Cheng and completed in 1631. Chinese gardener Mr. Chen Zhi annotated its text and published the book, Annotations of YUAN YE， in 1981. In 1986, Academician MENG Zhaozhen set up the course of "Cases Interpretation of YUAN YE" for the postgraduates of Landscape Architecture in Beijing Forestry University. At the beginning of this century, this course disappeared in the postgraduate training program. By 2016, with the development and change of society, this course has been re-incorporated into the postgraduate training program as a doctorate training course.

Based on ancient traditional and modern Chinese landscape architecture practices, the content of the course is to interpret and analyze the Landscape Architecture theories in YUAN YE, summarize the traditional Landscape Architecture planning and design methods - theme understanding, site observing, name asking, layout designing, detail designing, further developing, scenery supporting", and make seal cutting, restoration design, proposition design of literati and natural landscape architecture design as course exercises. In teaching methods, Chinese painting is used to express morphological characteristics, Chinese poem is referred to describe artistic conception, stone carving is used to reflect the layout ideas, famous garden field investigation is to strengthen the feeling of space scale，and theme design focuses on the type of natural landscape garden.

The setting of this course is not only the innovation of the cultivation of postgraduate students in landscape architecture, but also the innovation of the theoretical research of landscape architecture. During the period of vigorous development of landscape architecture, the social functional and innovative requirements of landscape architecture are explained through teaching of this course, and the fundament and core content of landscape architecture are well elaborated. Simple and effective research and learning methods are taught to the young students in order to achieve the radical education purpose of Landscape Architecture.

Through the heritage and innovation of Chinese landscape-making techniques and art, the course of YUAN YE is involved in the international academic forums and serves the world's nations with the wisdom of the Chinese people to enhance world communication and contribute to the build of poetic habitation environment of the community of human destiny.

The Teaching Practice and Discussion of Leading GSI Content into The "Landscape Architecture Design" Course

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Keywords: Landscape Architecture, Urban Storm water, Green Storm Water Infrastructure Education

Urbanization is accompanied by a series of urban ecological problems, in which the urban rain flood has become one of the problems that could not be ignored and urgently needed to be solved. Urban green open space bears important function that conserve water and recharge of groundwater, how to develop it and design it better is a skill that teachers and students who major in landscape architecture need to master. Combined with the current subject background and teaching situation of landscape architecture in Beijing Forestry University, this article analyzes and discusses the necessity of introducing the green storm water infrastructure (English abbreviation is GSI) into the current teaching practice, and it further combines with the example of "landscape architecture design" course, puts forward suggestions on the introduction of GSI teaching content in the course of "landscape architecture design" from the system of training links, the richness of curriculum content and the pertinence of practical link.

The Vietnam Veterans Memorial App: Reflections on Making the Prototype

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Keywords: Immersive learning, collaboration, problem-based learning, student and teacher roles

On the campus of Ball State University (Muncie, IN), a program has been in place for the past decade to increase the number of classes that work collaboratively among disciplines and with community partners. While collaborative work and community engagement are not new to the design disciplines, bringing students together from different colleges and departments to work together is logistically and pedagogically challenging. The Vietnam Veterans Memorial Project: Learning about Landscape + Meaning was a two-semester course with a 20+ interdisciplinary team of students, with the intent of creating a digital application for tablet computers about the Vietnam Veterans Memorial. Though still in a prototype stage, the outcome has been well-received: the community partners -- The Vietnam Veterans Memorial Fund and The Cultural Landscape Foundation -- have provided feedback for the next phases, many of the students remain interested in the outcome and how it will eventually be marketed, and it has received a Student Honor Award from ASLA in the collaboration category.

This presentation will review the Vietnam Veterans Memorial Project in relationship to Fleischmann and Daniel's (2010) Conceptual Learning Framework, Charlotte Woods' (2006) exploration of the crucial role of communication in interdisciplinary teaching, and Kolb's, et al. (1999) Experiential Learning Theory. Specifically, the following will be addressed: the shifting roles of students and teachers as collaborators in the learning process; a critical review of goals involved in selecting an interdisciplinary student team (landscape architecture, art, history, telecommunications, graphic design, education, et al); establishing productive relationships with community partners; and mitigating the ever-present challenges inherent in teamwork.

Using Social Media in Assessing Student Learning of Design Concepts: A Theoretical Framework and Case Study

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Keywords: social media, Facebook, assessing leaning outcomes

This study proposes a framework for using Facebook in assessing student learning outcomes. Conveying design elements and principles such as space, pattern, and syntax to beginning students and guiding them to observe, think and design conceptually stand among the core missions for educators in landscape architecture. Two traditional means to understand student comprehension of design concepts is through field sketching exercises and application in studio projects. Both of these methods rely heavily on students' drawing skills, which may constrain students who are less advanced from expressing observation, understanding and appreciation of their soundings. Considering the merits of social media, its ease of use, the fact it is inexpensive and readily available, and its dynamic networking capacity, this study proposes a framework of evaluating students' understanding of design concepts through observing, documenting, and posting on social media (Facebook group, exclusive to course members and faculty).

In a series of field trips that visit built works of landscape architecture, students were required to identify design elements and principles critical to the site solution. While on site, students documented through photography and brief written narratives explaining how individually identified design concepts were applied to that particular site. Thirty-five students, ranging from first to fifth-year, participated in the social media assignment. Students made between ten and twenty posts depending on which field trip(s) they participated in. Researchers coded, classified, and assessed the design concepts that each post addressed. Resulting data were evaluated based on individual student responses, academic year of the students, design concepts documented, and degree of understanding the students communicated in their posts. The results showed both areas of alignment and gaps between content delivery and student comprehension of design elements and principles. This research supports the need for continued study of Facebook as a learning environment.

Who is 'The Boss'? Ten Year Review of Administrative/Leadership Job Openings in Landscape Architecture Programs in North America

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Keywords: Leadership, Administration, Trends in Landscape Architecture, Job Openings, Academic Trends, Academic and Professional Needs

It is not so often that we study administrative/leadership positions in Landscape Architecture (LA) Programs as empirical inquiry. On the other hand, it is utmost critical to inquire about the leadership qualities, present and/or sought after, in order to understand the state of leadership in academia. Since these positions have strong influence on shaping issues such as; the mission, the vision, faculty composition, curricula, development/implementation, strategic planning, and conformance with professional standards of their respective units their influences on the direction of LA academy and perhaps the future professionals are unavoidable. This research is a systematic inquiry on administrative/leadership/management positions and job openings in LA Programs to report on the existing and anticipated leadership qualifications perceived by academics in LA in North America. The research reports on the academic and professional credentials required or preferred, administrative, teaching, research, and/or service requirements anticipated while illustrating the evolving leadership needs of LA Programs in the future.

This research is a mixed method inquiry (qualitative and quantitative) which benefits from two sets of publicly available data. First data set is 77 full-time academic administrative position opening descriptions collected between 2006 and 2016 while the second set is up to 80 current administrator profile information (CELA, 2016; ASLA, 2016). The permanent positions highlighted are; chair, head, director, coordinator and/or other administrative/leadership/management positions opened in 100 accredited LA programs in North America. It is presumed that job descriptions are authored to seek the best possible candidates. Data created opportunities to understand and report on current status and future trends for academic administration/leadership through content analysis (Ozdil, 2016a, 2011; Ozdil et.al., 2010,2009). The data were analyzed through counting word frequencies and descriptive statistics. The themes that are emerged then recorded as findings (Deming et.al., 2012).

The research illustrates that there is a strong demand in LA to have administrators/leaders/managers equipped with not only basic academic and professional credentials but also comprehensive set of skills and interdisciplinary interests with clear scholarly and/or professional understanding, experience, and vision to abridge design and planning fields. Moreover, there is a growing demand for Ph.D. recipients suggesting stronger need for scholarly inquiry in LA academic leadership. While such scholarly and professional experience matters, raising funds, going after competitive research grants, seeking external funding are becoming major tasks that the candidate need to handle more than ever in the coming decade. In conclusion, the presentation allows a look at which qualifications are currently in greatest demand and it may take to hold administrative/leadership/management LA positions in the future.

Why We Draw Trees and Flowers? Changing People's Attitudes Towards Natural Environment Through Drawing Plants

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Keywords: Environmental education, Landscape Design Education, Plants, Sketching, Drawing

Many types of research in a socio-environmental field indicate that young generations that grow up in an urban environment show a significant inability to perceive plants and natural landscape in their emergent surroundings. Due to the highly-urbanized environment and seemingly few chances to experience a natural environment in a pre-college education, Korean college students are losing empathy for the 'green side of life.' This study aimed to examine the ways in which the college-aged adults' appreciation for nature would be enhanced by the 'sketching plants' educational method. In this study, a total of 63 students in art and architecture colleges in Seoul were asked to make a series of plant drawings in a two-week-long outdoor sketch workshop session. Special instructions were given to have a close look at a single plant and sketch the same plant during the workshop period. Students were also asked to explain each drawing in written words. Both sketches and answers were compared and categorized in developmental phases. The drawings were coded with 'delineation,' 'pattern-making,' and 'abstraction.' The written paragraphs were coded by the degree of the meaningfulness of the words and the frequency of their usages in each sentence. These were re-categorized by means of 'perceptive,' 'emotional,' and 'ethical' development. In addition to the field trial, in-depth interviews were conducted with selected students to understand the influence of the early contact with the natural environment in their childhood on their present attitudes toward plants and nature. The result of the study revealed that the degree of the students' perceptive, emotional, and ethical reception of nature was significantly increased through the plant drawing. During the field workshop period, most drawings evolved from simple geometrical shapes to sophisticated ones, as the keywords in the written paragraphs changed from normative words into the ones reflecting internalized meanings. The in-depth interview results indicated that the students who had experienced natural environments in their early lives had significant development of their drawings and written reflections. The results suggest that the young adults' 'plant ignorance' can be relieved through education programs, especially with a hand-drawing method. Future research should be continued to examine the potential role of an outdoor plant sketch session as an interdisciplinary teaching, learning, and evaluation tool for environmental education across a variety of contexts.

Design Implementation

Bioretention Performance with Design Parameters Using Decision Tree Model

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Keywords: low impact development, stormwater, pollutant removal, best management practice

Bioretention systems are becoming a recognized best management practice (BMP) to control runoff volume and remove stormwater contaminants. Although the pollutant removal efficiency of a bioretention system has been investigated in many laboratory and field experiments, the derived design suggestions are not always consistent. Research is still needed to analyze and synthesize previous research findings in order to establish credible relationships between bioretention design parameters and the corresponding pollutant removal performance.

This study continues the investigation that was presented to the 2016 Council of Educators in Landscape Architecture annual conference. We aim to identify key bioretention design parameters targeting on specific pollutant removals and predict pollutant removal efficiency through the combination of design parameters. Our performance database has been expanded to include 109 publications in the recent decade. Pollutants of total suspended solid, heavy metals including copper, zinc and lead, and nutrients including total nitrogen and total phosphorous (TP) are included in this investigation. Sample size of each target contaminant is larger than 100 to avoid biased estimation. The design parameters of a bioretention system include the ratio of bioretention surface area to detention area, filter media depth, sand/soil media depth, presence of internal water storage (IWS) layer, presence of organic matter, presence of mulch, percent of sand, percent of clay, soil composition, presence of vegetation and vegetation type.

We used the Kendall rank correlation coefficient, Mann-Whitney U test and Kruskal–Wallis one-way analysis of variance to analyze the relationship between each design parameter and bioretention performance. Decision tree models were then applied to predict pollutant removal performance with the significant parameters resulting from the aforementioned nonparametric tests. In the decision tree model for TP, classification tree was used to classify TP mass reduction to four categories: high (80% and greater), medium (50%-80%), low (0-50%) and negative removal. The preliminary result indicates that the TP decision tree model reaches an accuracy of 77% in predicting high removal performance (80% and greater). High TP removal is achieved with a mixture of dicot and monocot vegetation, but no addition of organic matter and sand/soil layer deeper than 0.9m. The most significant variables for TP removal is vegetation type (i.e., no vegetation, monocot, dicot, mix of monocot and dicot), followed by the presence of vegetation, the presence of organic matter and sand/soil layer depth. Data analysis of other contaminants is in progress. We expect to complete this research by end of 2016.

Harmonious Development Model of Humanity and Nature - the Exploration of urban hydrological landscape planning and design

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Keywords: Landscape architecture, shan-shui city, hydrological landscape, Chinese urbanization

The rapid development of Chinese cities has resulted in inevitable contradictions between artificial urban and natural ecosystems. Despite remarkable economic and social achievements, serious urban environmental problems have manifested, including water, air, and soil pollution, ecological degradation, etc. The lack of a comprehensive urban planning system has contributed to these issues. It is critical to balance the demands of urban development and ecosystem stability to build a harmonious city between human and nature under the direction of the 'National New-type Urbanization Plan' in China. The "Shan-shui City" concept, proposed by Mr. Qian Xuesen, focuses on the key role of landscape architecture in solving urban stormwater management and ecological security problems. Based on the concept, we discuss the Chinese Shan-shui culture development, and the Shan-shui Perspectives of Chinese Ancient Cities, which include the cities of Xian yang, Lin'an, and Beijing. Nature worship has been quite popular since ancient times. As the representatives of nature, mountains and water have become the most important worshipped objects for bearing people's spiritual and psychological burden. These philosophical thoughts have significant impact on the development of human-nature relationships in later ages, laying the foundation for landscape artistic creations. We also discuss the absence of Shan-shui in Contemporary Chinese Cities. Modern cities require both systematic, large-scale and networked green space and the simulation of nature in detailed design to alleviate ecological damage arising from urbanization and to resiliently cope with natural disasters. The paper draws from classic Chinese shan-shui culture, and utilizes several urban hydrological landscape projects as case studies, which include the landscape planning and design of the water system in Beijing Olympic Forest Park, Tangshan Nanhu Central Park, the design of Tangshan Circular Urban Water System, and two cases of riverfront landscape in northern cities of China. In those case studies, the paper comprehensively elaborates new landscape planning approaches that better manage the relationships among mountain, water, city, and people. This paper analyzes treatment approaches of hydrological landscape in green space planning and design with several cases for reference in "Sponge City construction" and "comprehensive coordination" between multiple disciplines and departments. The landscape architects must undertake responsibilities for ecological restoration, habitat restoration and construction of green infrastructures, which is a huge system of engineering, ranging from the economic structure and auxiliary industrial structure of the whole country at the upper levels to land utilization planning and water conservancy project construction at the lower levels.

Implementing Green Roof Technology in a Humid Subtropical Climate: results, challenges and opportunities

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Keywords: Green roof, plant survival, climate, adaptability

Worldwide, green roofs and living walls are becoming publicized and explored for use in urban environments as a way to improve urban ecology, increase green space and beautify cities. Landscape architects are taking leadership roles and working with green roofs not only in professional practice, but in landscape architecture education and research. Perhaps there are more well-known roof gardens by landscape architects worldwide than extensive green roofs; however, the potential benefits of using extensive green roofs is not as well-known, especially in humid subtropical climates. Since green roof technology was developed in the cool temperate climates of Europe, making transitions to other climates will require new research and development. The purpose of this study is to present results from green roof plant survival research from central Texas, a climate considered to be different from cool temperate climates of central Europe and similar to warm climates in high population regions across the world.

Located in a humid subtropical climate in central Texas, this green roof research is demonstrating ecosystem services and plant adaptability results from a variety of plant forms and species. Precipitation is bi-modal in distribution with the majority as rainfall during spring and fall. Maximum air temperatures during the summer average over 32° C from May to September and precipitation depths during July through September average 54mm, 68mm and 81mm respectively. Drought events lasting four or five weeks with air temperatures above 32° C are common. These conditions can cause plant stress and become a limiting factor for plant survival. Since 2009, the plant adaptability research on extensive green roofs demonstrates that some plant taxa are adaptable to the 10 cm deep substrates, with irrigation and without. Plant trial investigations are reported in this session from the investigation of over 50 plant species including groundcovers and accent plants. Groundcovers were investigated for 12 months and accent species were investigated for 18 months. Accent plant genera that demonstrated high survival rates include Hesperaloe, Manfreda, Opuntia, Agave and some Yucca species. For groundcovers, 26 varieties of Sedum were investigated and survival rates varied from zero to over one-hundred percent. Some plots were irrigated regularly during the growing season and some were established without irrigation. The presentation outlines basic ecosystem services (retention & microclimate) from extensive green roofs in Texas and plant survival findings from up to seven years of plant trials.

Models for Design-Build in Landscape Architecture Curricula: Logistics, Liabilities, and Paradox

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Keyword: design-build, pedagogy, theory practice gap, service-learning

Purpose
The gap between theory and practice is a perennial discussion within academia. Design-build courses have emerged as one of many strategies that programs have implemented in order to bridge this gap and better prepare their students for professional practice. This study identifies various models of how design-build experiences are incorporated into landscape curricula and evaluates the benefits and challenges of each. Lastly, we discuss the inherent tensions between design and implementation and how landscape architecture programs can successfully navigate this paradoxical relationship.
Background
Many students in landscape architecture programs find courses in construction and design implementation among the most challenging subjects to master, especially when individuals lack hands-on construction experience as a contextual basis. Upon graduation, emerging professionals have historically found sections of the landscape architecture licensing exam (LARE) pertaining to construction to have lower pass rates than other sections, further illuminating a gap between theory and practice. Design programs have responded by implementing design-build experiences into their curricula through a variety of models including designated courses, concentrated field studios, and other service-learning activities on dispersed sites (Winterbottom, 2011). Variations among these models present pedagogical, logistical, and administrative ramifications.
Methods
Using a multiple case study method, the study focuses on design-build programs located at two U.S. landscape architecture programs and utilizes an ethnographic approach to document the experiences and attitudes of students, faculty, administrators, and clients of the design-build endeavors. Documentation and evaluation of built works, and analysis of archival documents are used to triangulate data collected via the ethnographic approach. Contextualized within the rich variety of design-build models around the country, these models are comparatively evaluated for opportunities and constraints for the following dimensions: learning effectiveness, course and project logistics, and long-term program sustainability and administration.
Findings & Significance
Project scale and location, curricular structure, and administrative support greatly impact students' learning outcomes, faculty logistics, and quality of built artifacts produced. Additionally, while built works concentrated in a centralized field studio provide opportunities for subsequent evaluation and modification, service-learning based design-build projects in dispersed sites may allow programs at land-grant institutions to more effectively fulfill their outreach missions. However, given some of the structural challenges illuminated in this study, design programs may also consider whether their students would be best served if they obtained design-build experience through experiences external to their institutions, similarly to that of professional office internship-based experiences.

Natural Swimming Pools (NSPs) - Principles and Trials with Site-Conform Vegetation

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Keywords: natural swimming pool, planting design, nutrients, water purification

Natural swimming pools (NSPs) are pools purified exclusively by biological processes (FLL, 2006; ÖNORM, 2013). Beside allowing healthy swimming NSPs can play an important role as part of stormwater management by increasing biodiversity in green areas (Thon, 2009).

Four NSP models are: 1. Standstill water body: densely planted filter zone (= "Hydrobotanical System") 2. NSP with surface flow + Hydrobotanical System 3. NSP with percolated planted filter bed (=Technical Wetland") 4. NSP with quickly percolated filter bed (= Biofilm accumulating Substrate Filter"). Microorganisms developing on the surfaces of the filter granulate form a biofilm that provides a very effective filtration. In Type 4 plants are decoration only.

To guarantee clear water and a low string-algae stock, either phosphorus (P-) or carbon (C-) limitation should be envisaged (Jaksch et al., 2013). Beside this, also the nitrogen level often is very low in NSPs with percolated filter systems due to denitrification loss and effects weak plant growth (Kircher & Thon, 2016). It is just in type-3-NSPs with Technical-Wetland-filters, that N-deficiencies occur. Therefore, Anhalt University run trials from 2007 till 2011 on Technical-Wetland-filter to test plants from oligotrophic bogs and fens: three percolation variants (bottom-up, top-down and not percolated) times four planting variants (lime fen planting, acidic bog-, conventional planting and unplanted) were observed in four replicates over 3 years. Water quality, Algae growth (dry weight of string algae) and plant vitality were assessed. Results showed that different planting types effect significantly different string algae production. In 2009, dry weight of string algae was significantly lowest in the acidic bog variants, but also the top-down percolated lime fen plots were rated low. The lowest P-content (Ptot) was found in lime fen plots; also, lime fen plants provided a visually pleasing vegetation pattern. This planting type is recommended for P-limited pools, since these comprise the necessary water hardness and a high pH value, which promotes the sedimentation of P-compounds. For C-limited systems with low hardness, plants from acidic bogs were proven suitable. Sphagnum mosses formed attractive cushions and could reduce string algae emergence in the pool water, though they effected a great pH fluctuation. Sphagnum palustre thrived in standstill water, whilst on percolated filters only Sphagnum squarrosum worked well. From these results as well as from case studies in four countries Kircher & Thon (2016) derived recommendation for plant combinations in P- or C-limited pools.

Teaching landscape construction detailing: A comparison of classroom learning and learning in the field

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Keywords: Outdoor teaching, Outdoor learning, Landscape Construction, Sketching, Construction details

Results of a multi semester research project show that students learn landscape detailing and construction more effectively by examining and sketching built landscape structures in the field. Piaget's theory of constructivism argues that people produce knowledge and form meaning based upon their experiences. By comparing students' performances in two different models of a construction class, we are able to see improvement in student assimilation and comprehension of landscape construction details and assemblies when taught in the field.

A landscape materials and construction course was taught one semester entirely in the classroom with Powerpoint lectures and readings leading to development of a construction detailing drawings project. Another semester, the course was taught with those same elements AND the careful examination of landscape structures in the field. The examination took the form of field lectures and student measured sketch details of pavements, walls, stairs, pergolas, guardrails, and water features.

Through careful comparison of exams, in which freehand drawn details were required, and of the course-long construction detailing project, student work was reviewed for more holistic understanding and more accurate description of construction details.

The results from this study support Piaget's theory and previous research findings on the effectiveness of outdoor teaching and learning in the field (Dillon et al, 2006; Luksa et al, 2009). Additionally, our results support previous research in education of the built environment that indicates an increase in student learning with inclusion of teaching in the field (Francis, 2001; Steinitz, 1990). If students are exposed to actual built structures that they can see, touch and sketch, this increases their understanding of construction details and structural design (Andrea, 2013).

Detailed methods and results of this research study will be discussed in this presentation. Additionally, techniques for teaching landscape construction outside will be provided. Examples of the project statements taught in the field will be provided and resulting student work will be discussed.

The New Progress of the Landscape Design Process Driven by LandscapeSMART

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Keywords: LandscapingSMART, Stormwater Management, DTM, Landscape Design Process

In recent years, Laser scanning, GPS, BIM and 3D Machine Control System have influenced design implementation from different aspects, which leads to a revolution from traditional landscape construction to landscaping SMART (fig. 1). LandscapingSMART is a term developed by Petschek Peter since 2012, which means a more effective and precise landscape construction by a close bridging between design and implementation, based on a digital data model. By using a complete data model, landscape architects, building contractors and city agencies can detect "clashes" before construction, and Global Navigation Systems (GNSS) 3D machine controlled dozers with Digital Terrain Model (DTM) data can shape the project site.

fig. 01 LandscapingSMART workflow

The Digital Terrain Model (DTM) plays a major role in LandscapingSMART. There are many ways in generate existing terrain DEM, but how does it function in a Landscape Design Process? Or, what kind influence will LandscapingSMART bring to the Landscape Design Process? In the last 5 years, this question was tackled in the teaching of "advanced landscape technology" in a framework of "Civil 3D-SketchUp "in SEU, Nanjing, China, by different case studies. About 100 participants in this pedagogy were the first-year graduate students in Landscape Architecture at Southeast University who already possess spatial design skills, software skills including AutoCAD and SketchUp, and grading skills.

In the beginning of the experiment, teachers selectively taught various possibilities of Civil 3D software analysis and digital topography editing from the grading perspective of landscape architecture, including terrain modeling, spatial analysis, and surface drainage analysis. AutoCAD Civil 3D is a 3D civil engineering software specifically used in the field of infrastructure. Its outstanding 3D topography construction function, circuit design function and accurate engineering data allow for the relatively high accuracy and efficiency of 3D terrain model construction and editing.

Afterwards, the following two topics were focused in the teaching experiment. Firstly, how to perceive, analyze the site (especially the comparative flat site with horizontal dimensions greatly exceeding vertical dimensions) from a 3D perspective, and how to precisely construct a DTM of the site by applying different surveying techniques were explored. Secondly, the research on storm water management during the design process by integrating landscape spatial design with grading was explored, based on the DEM the management of surface water and spatial shaping can be organically integrated.

In conclusion, the conventional landscape design process involves three steps, namely conceptual design, preliminary design, and construction drawing design. This process is changed after introducing LandscapingSMART to provide scientific and quantifiable support to landscape design. The application of "Civil 3D- SketchUp" framework in landscape design, not only enhances 3D understanding of the site, but also integrates quantitative analysis, enhances the scientific content of site design while manifesting the spatial essence of landscape architecture design. The workflow on how to bridge design and implementation based on a digital data model are presented.

The Research of Storm Flood Regulation Efficiency of The Low Impact Development of Exogenous-Rainwater Park Based on The SWMM Simulation

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Keywords: public green space, storm water management model (SWMM), low impact development (LID), exogenous rainwater, storm flood regulation

Compared with other urban construction area, the public green space area has large well-drained underlying surface, which can work with the city pipe network to accept more exogenous rainwater and regulate the storm flood. This study generalizes the research area and construct the low impact development(LID) model and traditional development model through a case study of the runoff in Binhu east road park in Qianan city. The research introduces the exogenous rainwater and apply the storm water management model (SWMM) in different return periods (1, 2, 5, 10 and 20 years), simulating the regulative effect of two development models in total runoff, peak flow as well as time of peak flow appearance and the control efficiency of single LID facilities. The results show that (1) The SWMM can stimulate the LID's regulation of the rainwater, providing the technical supports and theory evidences for urban construction. (2) When setting goals of runoff regulation, we should plan the catchment sizes of exogenous-rainwater combined the site current situation. (3) LID model has a good effect on storm flood regulation, decreasing the total runoff, peak flow and time of peak flow appearance significantly. In the return periods from 1 to 20 years, the park construction based on the LID model make the reduction of total runoff, peak flow and time of peak flow appearance at 100%~37.69%,100%~40.55% and 135~24min. The rank of the efficiency of LID facilities to decrease total runoff is rain garden＞combined system＞vegetative swale＞bio-retention cell＞permeable pavement. The rank of the efficiency of LID facilities to decrease peak flow is rain garden＞combined system＞bio-retention cell＞vegetative swale＞permeable pavement. The rank of the efficiency of LID facilities to postpone time of peak flow appearance is combined system＞rain garden＞bio-retention cell＞vegetative swale＞permeable pavement. (4) When designing a low impact development park, we should consider other functional requirements such as disaster prevention.

The park is under construction and is expected to complete in December 2016.

Three-forms Gardens: To Express the Meanings of Chinese Poems by Three-Dimensional Composition Skills

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Keywords: Three Dimensional Compositions, Literature Conception, Landscape Design

Composition pedagogy had its beginnings at the Bauhaus. Decades of development led to its important role in modernist educational principles in architecture, landscape architecture and art design. Compared to the principles of color and two-dimensional studies, three-dimensional composition is a more prominent basis for foundation courses in the field of Landscape Architecture in Chinese universities. This is mostly thought to be due to its effect on students' grasp of form, materials and spatial relationships; it is a skill that in principle instills a better understanding in latter design courses. This paper focuses on findings from 10 years of classroom observations revealing that a large proportion of students failed to utilize three-dimensional compositional skills in their landscape design studio after having taken the composition course. Moreover, most of the students believed that three-dimensional composition is a modern design method and therefore cannot be used to express the meaning of traditional literature commonly expressed in the traditional Chinese Garden. In 2015, the authors of this study won a landscape design competition for North China University of Technology to design three small campus gardens with student involvement. The authors intentionally set off to design the gardens based on three basic three-dimensional forms, line, plane and solid. Additionally, the authors implemented the use of literature as a means to derive concept-driven form and used three famous Chinese poems as a starting point. The solid form is articulated as a rockery garden expressing the poem's message, "When viewed frontally, a mountain ridge is revealed; the side view reveals a mountain peak, and each has its own measuring systems." The garden based on line as a compositional tool is a small formal garden with red sculptural trees and frames that echo how "The eastern wind blows, and lanterns hang on the trees blinking like blossoms." The garden based on planes utilizes walls to express the poem's reference to the perception of depth, "how does one know how deep the garden runs? The billowing willow shrouded in mist, is a curtain of countless folds". This paper will discuss the design of the three gardens focusing on the use three-dimensional composition to express design concept, the derivation of traditional Chinese garden design philosophy, contemporary design implementation, and most importantly student learning experience using this pedagogy.

Trials with Planning Strategies and Substrates for Perennial Plantings

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Keywords: perennial plantings, city landscape vegetation, substrates, planting design

The purpose of this study was to develop a cost extensive but lively perennial planting method and to ensure high application security by using climate-adjusted substrates.
Three planning strategies can be chosen for perennial plantings:
1. Monoplanting: using one single species on a large area: to be planned and implemented rapidly.
2. Planting in groups of usually more than two different species: mainly for perennial borders of formal appearance (Dunnett, Kircher, Kingsbury 2004). Groups of one species are neighbored to each other. Group plantings are static and demand high maintenance input.
3. Planting according to sociability levels: Plants are arranged according to sociability levels I to V (Hansen & Stahl, 1993) to achieve a nature-like effect. Species of low sociability levels (I and II) are set individually or in small groups of three to nine. Species of higher levels (III to V) are set in groups of 10 to 20 or more and arranged loosely around those of level I and II.

The first strategy means low costs, but does not provide diversity and looks static and lifeless. Strategies 2 and 3 can provide exciting vegetation patterns, which change dynamically throughout the year, but cause enormous expenses for planning and implementation.
To increase the efficiency of the planning process the concept of randomly mixed plantings was developed in a trial series at Anhalt University (Kircher et al., 2011). Compared with plantings based on a graphically depicted planting plan the randomly mixed variants were significantly quicker planted without losing visual quality (Messer, 2008). Numerous modules for perennial plantings were developed in this randomly mixed strategy and put into practice by landscapers and parks departments in Central Europe in a significant scale (Heinrich & Messer, 2012). However, there are still problems in the application of proper substrates (FLL, 2014). The existing topsoil is mostly too heavily contaminated with weed diaspores.

At Anhalt University trial plantings were laid out in 2013 to test three different substrates for mixed perennial plantings: gravel (2-8mm), loamy topsoil and an industrial mixture for tree plantings. As second factor the trial plots were treated with three different watering intensities: 1. irrigation each week; 2. every two weeks; 3. every four weeks. The plantings on the industrial mixture showed not much differences in the development of plants, so that it is recommended as a standard substrate for perennial plantings in moist as well as in dry climates.

What Factors Determine the Effectiveness of Low Impact Development Practices? A Review of Current Literature

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Keywords: Green infrastructure, sustainable urban drainage system, landscape performance, hydrology

Developed in the 1990s, the low impact development (LID) aims to mitigate negative effects of increasing impervious surfaces in urban watersheds and preserve the hydrologic regime of pre-development. Since emergence, benefits of LID practices such as reducing runoff volume, lowering peak flow, and decreasing pollutant loads have been widely documented. However, debates still remain on how to maximize LID's effectiveness on a watershed scale when climate and land use conditions influence LID's performance in accordance with spatial and temporal variations. A synthesis review of current literature is needed to understand contributing factors in enhancing LID's performance. The major objectives of this review are to 1) compile evidence of contributing factors in determining the effectiveness of LID practices; 2) summarize the methodological approaches used in hypothetical and empirical studies to simulate or test LID application and optimize its performance; and 3) suggest directions for future research.

This review focuses on the widely-adopted LID practices intended to control the quantity of on-site stormwater runoff from frequent storms. They include rainwater harvesting system, permeable pavement, bioretention cell (infiltration trench), rooftop disconnection, green roof, and vegetated swale. The conventional best management practices (e.g. detention ponds) are excluded as they are designed to store and release relatively large volumes of runoff from infrequent intense storms. We used ScienceDirect, ASCE library, Taylor & Francis, Wiley, SpringerLink, and MDPI to search peer-reviewed journal articles and conference proceedings. Search keywords include low impact development, best management practices, green infrastructure, sustainable urban drainage, runoff, effectiveness, optimization, and performance. The articles that matched the search criteria are rated based on their relevance to the research question after reviewing titles and abstracts, and then screened out for full-text review. Only the selected articles are subsequently categorized based on independent variables examined in studies. The variables include climate factors (e.g., precipitation intensity, duration, and peak locations), land use factors (e.g., intensity of development and amount of directly connected impervious areas), and geographical factors (e.g., location of LID facilities).

We will discuss the methodological approaches to simulate hypothetical scenarios of climate and land use changes as well as LID applications. The findings of the input and output parameters of model simulation will be specifically addressed and compared with variables used for empirical studies. Also, the trends of studies will be documented by category and year. Finally, this study will identify future research needs.

History, Theory and Culture

Landscapes of Literature

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Keywords: Landscape, Literature, Jellicoe, Text

Literature might be said to be a form of designed writing in the same way that landscape architecture is designed environment or designed space, where design is the act of imagining. While being very different in their aesthetic manifestations, landscape architecture and literature are more refined and imaginative forms of a common landscape or text. In this sense, landscape architecture and literature are united by their pregnancy of imagination.

The difference between landscape in the broader sense and certain landscapes that are designed by landscape architects can be likened to the relationship between text and literature. Literature is to landscape architecture as text is to landscape.

Literature / Landscape Architecture
Text / Landscape
Works of literature exist as text, whereas not all texts are literature. The same can be said for landscape and landscape architecture. Landscape architecture and literature are both disciplines, whereas landscape and text (or writings), can be considered forms of communication. Where possible in this paper, I identify "designed" landscapes as landscape architecture, or as designed by landscape architects, otherwise I am referring to landscape as in a text in the broader sense, as a text that is not yet intentionally designed.

In this paper I will build upon my essay, "Is Landscape Literature," and analyze what landscape architects write about their work, and what others say, including architectural projects by Reed Hilderbrand, Geoffrey Jellicoe, Dimitris Pikionis and Huang Zhouxing's Make-do Garden, a garden that exists only in text. We will see how important the written word is for landscape architecture. James Corner, for example, makes the point that, "Writing was, and still is for me, a powerful tool for recording, generating, and evolving ideas, as well as communicating those ideas to others" (Corner 2014: 7). Often what landscape architects write sets the stage for an ongoing performance.

The architecture of landscape is shaped by literature at all stages, from interrogating our view of landscape on a conceptual level, to contract documents, to project abstracts, to competition boards, to final reports. The writer and landscape architect use similar tools of allegory, satire, and metaphor. The design of landscape is inherently tied up with the design of literature, and vice versa. Landscape is of course not literature, but landscape and literature are intertwined in ways that become very hard to separate.

A Cognitive Research on the Mode of Historical Urban Space

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Keywords: Historical urban space, The information of history, Mode of space, Mode type

With a contrast between the historical prototype and the present existence, this paper constructs the evaluation basis for the mode of the historical urban space, which concludes five basic modes: the prototype mode, the fragment mode, the structure ode, the symbol mode and the information mode.

Today, urban heritage conservation work in China mainly focuses on the listed buildings as officially protected monuments and sites. This measure might ignore the untitled old buildings and the potential historical space and lead to the information lost and the break of a whole integrity. The mode of urban historical space is the living statue of the spatial elements carried historical messages. With a contrast between the historical prototype and the present existence, this paper constructs the evaluation basis for the mode of the historical urban space from three aspects: form, function and existential state.

It concludes five basic modes: the prototype mode, the fragment mode, the structure ode, the symbol mode and the information mode. The prototype mode indicates the well preserved historical elements with a complete history information and original appearance. The fragment mode has a prototypical structure while the containing had vanished into pieces and still tailing as time goes on. The structure mode refers to the old spaces that only can be seen from the structure inheriting the old texture, scale and other figures, while as the context replaced by new buildings. The symbol mode directs at the original chips of the old buildings and space, or the rebuilding in monumental forms of symbolic architecture conveying history meanings. The information mode exists as road name, place name, time-honored shop name and other significant history message without material remains.

Furthermore, according to the various space modes, we can conclude three characteristics of the mode as follow. First the spatial element of one kind in different cities tends to be a same mode. Second the space elements of structure mode have a stable and unique feature while the content elements of other modes turn to be mutable and multiple. Third the type of mode is changing along with the function and events' variation, and the change difficulty depends on the collective behaviors and public cognition.
To maintain a complete, real and objective protection work rather than a monotonous and one-sided method, the paper establishes a comprehensive cognitive system of the historical urban space.

A Multidisciplinary Approach for Documentation and Interpretation of Tunpu Rural Landscapes in Guizhou Province, China

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Keywords: Rual landscape, Documentation, Interpretation, Tunpu, Multidisciplinary approach, Conservation

Tunpu rural landscapes are ancient castle villages in Guizhou province built by Ming Emperor's garrison troops for military purpose during the 14th century. These villages are considered as 'the last living Ming villages in China'. The Han Chinese's traditions, especially their customs, environmental wisdom and agricultural skills, have been continually practiced by Tunpu people in these villages for centuries. However, ecological degradation, socio-economic transformations, demographic changes and excessive tourism-related development mean that Tunpu rural landscapes are changing with increasing speed. Landscape patterns are being lost through abrupt changes, and landscape values and meanings of Tunpu villages cannot be easily understood by the public. Many inappropriate infrastructures and tourism activities have been brought to Tunpu villages, which has created significant challenges to cultural continuity. It is therefore necessary to investigate effective approaches for Tunpu village conservation. The aim of this paper was to demonstrate how a multidisciplinary approach could facilitate the documentation and interpretation of Tunpu rural landscapes for conservation purposes. Baojiatun, a typical Tunpu village with 647-year history, was examined as a case study. This paper considers Tunpu villages as continuing landscapes, in which a Landscape Character Assessment framework was applied to guide the exploration of Baojiatun and the application of different technologies. The case of Baojiatun was investigated in three aspects: 1) spatial distribution and pattern characteristics of land cover were investigated using Aerial Oblique Photogrammetry and Geographical Information System tools, in order to demonstrate Han Chinese's preferences on living environment in Ming dynasty; 2) the architecture of Tunpu buildings was examined using 3D Laser Scanning techniques, and as a result, the original pattern of Baojiatun as a barrack construction and the following changes to a residential building complex were identified and visualised; 3) the irrigation system and related agricultural knowledge were investigated both in their tangible and intangible dimensions. The design of the irrigation system was then interpreted using VR models in combination with relevant narratives on conventional regulations and agreement. It was found that due to the distinct character and complexity of Tunpu rural landscapes, we should integrate knowledge and techniques from many disciplines to facilitate more efficient documentation and interpretation. The operational guide generated and tested in this paper is expected to provide valuable insights for rural landscape conservation and management.

A Preliminary Study on Lingnan Modern Garden: She Junnan's Design Theory and Practice

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Keywords: Modern Garden, Lingnan Garden, She Junnan

In the context of globalization, it is imperative to constantly improve the theoretical system of Lingnan Garden (South of the Five Ridges centering Guangzhou, China) to guide its construction practices. She Junnan (1916~1998), one of the outstanding representatives of the modern Lingnan Architectural School, had considerable accomplishments in Lingnan Garden making. However, the study on his contribution to the theory and practice of Lingnan Garden and his academic value is still inadequate, and needs to be explored in depth. This study makes up the deficiency, exploring his experiences in Lingnan Garden making.

Firstly, based on literature review, case studies and interviews, this study clarifies She Junnan's life story. Through analyzing the social and historical backgrounds and the variation of design thoughts, it identifies five phases of his garden making practice: formation, development, in-depth development, maturity, and perfection, and investigates respectively his typical design works to understand the formation, evolution and core connotation of his thoughts about Lingnan Garden making.

Secondly, this study focuses on She Junnan's writing of "A Preliminary Study on Modern Architecture and the Spatial Organization of Jiangnan (South of the Yangtze River, China) Gardens", and summarizes his academic research achievements in gardens from three aspects: the characteristics of spatial organization in Jiangnan Gardens, the composition techniques of architectural space in Jiangnan Gardens, and detailed treatments on the combination of architecture and garden. He indicated that Jiangnan Gardens represented Chinese Classical Gardens and influenced profoundly on Lingnan Gardens; and put forward the new trend of spatial organization–the combination of architecture and garden, contributing to his modern Lingnan Garden practice.

Finally,this study sums up She Junnan's academic thoughts on Lingnan Garden design theory and practice: he insisted on people-oriented approaches throughout his career; he appropriately integrated gardens into architecture combining Chinese Lingnan locality and modernism; heemphasized the significance of pragmatism and objectivity, making quality gardens in the premise of economic practicability and adjusting measures to local conditions: using patios to organize garden space; transforming pillar layers into garden; using local and economic materials; properly handling layout of water bodies, etc.

In conclusion, She Junnan's academic thoughts on Lingnan Garden expanded the theoretical system of the Chinese Lingnan Garden and provided a new perspective and an excellent reference for the construction of the Lingnan modern gardens.

A Study on Chinese Garden Design Theories: "Jiejing (借景)"

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Keywords: Chinese Garden, "Jiejing"

Jiejing (借景) is a very important term of Chinese traditional garden study, it can be read as borrow scenery by literal translation, and it actually means using scenery supporting from the site context to establish an ideal ambiance for a visitor in some specific spots of garden. And the essence of Jiejing is not only a skill or technique in the process of garden constructing, but also an artistic concept of Chinese garden culture.

The article introduces that the understanding of Jiejing is a key to understanding Chinese garden, because Jiejing reflects the well connection between different parts of a garden, thereby makes the scenic spots as a whole. Moreover, the realization of the effectiveness of Jiejing needs a designer to properly handle with a series of subtle relationship between the sight and mentality of a visitor with the surroundings and distant view, so it also contains the thoughts of art and humanity.

The article introduces a few cases, such as the Summer Palace, the Yuanming Yuan, and the Mountain Resort in Chengde (承德) to explain the laws of Jiejing in practical perspective, which includes season, terrain, river system, touring route, owner status, and other psychological or social factors, etc. Finally, the article introduces the whole process of Jiejing from a site observation to landscape layout, and detail perfection.

A study on the evaluation of the Three Hills and Five Gardens in Beijing Western Suburbs as Cultural Landscapes

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Keywords: Cultural Landscape Heritage, The Three Hills and Five Gardens, Landscape entity, Spiritual connotation, Criteria for the assessment of Outstanding Universal Value, Protection and management

The area of the Three Hills and Five Gardens in Beijing Western Suburbs, previously royal occupied, has always been well known as “the top-class masterpieces of Chinese classical gardens”. In the whole area, the artificial constructions showed great respects to the surrounding natural landscapes and followed many ideas of traditional Chinese philosophy. However, in a long time, the values of this distinctive “combined works of nature and of man” have not yet been cognized systematically, and the area has seldom been seen as a significant Cultural Landscape Heritage as a whole. This paper aims to re-discover the royal area from the perspective as the review on the Cultural Landscape Heritages. It will firstly summarize the interactions between landscape entities and spiritual connotations in the area, including the unique principles for the site locations and terrain modifications, the formation of the agricultural-leisure-administrative multi-functional spaces, as well as the landscape design ideas within the mainstream Chinese cultural connotations then. Next, by comparing the Three Hills and Five Gardens with gardens in the world which have been already listed in the World Heritage List and seen as Cultural Landscape Heritages, as well as other well-known Chinese classical gardens which have been recognized as Cultural Landscape Heritages or Cultural Heritages, the paper seeks to find the specificity and unique value of the area. Then the paper unearths the criteria for the assessment of Outstanding Universal Value which are likely to be met by this area, including criterion i、ii、iii、iv and vi, as well as illustrates the area’s integrity and authenticity. By exploring the potential heritage values, the paper devotes to promote the whole understanding of the area and provides valuable suggestions for the protection and management of the existing heritage resources.

A Study on the Influence of the Concept of Functional Zoning of Soviet Park of Culture and Rest on the Design Method of Chinese Modern Parks

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Keywords: Chinese Modern Parks, Functional Zoning, Design Method of Parks, Park of Culture and Rest

Under the national and international situations upon the 1949 Liberation, China implemented the foreign policy of "Leaning to One Side" to learn various experiences from the Soviet Union for the Chinese socialist construction. The concept of functional zoning of Soviet Park of Culture and Rest was introduced to China and considered to be a model of the design of Chinese modern parks, and a number of park practices featured with functional zones emerged. Through analyzing the political ideology and social conditions of China at the time and some typical representative park practices, this study investigates the changes of design methods of Chinese modern parks from three aspects: spatial structure, layout and type of functional zones. After the concept of functional zoning was introduced to China, it promoted the development of scientific and democratic consciousness in the Chinese modern park making, and provided a simple and clear design method, with which the parks could meet the diverse needs of public activities. Afterwards, a new park design method was created by combining the concept of functional zoning and the Chinese traditional method of setting scenic areas on the one hand, and it became formulaic to blindly follow the concept of functional zoning in park practices on the other. The design and construction of Chinese modern parks reflected the contemporary social condition of China, and the park practices played an important role in the development of Chinese landscape architecture profession. Thus, this study of the features and characteristics of park practices of certain historical period could help better understand the development of Chinese landscape architecture. Also, through the in-depth investigation on the practice of functional zoning in Chinese modern parks, this study aims to provide a new perspective for future research about the development of Chinese landscape architecture.

Aesthetic Experience of Sustainable Agricultural Landscape: A Case of Sangha Farm in Gochang, Korea

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Keywords: Aesthetic Experience, Sustainability, Agricultural Landscape, Agritourism

From urban landscapes to food studies, sustainability has become a new paradigm in landscape debates. However, despite general consensus regarding its significance to our contemporary world, studies concerning aesthetic experience of sustainable landscapes are far from complete. The purpose of this research is to discuss and to interpret the aesthetic experience of sustainable agricultural landscape by examining the experience of sustaining beauty at Sangha Farm in Gochang, Jeollabuk-do province in South Korea. Mixing the appearance of traditional Korean villages with the principles of New Ruralism, the architect Choon Choi designed a themed village that encourages visitor's experience of sustaining beauty. Owned and operated by Maeil, a dairy mogul, Sangha Farm is an apparatus for regional agritourism and functions as a Korean model for sustainable agricultural landscape.

Sangha Farm provides aesthetic experience of sustainable agricultural landscape by means of its programs and appearance. Sustainable farming practices and consumption of agricultural products are programs that not only represent the process of sustainable agriculture but also form relationships between the visitors and the landscape. On the other hand, Sangha Farm is designed with the pre-existing terrains so that the farm's landscape slowly reveals itself to the visitors. The multi-level terrains, with the elevated location of the farm – on a hill that overlooks the region –merges the landscapes and initiates dialogues with the surrounding region.

Through analysis of preceding research, this paper will take a look at the development of agritourism in South Korea, including history, policies and recent practices. For the case study, several articles including the research paper by the architect will serve as contextual sources while the author's first-hand experience of the farm will serve as primary source of experience. Elizabeth K. Meyer's concept of performance of (sustainable) beauty will serve as a starting point in discussing the experience of the sustaining beauty at Sangha Farm. The site will be discussed further utilizing other theories such as scientific cognitivism and everyday aesthetics to explain how such experience leads to educational and ethical concerns for sustainability. Finally, this paper proposes that considerations for the aesthetic experience of sustainable agricultural landscape should be a serious concern for agritourism industry, especially for post-industrial countries such as South Korea.

An Exploration into the Special Implications of Agricultural Landscape in Chinese Royal Gardens

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Keywords: Chinese royal gardens, agricultural landscape, the way of heaven, monarch

From the Qin and Han Dynasties to the Qing Dynasty, Chinese royal gardens have had a long tradition of including agricultural landscape. Taking the ancient monarchs as the research objects this paper explores several pivotal reasons why agricultural landscape can be inherited in the royal gardens: firstly, in ancient China, agriculture was the foundation of society, the monarchs had to show that they valued agriculture and attached importance to their people's livelihood. Secondly, from the monarchs' personal point of view, they generally had a desire to escape reality, and longed for the life of an ordinary farmer, so the agricultural landscape can be seen as a symbol of escapism which was reflected in the Royal Garden. Finally, after analyzing the theories of the early thinkers and the worship of heaven of the early monarchs, a brand-new and more profound reason can be found for the extension of agricultural landscape into Chinese royal gardens - the ruling class's awe of "the way of heaven", which represents the orthodoxy of their dominance in traditional Chinese thought.

Ancient River Beds and the Urban Morphology of Beijing

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Keywords: Beijing, Natural History, Urban Morphology

The Natural History of Beijing explores the underlying geology, hydrology, soils, climate, and other factors that contribute to the current urban morphology of Beijing. As Aldo Rossi questioned in The Architecture of the City, how does the environment influence the individual and the collective? This question is far more interesting than the opposite one of how humans influence their environment, he argued. As such, this research establishes a grounding - often missing in the history and practice of urban design - on the natural history of Beijing.

Evolution of the location and function of Beijing, in relation to its underlying geology, hydrology, soils and climate, is articulated from the birth of the city in Xizhou (1045BC) Dynasty to the present. In particular, a detailed graphic presentation of Beijing's water legacy illustrates how the city's water system (source, network, etc.) has evolved with its development. Since the Yuan Dynasty (1270s), ancient Beijing's physical planning had been solidly grounded in a thorough understanding of the city's natural environment. As a result, special articulation has been devoted to the three subsequent dynasties including Yuan (1271-1368), Ming (1368-1644), and Qing (1644-1912). To name a few important findings: the slight topographic elevation above the surrounding plain played a central role pinpointing the location of the Forbidden City; the country's most magnificent imperial water gardens, including the Summer Palace and Old Summer Palace, sit atop ancient courses of Beijing's mother river – Yongding, not because of remarkable coincidences.

Moving into the modern era, the city has been increasingly challenging itself with mega-city issues as the population continues to grow and urban planning fails to address that. Nonetheless, one cannot ignore the profound influence from its natural history, in particular, in determining the morphology of contemporary public open spaces. Similar to the imperial gardens, public parks also correspond to ancient river courses in location. Moreover, despite the lack of water in the current course of the Yongding River, a brand-new design of the channel again turned the river into a series of lakes to accommodate public recreation.

Through articulating Beijing's natural history, we demonstrate the persistence of natural factors in the settlement and development of Beijing. Discovery of such factors serves as an important start point of understanding a city, and ought to be better incorporated into the practice of urban planning and urban design.

Bridging Epistemology and Practice: The Role of Institutional Economics in Landscape Architecture Theory

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Keywords: Landscape Architecture, Institutional Economics, Epistemology, Explanation, Methodology

The objects involved in landscape architecture design and planning could not stand alone without social system, which is an essential component in shaping landscape. The ignorance of the importance of system will lead to the separation of landscape epistemology from practice. In the process of description and explanation, by overlooking system which actually acts as a determining factor, designer could easily raise critique from a professional perspective, but not grasp the essence of the problem; or in the process of reconstruction, the designer proposed a self-deception solution from the activity of planning and design although he/she knew well that the external system has formed a constitutional obstacle. This separation often happens in the system-less-developed countries/regions such as China, for example, the emergence of mega “civilian” plazas in Chinese cities were driven by the metaphor for political power instead of public needs, and the prevalence of Sponge City (LID) technology were due to government’s economic policy aimed at fueling related industries rather than solving real problems.

Landscape architecture should not only understand principles of system from epistemology scope, but also from practice scope, to extend beyond planning and design instrumentalism to a full-range practice including participating in and leading formation of rules and regulations. Institutional economics, focusing on the interaction between institutional change and social activities, could provide rationales to the description, explanation and reconstruction of landscape objects from the perspective of social process. In this article, the role of institutional economics in landscape architecture theory will be further demonstrated from three aspects: firstly, from the epistemological point of view, structural hierarchy of “value-interests mechanism-system” and the analytical approach of the methodological individualism can provide the explanation of landscape phenomenon from the fundamental motive of the development rather than designer's perspective; secondly, from the practical point of view, the designer-subjectivism could be changed to promote full-range integrated practice detached from merely planning and design; thirdly, since Landscape architecture was officially resigned as one of 110 first grade disciplines in China in 2011, the discuss on philosophy of science and methodology from the scope of institutional economics will explore the possibility of transforming landscape architecture from a professional discipline focusing on practice skills to a complexity science.

Changing Legacy Landscape to Evolving Social-Political Contexts in Contemporary China

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Keywords: Changing Legacy Landscape to Evolving Social-Political Contexts in Contemporary China

Though there are not many records, landscape changes coupled with rapid urbanization are indeed phenomenal in contemporary China. There is a clear and critical knowledge gap about contemporary landscape changes in China considering the fact that contemporary China is heavily influenced by and potentially influential to the rest of the world. This article searches for parallels between landscape developments and urbanization associated with social-political transitions in China from 1949 when the People's Republic of China was established. It is obvious that contemporary landscape demonstrates distinctive characteristics and plays different roles in China's urbanization during different phases. Landscape was first byproduct of urban development, but started to serve the identity of city centers after the opening policy in 1978. Soon landscape was part of the stimulus of urbanization and development of periphery of cities, and now landscape is regarded as potential solution to varied environmental and social problems caused by rapid urbanization. By drawing a panoramic view of the contemporary landscape development with changing characteristics to political succession in China, this paper can serve as a window through which the world has a glimpse of the achievements and challenges of China's contemporary landscape industry while stimulating in-depth thoughts over the future potentials as well as its potential influences to the rest of the world.

Chinese Influence and Gardens in Piemont

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Keywords: Picturesque Garden, Piemont

This thesis traces the rise of the Landscape garden in England during the 1700s, and its gradual diffusion across France, Germany and Italy. The new style, in a certain degree, inspirited by Chinese classical garden which represented a return to nature and informality, marking a departure from the formal, geometrical gardens which had reigned supreme in Europe during the preceding centuries.

The aim of this thesis, however, is not primarily to add to the stock of facts about picturesque but to take a intelligibly framework to view of the picturesque garden collapsed the opposition between nature and cultural processes in which facts about picturesque garden influenced Piedmont —the way, in particular, that the action of Chinese garden individuated in each country—that the nature, history, and semiotic or aesthetic character of picturesque garden is constructed in both its universality and particularity--from its place of origin the Britain to the Apennine peninsula. The role of the Chinese garden emergence of alternative formal solutions in France has different interpretations, the recognition of a parallel that has comforted and strengthened their lines of evolution of the English context. In Italy, this work is to offer a thorough account of Italy's reaction to and interpretation of the English garden as it occurred largely between 1764 and 1817. This will primarily be achieved by examining and comparing the plans of picturesque garden of this period which addressed the topic, and placing them in the context of the European debate as whole. In order to do so it is necessary to reconstruct nearly a century of theoretical and aesthetic contributions leading up to the 1792 in Padua, an event which constituted the first concerted Italian response to the giardino paesaggistico. In the same period, Piedmont erected the first picturesque garden in the Park of Castle of Racconigi, influenced by its French Princess Giuseppina. Finally, through comparing the similarities and differences with French picturesque garden, so that it concludes distinctive characters of Piedmont of picturesque gardens and its influence on urban public garden in the nineteenth century.

The research reviews the history that the rise of the Landscape garden in England during the 1700s, and its gradual diffusion across France, Germany and focuses on the picturesque garden in region of Piedmont Italy. From research of the history and many picturesque gardens in Europe shows a clear process how Chinese style influence on Piedmont gardens. The two features of picturesque garden in Piedmont are concluded: mixed the nature garden with old Italian ones that is following the French habit; second, abolished completely regular garden in order to create a pure landscape garden with a remarkable feature as vast water system.

Cincinnati Riverfront Urban from 1800 to 2016: Public Landing to Public Parks

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Keywords: Public Landing, Urban Form, Riverfront Redevelopment

Purpose: The purpose of this study is to understand the changes over time to the Cincinnati Riverfront urban form, and how those changes occurred. National and local level social and environmental changes and their effects on urban form are analyzed.

Method of Study: Archival work with an emphasis on historic maps, city land records, and period photographs. Fieldwork will document current conditions.

Background: The riverfront of Cincinnati, Ohio has changed over the last 200 years. Three periods of urban form and land use are identified: phase 1. public landing with four story mixed use buildings (1820-1940); phase 2. Warehouses with one story, single use buildings (1940-1960); phase 3. Transportation, parks, sports, mixed use (1960-2016). In each of these three phases, the impact of social and environmental changes will be analyzed.

The Ohio River has exerted significant impact on the riverfront. Flatboats and then steamboats carried goods up and down river. The Miami and Erie Canal, completed in 1845 linked the city to the Great Lakes. The amount of riverboat and canal boat traffic declined with the increase in the railroads after the Civil War. This lead to a gradual decline in the use of the public landing.

Canalization of the river was completed in 1929 with the construction of many locks and dams, which lead to a gradual increase in barge traffic on the river. The catastrophic flood of 1937 moved city officials to propose a transportation corridor, Fort Washington Way, in 1946. In 1961, the Central Riverfront Study proposed a stadium, residential towers, parks and recreation, and reconfigured public landing. Between 1970 and 2016 numerous projects have been completed in the area to transform the old public landing to a busy mixed-use district.

Importance: Cincinnati Riverfront is a case study for cities to evolve from a commercial public landing to a mixed uses area with transportation, parks, sports, and residential. National and local level social and environmental factors have impacted and changed the urban form of this area. Change has occurred over a long period of time with the support of city government and the public. Redevelopment has been funded with a mixture private and public investment.

Codification of Ecological Aesthetics in Landscape Architectural Practice (2000-2015)

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Keywords: Ecological Aesthetics, Codification, Landscape Architecture, Design Language

Since the 1970s, the calls for a new design language (or aesthetics) in ecological design have been repeatedly suggested in the discipline of landscape architecture (Thayer 1976, Koh 1982, Corner 1997, Olin 1997). Over the years, landscape theoreticians kept proposing different routes in relating ecological concerns with site-scale landscape design (Koh 1982, 1988, Mozingo 1997, Meyer 2008). And, social scientists kept providing evidences from various ecological environmental settings that people prefer organized scenery and amenity to chaotic natural settings (Gobster 1999, Nassauer 1992, 1995, 2012). While it was recognized that ecological design, "will require a fusion of science and art" (McHarg, 1997, p331), the aesthetic propositions scatter, with conflicting proposals and unsolved dilemmas, and wait testing for different ecological issues and in diffident biological areas. Among practitioners, it was not until 2000 that to engage site-scale design vocabulary with ecological considerations (or vice versa) became trendy.

In order to verify ecological aesthetic propositions, it is worthwhile to examine how landscape architects visualize ecology in practice. In this study, 197 recognized projects accomplished in the period from 2000 to 2015 were selected from the database of ASLA national award winning projects and three major landscape architectural magazines (Landscape Architecture Magazine, Topos, and Landscape Architecture Australia). All selected project is built projects that create tangible human scale environment and incorporate ecological considerations.

Each project is examined on three aspects, such as design process, literacy, and grammar. First, as in design process, how are aesthetics and ecology aligned, overlapped, combined, or fused by landscape architects at different phases? Second, as design literacy, are there any new vocabulary (such as form, space, color and texture), syntax (new aesthetic and composition principles), and semantic (new symbols achieved) resulted that make ecology visible and tangible? The answers are compared with mature design styles and existing ecological aesthetic proposals. Third, how did the intrinsic dilemmas of ecological aesthetics (e.g. More energy and materials are consumed in order to express ecological concerns in tangible form and space) solved, compromised, or ignored in design practice? This study codifies ecological aesthetic theories and updates the design language.

Color(ful) Predicaments in Landscape Architecture

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Keywords: Color Theory, Landscape Painting, Artificial Vs. Natural, Color Vs. Form

Landscape architecture is an ideal field in which to explore the elusive subject of color. Color is inherent in both nature and landscape painting, two of landscape architecture's primary sources of inspiration in the west. Although landscape architects make great efforts to locate their vocation in the deep layers and dynamic systems of the earth's surface, landscape is also a problem of surface with its own unique multiplicities. Color describes the surface, but that surface is far from superficial.

Laying out his theory on art and nature, the 19th century French poet and writer Charles Baudelaire argued that color is both a primary agent of concealment and a primary device of display. In the hands of the naturalist-draftsman color is used for imitation of nature and concealment of its defects. In contrast, in the hands of the artist-colorist color is used for the translation of nature and display of human presence in it. For Baudelaire art was a matter of interpreting, not mimicking, nature.

This paper neither analyzes color compositions nor identifies what color went on which surface. Rather, it uses successive landscape architecture theories that are configured around color as a lens to understand a number of discursive thematics or debates that are still active today, such as natural vs. artificial, native vs. exotic, sensation vs. concept, and affect vs. form. Specifically, the paper examines influential 18th and 19th century landscape color theories and practices through the writing of five figures – Humphry Repton, J.C. Loudon, William Robinson, Gertrude Jekyll, and Sir Reginald Blomfield – who dominated the evolving color taste in England at the time.

The paper uses both primary and secondary texts to map affiliations, oppositions, and intersections among theoretical color models of the period. As this paper shows, color theory shifted from "structural color," to "blinding polychrome," to "pointillism," to "formal color," before "color 'en mass'" came to dominate the modern scene. It argues that color propensities in landscape architecture were tied to evolving disciplinary attitudes to nature and art and linked to contemporaneous discourses in art, architecture, and horticulture. Ultimately, the study reveals an intricate network of working influences within color traditions, pragmatics, and novelties that shape color theory and practice.

Communication and Combination: the development of landscape architecture heritage under Cultural heritage protection campaign

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Keywords: Landscape Heritage, Cultural Heritage Theory, Communication, Development

Landscape Architects often work on landscape conservation projects without an understanding of cultural heritage theory, thus bringing some problems such as offensive design, context separation, ecological ignorance, etc. This paper presents a new framework to assist landscape architects working on cultural heritage projects understanding the history and methodology of cultural heritage theory.

Cultural Heritage is an expression of the ways of living developed by a community and passed on from generation to generation, including customs, practices, places, objects, artistic expressions and values. (ICOMOS, 2002). From late nineteenth Century, the cultural heritage conservation gradually became an independent discipline. The practice and theory of European countries experienced the deepen understanding of the cultural heritage concept, extension of the objects, correction and adjustment of the purpose and principle, and exploration and improvement of the methodology. Based on the history of cultural heritage companion, the paper cards three important stages of landscape conservation. The initial stage, the emerging of landscape heritage theory, is characterized to historical landscape in The Florence Charter. The improvement stage is symbolized of sustainable development, ecological environment and cultural diversity becoming the mainstream of contemporary heritage in twentieth Century, which promotes amounts of theories and practices on landscape conservation. The perfect stage, the popularity and normalization of landscape conservation, is characterized to augment of World Cultural Heritage List, especially cultural landscape, making the landscape conservation becoming an important component in cultural heritage theory.

Then the paper gives three landscape conservation cases being used heritage theory. Firstly, since the "alive and dynamic" characteristics of landscape heritage, it requires landscape architects to consider time and ecology elements into application. Secondly to continue the original artistic context and spirit or maintain cultural relationship between architecture and its environment, it is compelling but necessary to rebuild the ruined landscape to display the culture continuity. Thirdly, some landscape heritage, with enormous scales and complicated elements need integrity and hierarchy methodology out of heritage theory.

Lastly, it concludes that as an important part of cultural heritage, the development of landscape heritage contributes and enrich both the theory and practice of cultural heritage theory. As a carrier and manifestation of nature and humanity, and witness of humans' diverse activity, the development of landscape conservation requires in-depth combination and communication of cultural heritage theory.

Comparative Analysis of Landscape Heritage of War in China and the United States: Values, Perspectives, and Conservation Strategies

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Keywords: Landscape Heritage of War, Social Memory, Value, Conservation Strategy

Landscape Heritage of War is the material remains after the war, or various monuments and memorial spaces that are established to memorize the war. This paper examines the dilemma of Landscape Heritage of War in the context of modern social and urban development in China. Specifically, the paper demonstrates the core values of Landscape Heritage of War from three aspects: expansion of the carriers for social memories, space production for the Landscape Heritage of War, and evolution of its value based on two different perspectives through comparing cases in China and the United States. This paper proposes conservation goals through fulfilling the tasks of establishing the reconstructive framework for social memories of special protection value, protecting the core area of Landscape Heritage of War, and reconstructing the landscape carriers for social memory in order to further establish and strengthen the spatial network of Landscape Heritage of War in the city. Through landscape designs, these tasks also need to tackle the profound relationships between holy and daily, to memorize or to forget, happy and sad, and exposure and conceal, in addition to conserving the core units of Landscape Heritage of War. This paper summarizes several kinds of examples in China and United States, including the remains, public commemorate spaces, and tourism sites. Finally, the paper provides suggestions for future development of Landscape Heritage of War through the lens of cultural concerns and social value interpretations.

Design with Nature: Ian McHarg's ecological wisdom as actionable and practical knowledge

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Keywords: Ecosystem Services, Ecological Planning, The Woodlands, Green Infrastructure, Design Process

Ian McHarg's influential book Design with Nature (1969) synthesizes and generalizes his ecological wisdom in informing landscape planning and design. In this paper, we suggest that his design process leads to the expression and application of his ecological wisdom as actionable and practical knowledge. Key features of his design process include: (1) multidiscipline integration to provide holistic design strategies, (2) ability to tackle wicked design problems residing in a wide range of scales, and (3) targeting landscape performance in a quantitative manner. We review the development of McHarg's ecological wisdom in the context of his education, teaching, and practice, as well as the influence from scientific theories of Charles Darwin and Lawrence Henderson. Then, we illustrate McHarg's design process using The Woodlands, Texas, a 117-km2 town development that McHarg considered to be the most ecologically based in the United States in the 1970s. Four decades of empirical examinations reveal the outstanding performance of The Woodlands, highlighting the credibility of McHarg's ecological wisdom. Compared with adjacent Houston communities, The Woodlands shows significantly less stormwater runoff during 100-year storms, substantially lower pollutant loadings (e.g., NO3-N, NH3-N, and TP), lower levels of forest fragmentation, an average of 2 °C lower land surface temperature, and higher walkability and pedestrian access to open space. We conclude that McHarg's design process fosters the application of his ecological wisdom in an actionable and practical manner in The Woodlands case.

Drain, Reclamation and Settlement Landscape Architectural analysis of Polder landscape in Ningshao plain

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Keywords: Polder Landscapes, Ningshao Plain, Design Analysis, Formal Analysis

Ningshao Plain is one of the oldest polder in China. During 2000 years of reclamation, variable and primeval swamp had been transformed to fertile polder landscape with hydraulic system composed of dykes, rivers, reservoirs, weirs and sluices. The great variety in polder forms is caused by differences in the geological subsoil, the dynamics of water and land and human intervention. The research is based on historical maps, traditional maps, historical photographs and local records, combined with spot investigation. Firstly, the research introduces the history of the reclamation in Ningshao Plain and discusses the dynamic natural and cultural factors during the transformation of polder landscape in Ningshao Plain. Secondly, from the perspective of landscape architecture perspective, the polder landscape of Ningshao Plain is divided into multi-layer system which contains the natural system that reflects the geological process, the agricultural system that derives from natural forms combining with land use, and the settlement system that are characterized by hydrological system and reclamation mechanisms. In this way, the polder landscape of Ningshao Plain is divided into several different polders complex and is revealed the cohesion and variety. Finally, the research analyzes the integrative relationship of farmland water system, land division and settlement construction in Ningxia plain with the background of polder landscape, and summarizes the great influence of polder landscape on human settlement environment of Ningshao Plain.

Everybody (i)s gardening – The Impact of Leberecht Migges ideas referred to the present development of urban gardening

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Keywords: Leberecht Migge, Gardenreform 20th Century, urban gardening, social gardening, garden technics, garden plot, self-sufficiency, garden theory, architectural garden, urban planning

When German garden designer Leberecht Migge (1881-1935) announced in 1913 that everyone should have access to gardens and gardening and not just the affluent society, he opened up an entirely new branch of landscape architecture in the German-speaking countries in Europe. During times of hunger and confined living conditions it was his idea that growing own food and recovering in a private or shared garden would have a huge positive impact to the community itself and the economy in general. Famous for his social commitment and his theories on self-sufficiency, he completed the whole range of projects: from large scale, private estates to public parks to backyard gardens. Nevertheless, his functional approach that gardens should serve for food production and recreation, both having a positive impact on health, can be seen in all his works. Today, more than a hundred years later, social movements of urban gardening, gardening communities, organic farming and even guerilla gardening are very popular and have at least to be considered in any new city planning. In times of economic growth, isolation, diseases of affluence and benchmark tests in the industrial countries, it comes to the question, how up to date is Leberecht Migge with his claims? He proposed ownership of a garden as a fundamental right for everybody, which was a very courageous and futuristic claim. From the present point of view, how should we deal with that approach? Did we already built the bridge between past and present, what are the requirements of our times and how can we merge his ideas with today's developments? The purpose of the study is a focus on Migges theory, his practical approach to gardening as well as the positive impact on society and relate it to current developments. With the method of comparison parallels and differences in social life, possibilities and utopian thoughts will be considered.

The paper will be based on a number of plans by Leberecht Migge, which were recovered in 2015 in the Archive of Swiss Landscape Architecture. These are the only existing original drawings from this visionary thinker, as all of his office archives were destroyed in Germany in 1935. The recovered plans give great insights in his approach. It is, in contrast to all previous studies, the first time that research on Migge can be done with his personal notes and drawings. Initial assessment of this spectacular and detailed material already reveals completely new aspects of Migge's work and motivation.

Fifty Years of Golf Digest Course Ratings: Charting Golf Architecture's Historic Trends and 21st Century Evolution

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Keywords: Golf Course Architecture, Landscape History, Golf Architecture Evaluation

Golf architecture has a distinct niche in the history of landscape architecture, and Golf Digest magazine has the oldest course architecture rating system in golf. Golf Digest's rating publication celebrated its 50th anniversary in 2016, and provides rankings using panelist evaluations that produce America's 100 Greatest Golf Courses, Best in State, and Best New Course (Whitten, 2015). The purpose and methodology of this presentation is to reflect on the history of golf architecture and rating systems to identify trends.

In the 1960s, William Davis, Golf Digest founder, developed the idea of ranking championship courses. The ratings in 1966-1967 were based on United States Golf Association (USGA) course ratings. These ratings evaluate the difficulty of a golf course. In 1966 Davis published a list using USGA course ratings titled, America's 200 Toughest Golf Courses. This list identified the toughest courses in the country alphabetically, and not in comparison.

In 1969 Davis assembled a board of golfers to establish a more developed system. Whitten (personal communication, April 20, 2016) noted the 1969 rating became America's 100 Toughest Tests of Golf, and in 1973 America's 100 Greatest Golf Courses. Whitten added that from 1969 to 1983, "a panel of 100 qualified golfers would meet and discuss what courses should be in the top 10." It wasn't until 1985 that board members became panelists and the first statistical method of rating was created.

Today, architecture panelists, including myself, rate courses on seven evaluative categories: (1) Shot Values, (2) Resistance to Scoring, (3) Design Variety, (4) Memorability, (5) Aesthetics, (6) Conditioning, and (7) Ambience (Whitten et. al, 2014). These categories are rated on a scale of 1 to 10, with 10 being "absolutely perfect."

This study utilizes evolving ranking systems and historic quantified rankings and then detects trends in a qualitative approach. In comparing the historical methods of Golf Digest ratings, it is evident that the quality of a course is no longer dictated on perceived difficulty. The evolution of the rating system, and rankings, indicate that current golf architecture values the genius loci of the course, playability for all golfers, environmental awareness, "fast and firm" conditioning, an emphasis on the holistic golfing experience, and design strategy.

The importance of this presentation is to reflect on the historical trends of golf architecture as evaluated through the lens of an authoritative rating system. Such reflections evaluate practices and discernment of golf design and landscape aesthetic perception.

Forms, Transitions, and Design Approaches in Landscape Architecture: A Feminist Perspective?

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Keywords: Gender Issues in Landscape, Female Landscape Forms, Female Design Approaches, Women in Landscape

Do female landscape architects design differently than their male counterparts? For many decades, this seemingly simple question has been often contemplated, but little answered. The issue remains an uneasy topic of conversation to people in the field of landscape architecture. Although previous scholars have made contributions toward examining the questions of gender, culture and landscape, there has yet to be a definitive work that outlines and explores the potential gender issues that today's landscape architecture professionals may encounter. Among those issues, questions in feminist inquiry provide a general framework for the study: what are the forms, transitions and approaches that female designers use when building landscapes?

A letter of survey request was sent to female professionals in the United States. The result of the study was built on 21 participants' answer to the questions: Are there female landscape forms? Does their design thinking/philosophy differ from other male colleagues? What are the historical transitions in women's design approaches since 1899 ASLA founded to the present day? Through the analysis of literature review and survey response, an understanding of how female designers consider their gender identity influence the design process emerges. Besides, further issues are identified, including the "male designers'" approach, types of landscape projects that females are drawn to, gender role in the power structure of landscape profession, and so on.

Gender may influence the design process but not outcome. The major goal of this study is not to build a description of how or why female may design differently than male. Instead, it tells a story about gender stereotypes do not necessarily aligned with our expectations. Even we might think such proposition wrong and Chauvinist, it deserves more in-depth examinations in our discipline. Using qualitative research strategy, this paper attempts to explore the forms, transitions and design approaches through the eyes of female professionals. In doing so it provides a novel perspective to landscape designers of any gender, and encourages them to consider how their innate female personality might potentially influence design thinking. This work will encourage landscape professionals to develop a critical eye for looking at designed forms as cultural vehicles for gender construction.

From Nature Represented to Nature Reconstructed: a Paradigm Shift

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Keywords: Public Parks, Nature Representation, Nature Reconstruction, Identity, Nation-Building, Sustainability

Recently born and fast developing state, Singapore, as other emerging 'Asian Tigers' constantly competing for cultural, political and economic hegemony, has made nation-building and quest for identity in a globalized world, one of its primary goals in landscape planning (Kong &Yeoh 2003). Also addressed as 'Garden City' [1] or, more recently 'City in a Garden' (NParks, 2004), since its foundation the nation has chosen Nature as its emblem.

Research addresses manipulated nature in Singapore in the form of public parks, with the scope of uncovering if and how the goals of nation-building and identity making, achieved through the strategy of green urbanism (Newman, 2010; Newman & Matan, 2013; Johnson, 2008) are also associated to the achievement of a social, cultural and ecological sustainability. The paper expands on existing literature on green urbanism which increasingly informs planning of Asian cities (Hoffman, 2011; Zhao, 2011; Jim & Chen, 2003).

On-site survey and archival research are used to document design and planning strategies of Singapore's public parks developed since post-Colonial times.
It is found that the parks take the form of a system, where nature has initially been represented, with designs ranging from large-scale sculptures to choreographic landscape settings, meant to infuse 'character and identity' to public space (Eng 1996); then from mid-1990s reconstructed, with man-made wetlands, recovery of secondary forests and mangroves, and a re-structuring the whole water network – canals and reservoirs developed since Colonial times – to shape a 'water narrative' with parks and water bodies conceived as functional and ecological infrastructure and biodiverse social amenity (Velegrinis& Weller, 2007).

In an unstable balance between representation and sustainability, Singapore's public parks emerge as an on-going experiment of induced social narrative and ecological performance.

From the Gardens in Qur'anic to The Mughal Gardens of Lahore

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Keywords: Islamic Gardens, Qur'anic Verses, Mughal Architecture, Paradise, Chahrbagh, Paradisiacal

Gardens are built landscape form to reflect certain ideological principles, employing certain physical elements and focused on certain intentions. The gardens are symbolic site of heaven on earth materialized by human (Alon-Mozes, 2004). The model for Islamic gardens all over the Muslim world has been reported in 166 verses of Holy Qur'an (Gardet, 1983: Kassis, 1983) describing colors, smells, sounds, spatial elements, trees, flowers, water and micro-climates of paradise. Therefore, the Qur'anic description of paradise served as basis for designing these Gardens.

Gardens, architecture, art and craft flourish if peace and stability prevails for longer time. It was during the stable Mughal empire rule (1526-1707) that resulted in greatest garden's landscape traditions of the world (Kausar, S., et al., 1990). Like other Islamic gardens, Mughal gardens flourish the idea of religious paradise on earth therefore interpreted as symbol of earthly paradise. The philosophical design concept of Mughal garden had a style heavily influenced by the Persian gardens of Chahrbagh; having structure including the use of rectilinear layouts with its walled enclosures, evoking the idea of religious paradise as well as dynastic pleasure (Brooks, 1987).

This paper seeks to explore the philosophy behind the creation of mughal gardens Lahore in the light of Qur'anic verses. Therefore, research focus on precise relation of Paradise garden with selected gardens sites of Lahore, sites include pleasure garden Shalamar, Palace gardens in Lahore Fort and tomb Gardens of Shahdara complex. As the survey study was conducted in Lahore, the second largest city of Pakistan and one of the ancient cities of the world. Lahore has been the capital city of Mughal dynasty which also came to known as "City of Gardens".

First part of this research is to study the Holy Book of Quran and understand the 166 instances, where description of paradise gardens has been given. It's also explains Qur' anic paradise garden imagery to identify different attributes of paradise as these paradisiac images served as basic concept behind selected garden sites. Whereas second part is observational survey about Mughal gardens Lahore. This survey investigates the fundamental paradisiacal symbolism in garden design elements of these gardens. conclusively, the reason behind formation of mughal gardens are Qur' anic verses, as Islamic garden landscape reflects the articulation of these elements which are deeply rooted with cultural believes of Muslims.

From Vision to Sound in Historic Islamic Gardens

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Keywords: Islamic Garden, Sensory Perception, Sound, Representation

When we talk about gardens, we often elide the representation with the original, so that we say we are looking at a garden, when in actuality we are looking at a digital or photographic picture of it. This elision of signifier and signified is detrimental to the experience of a garden because a picture is an incomplete substitute for the real thing. One must be bodily present in the garden to hear, feel, and smell it. Furthermore, there is no satisfactory way to accurately represent those elusive, evanescent but utterly real sensations; the pictures and words that record the fleeting experiences can capture only the visual character of the environment. Yet across the Islamic world from the seventh-century to the present (and in many other environments as well), we know that gardens were living environments animated by birds, animals, and insects as well as fountains, creaking waterwheels, and the sound of footsteps crunching gravel. Focusing on the early Islamic gardens of the Mediterranean, I will analyze three types of soundscapes: the first two—intentional musical performance and background sound—can be designed, but the third—the incidental sounds of birdsong and insects—can be invited but not controlled. To overcome this lack of control, ingenious tinkerers introduced mechanical birds and animals. Using water pressure or steam to drive the contraptions, a lion fountain could be made to "roar" and a bejeweled silver bird seemed to tweet. There are ramifications in this for modern garden restoration, because if we think it is sufficient that a garden should simply look like its former self, we will have missed one of the profoundly humanistic dimensions of the garden.

From West to East: Shan-Shui Pattern as The Key Characteristic of Regional Landscape Character Assessment for Inheriting the Cultural Identity

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Keywords: Shan-Shui pattern, Landscape character assessment, Cultural identity, Lushan National Park

Landscape character assessment (LCA) is a synthetic and dynamic tool to manage the landscape, which is increasingly exploring from the west to east. However, it could not be utilized in China completely, it is because there is a distinction in natural philosophy, which leads to a different understanding of landscape. Most of the European LCA approaches select a number of natural elements and overlay them as the key characteristic for identifying, classifying and mapping the landscape. By comparison, Chinese natural philosophy uses Shan-Shui(山水) to analyze the components of the landscape, in this case it needs a unique pattern to deal with the key characteristic in China. The aim of this paper is to highlight the various methods of LCA in a different cultural context and explore the possible applications in regional scales.

Shan-Shui (山 水) refers to mountains and waters in Mandarin. It is the artistic expression of Chinese landscape appreciation (Chen Yang, 2016). This article describes a vernacular model, "Shan-Shui pattern" (SSP), which provides an integrated approach to cultural identity in LCA framework. Cultural identity is strongly associated with the ways in which people interact with their landscapes (Stephenson, 2008). When SSP deals with the landform features based on the Chinese traditional culture perception, it always takes scenery into harmony, containing three key features: the basin feature, the mountain form feature and the viewpoint feature through a combination of a quantitative and qualitative analysis. Those features emphasize the interaction between human perception and the natural system.

This paper will take an empirical research in Chinese Lushan National Park, the cultural landscape of UNESCO with a great historical significance. The SSP model utilizes for LCA in Lushan is developed in the following steps. Firstly, illustrate the landscape value of Lushan from the Shan-Shui poem, Shan-Shui painting and Shan-Shui garden, using the archive research as the quantitative analysis, which traces the landscape change for the time-depth. Secondly, map the basic zones by the key features (basin, mountain form and viewpoint) according to the GIS and cartographic analysis as the qualitative analysis. Lastly, identify and cluster the landscape units, and then describe the key characteristic of Lushan based on the Shan-Shui pattern. The significance of this research focuses on the diverse LCA approaches in different cultural context and explains the potential innovation for inheriting the cultural identity.

Healing the Trauma of Displacement: the role of heritage, ontological security and sense of place

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Keywords: Displacement, Ontological Security, Climate Change Displacement, Migration

In the coming decades, natural and human induced wars and disasters will have an increasing effect on the world's population (Collette 2007). For the over 65 million forcibly displaced people in the world – up from 19.4 million in 2005 and continuing on an upward trend – the loss of place, and a physical connection to a landscape of home is often a significant source of trauma and hardship (UNHCR 2015). This "trauma of exile" as described by Said (2000) refers to the "unhealable rift forced between a human being and a native place, between the self and its true home" (173). The trauma of displacement has developed a multidisciplinary body of research focusing on the short and long term psychological and health impacts of displacement. However, the focus on displacement has left a gap in our understanding of the processes of emplacement (Sampson and Gifford 2010).

The trauma of dislocation is compounded and deeply connected with the inevitable struggle of creating ties to a new place, in an alien environment (Turton 2005, 278). However, the literature is lacking when it comes to understanding these processes. Adjusting to new social environments, different physical ordering of space, as well as unfamiliar ecosystems and landscapes are challenges facing refugees as they pass into temporary camps and later again as they reach a resettlement location. While we understand the psychological and health effects of the trauma and loss, we do not yet fully understand the process people use to adapt to new environments. There are several mechanisms by which people relate to a new environment, and transform a "space" into a comfortable and familiar "place." One is "to literally build, construct, and inhabit landscapes that enable the person to continue to live a familiar lifestyle" (Jean 2015, 50). For many, creating a garden is the expression of heritage by which they modify and inhabit their new landscape, often creating a microcosm of the former and beloved home place.

This paper develops the theoretical understanding of temporary emplacement through a case study of the development of spontaneous gardens within the refugee camp at Zaatri, Jordan. Using the extensive mapping and social media documentation available between 2009 and 2016, we analyze the phases of creation of outdoor spaces – for both food and place-making – during the current life span of the camp. Those results are compared with interviews and observational site analysis from a visit to the camp. The results identify a typology of created spaces, their meaning to the camp inhabitants, and the potential for a heritage- and garden-based programs to alleviate displacement trauma. Our work contributes to an understanding of how refugees transition from displacement to emplacement through a process of place-making.

How to Design the Memory of Place in the Place of Memory?

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Keywords: Memory of Place, Reminder, Vanishment, Permanence, Counter-Monument, Aesthetic Experience

"The place of memory" is a place that is linked to specific memories and has interacted with visitors through memory. Some places, especially those that have an aged and rusty appearance, which is not typically preferred by people, can create a special aesthetic experience. These places are welcomed if the memory is regarded as positive. A number of post-industrial parks, memorials and museums demonstrate the positive interpretation of this memory and the affirmative (or reflective) attitude.

It is important that the memory of these places is not usually regarded as something friendly, positive or aesthetic. Some memories—such as wars, terrorism, genocide and environmental catastrophes, such as earthquakes, droughts and floods—of the modern period face a dilemma between the necessity to remember and the violence of the memory of the trauma. In many cases, a proper approach to designing this memory is to embrace, understand and mourn the memory. However, this is not a single approach to cover all cases. how can we design these memories in another way?

There are some further questions to answer the above question: Can the memory really represent the place and for how long? There are many layers of memory that have accumulated for a long time in a place or landscape. Of these, which memory represents the place? Also, how long does the memory continue to interact with people and is preserved? If some memory of the place is really important, can the memory reminded in the place be permanent as a medium of memory?

This study aims to explore the ways of designing the memory in a place to function as the medium of a specific memory. The study starts with two main questions: Should the memory in the place and landscape always be understood and preserved to welcome a positive view? Can such a memory indeed represent that place and how long can the memory continue to do so? First, this study categorizes the ways of designing the memory in a place or landscape: reminder or reminiscence, vanishment, permanence, understanding design approaches and the aesthetic experiences of the place. Some examples are the 9/11 Memorial, Seonyudo Park, the Holocaust Memorial in berlin, the Harburg Monument against fascism, the old Chosun Governor-General Building, and the Vatican City. In conclusion, I explain how these places can generate the power of aesthetics, as they were constructed with an appropriate understanding of the memories.

Investigation of the Influence of Western cultures on the Merchant Landscape Architecture Style in the Late Qing Dynasty (1840-1911): A Case Study of He Zhidao (1835-1908)

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Keywords: He Zhidao, Merchant Gardening, Gardening Practice, Western Culture

Huizhou merchants gardening, as an important part of gardening activities, due to its own identity with the characteristics of officers, merchants and confucianism, changed along with the age. This paper puts this smulti-identities together, viewing Huizhou merchants gardening as the progressive new identity pursued under Western influences in the late Qing Dynasty, and research into He Zhidao.

He Zhidao was a representative figure with identity of merchant, officer and literati in Huizhou merchants. What's more, the He Zhidao family has been known as relations of Li Hongzhang, Beiyang minister and Sun Jiading, the master of Guangxu emperor. Besides, He Zhidao retired earlier through the decline of the Huizhou merchants, and he had more abundant gardening practices. Therefore, the He Zhidao family were representative figures of the Huizhou merchants. An analysis on his life therefore also helps to increase the understanding of the change of his gardening practices. This is put in perspective with respect to social and environmental consequences of policies in the late Qing Dynasty, the relevant literature of Chinese social, relevant documentary of He's descendants and museum collection materials, as well as interviews with his descendants. And this done by investigation of Yangzhou Ho Family Garden, Shanghai Ho Family Garden and Chizhi University which providing a holistic analysis of landscape design, architectural features, material selection, interior decorationand application of plants. Additionally, it has analyzed the influence of western culture on the living conditions of the merchants in the late Qing Dynasty from the purpose of gardening, garden types and building types.

This study re-evaluates the influences of western culture in the creation of the modern Chinese merchants' landscape design by He's gardening practices. From Yangzhou Ho Family Garden to Shanghai Ho Family Garden as well as Chizhi University, He Zhidao's gardening style has changed from the first type of combination of Chinese and Western cultures to entirely drawing lessons from western gardening techniques.

Kah-kee Style, Cultural Universe of Overseas Chinese and Hybrid Modern

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Keywords: Modern Landscape History, Campus Landscape, Hybrid Modern, Cultural Identity, Overseas Chinese

The paper investigates the campus landscape of Xiamen University, a newly emergent modern landscape among the profound changes in China's higher education at the turn of the 20th century. Linguistically, campus in Chinese implies a connection with traditional Chinese social practice of gardening. But meantime, it is imbued with a public dimension, providing teaching, learning and living spaces for staff and students, different from the private domain of traditional Chinese gardens. Via the two veins, the paper explores the combined influences of traditional Chinese garden design principles, and the broadened outlooks of Overseas Chinese sponsors on creating campus landscape of Xiamen University.

As the first private university in China, Xiamen University was established and sponsored by Singapore's tycoon Tan Kah-kee in late 1910s. It turned Xiamen from a cultural backwater into one of China's elite center of education. Its campus was initially designed by reputed American architect Henry Murphy, and later re-organized and constructed by its sponsor Tan Kah-kee, indigenous technicians and craftsmen. Its distinctive regional style, called Kah-kee Style, became the source of inspiration for the search of modern campuses in China. Focusing on Kah-kee Style, the paper investigates its landscape explorations towards a re-recognized cultural identity, under the broadened outlooks of Tan Kah-kee developed through childhood Confucian education and later experience overseas.

Based on archival research and field works, the paper explores the Western influences, like the ideas of functional zoning, series of quadrangles, and the use of axes. It also uncovers the traditional and indigenous components remained or recycled in various ways, such as the geomancy belief used in site selection, the borrowing scenes from natural conditions (jiejing), an ethic of Confucius aestheticism, etc. The paper will reveal the ways of combining the new efficiency of a modern campus with the old beauty and practicability of Chinese landscape, against the backdrop of Xiamen's material renovation and the reconstruction of the moral fabric of society under the cultural universe of overseas Chinese.

Landscape Architecture in China Since 1900

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Keywords: Chinese Landscape Architecture, Modern Time, Practice, Theories, Landscape Architect

Though China had a long and unique tradition of garden and landscape, it had more or less been influenced by western park movement and the initial public garden emerged in the 19th century. A few public gardens and parks constructed by western colonists, Chinese officials, local gentries and the royal family opened in the first decade of the 20th century. After the abdication of the last emperor in 1912, the royal parks in Beijing were opened to the public in succession. Subsequently, the establishment of modern universities brought the campus landscape, and the construction of parks in some cities formed preliminary green space system. Some western-trained Chinese architects and landscape architects opened the garden or landscape course in the university. After 1949, the new government built many parks in different cities and some new style parks which combined Chinese tradition and modern style appeared in this period, such as Huagang Guanyu park in Hangzhou. The landscape education in modern sense was established in university in 1950s. After the standstill caused by the Cultural Revolution, landscape industry was gradually restored in 1980s, and Shanghai Fangta park and Beijing Xiangshan Hotel garden were representative works of this period. The translation of landscape theories and introduction of foreign landscape works gradually increased the understanding of worldwide contemporary landscape in Chinese landscape professions. With the rapid urbanization, local governments paid much attention to the urban landscape development and tried different approaches, some of which were very influential in a certain period but also caused a lot of reflection later. The expanding market of landscape design and planning resulted in the reform of state-owned landscape companies and the springing up of private landscape offices, also attracted landscape architects all over the world. A great number of projects, the constantly expanding field of practice and the intense competition between different companies stimulated the raising of professionalism. Many universities set up the major of landscape architecture and the number of enrolled students increased dramatically, and new professional magazines appeared constantly. In the 21st century, Chinese landscape architects began rising to prominence. Some works aroused international attention and won important awards. Today, China's landscape architecture has become a significant force in the world landscape industry.

Landscape Architecture Leading Inter-discipline and Culture Spiritual Homeland Building: Case Study of Contemporary Southeast China Zen Buddhist Theme Recreation Tourism Parks

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Keywords: Zen, Landscape Architecture, Human Spirit, Inter-discipline and Culture, Integrated Experience, Eco-natural

The ancient Chinese Zen Buddhism is a fusion of traditional Chinese culture and Indian Buddhism, which blends the essence of Chinese metaphysics and the philosophy of Zhuangzi (School of Taoism). Under the three principles of imitation of nature, innovative recreation of nature, and enjoyment of being detached from the world, Zen and Chinese traditional landscape architecture complement each other to form the essential part of Chinese traditional scholar spirit and the appreciation for aesthetics.

The modern cultural recognition in China inspires China's tourism development for scenery attractions, entire-region tourism development, and recreational and leisure tourism development. These efforts focus on rebuilding the cultural spirit based on the fulfillment of individual's experiences. During this process, landscape architecture has been the crucial player that bridges the manifestation of interdisciplinary and cultural tourism experiencing, in order to construct a lively environment for an immersion of cultural perception.

In this paper cases study reveals the universal harmony with nature would be achieved through balancing the personalized requirements of multiple human activities and spiritual fulfillments through systematic planning of landscape spaces. The analysis is mainly based on pertinent landscape design methodologies with additional analyses from the perspectives of cultural historiography and religious culturology.

Key results of this paper are presented below:
1. The success of interdisciplinary and cultural landscape design lie in a thorough understanding of, and respect to the natural environment coupled with organic human interventions through landscape architectural design.
2. Cases study indicates that the featured, personalized Zen training activities are seamlessly integrated with the multiple tourism functional requirements at more advanced levels, in comparison with the integrated system of traditional Chinese landscape architecture as the paradise for inhabiting, wandering, touring, and scenery appreciation.
3. In addition to an individual's Zen achievement, the quest for ultimate wisdom include inheritance and innovation and divine salvation and fulfillments. The salvation is for modern human being's spiritual life, which is suffering from anxiety. Zen would urge people to quit the attitude of arrogance to nature, to improve the relationships of human and nature, and other ethnical group, to focusing on soul adjustments in order to achieve ultimate harmony. Therefore, landscape architecture would act as the interweaving thread for the construction of human spiritual and an eco-friendly, natural homeland.

Landscape Ecologism: An Ecological Ideology Expressed by Theories and Practices in Landscape Architecture Design & Planning

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Keywords: Ecological Ideology, Landscape Ecologism, Ecological Ethics, Ethical Aesthetics, Ecological Park

Landscape architecture offers an integrated approach for understanding and modeling the surrounding environment. It further provides opportunities to mitigate or prevent potential risks. Landscape ecology and urban ecology have helped transform the theories and practices of landscape planning and design, while landscape urbanism and ecological urbanism have opened new possibilities for reexamining city planning and the role of humans in urban ecosystems. This essay explores the meaning and evolution of ecological ideologies expressed in theories and practices of Ian McHarg, Carl Steinitz, and Frederick Steiner, as landscape ecologism, which is a synthesis of landscape architecture and ecologism. Such a synthesis is significant given the global trends toward ecologicalization in various interdisciplinary fields, as ecologism in landscape architecture with an emphasis on the synergistic succession for organisms and non-human environment as a priority in design. To illustrate meaning of landscape ecologism, such as nature approximation, regional localization, conservation, experience and spontaneous evolution with positive human intervention, Jiangyang Fan, the first ecological park in China, was examined, to express the practices of landscape ecologism in Chinese modern landscape architecture with England Royal Design Award. It emphasizes balance and coordination between natural process and urbanization, as well as the unification and independence of original and secondary ecological systems. It also represents the freedom of evolution, positive human intervention and an understanding of natural orders. The valley was transformed with positive human intervention, but the original succession was conserved and rebuilt as ecological islands, with respects for ecological process and natural succession. Under the influence of landscape ecologism, the possible trend of landscape architecture may be proposed, including dimensions such as ecological ethics and ethical aesthetics, as well as concerns on ecosystem service function, ecological carrying capacity, environmental function, green infrastructure and creative control or performance.

Landscape History in the Digital World: A Case Study of 1920s Los Angeles

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Keywords: Historical GIS, Digital Technology, Landscape History, Spatial History

Primary data used in the study of landscape history is often a complex amalgamation of both qualitative and quantitative materials from letters, reports and published writing by designers, to paintings and photos, plans and maps. The challenge in this work is to synthesize the mix of information into a way of understanding the project within its historic context. The purpose of this study and presentation is to show how digital technology offers methods to analyze built and unbuilt projects in ways that landscape architects can assess "space" rather than just "place," offering new perspectives on spatial history.

HGIS, or historical geographical information system, displays and analyzes data from past geographies and can track them through time for a visual representation of information. American geographer and history professor Anne Kelly Knowles writes, "GIS mapping offers an unprecedented range of tools to visualize historical information in its geographic context, examine it at different scales, interrogate its spatial patterns, and integrate material from many sources on the basis of a shared location," adding that "almost every historical document contains some kind of geographical information." While GIS can create maps from historic data, its ability to align maps through georeferencing also has immense value as this overlay process produces new readings of seemingly unrelated documents. Technology application is not limited to GIS, however. With project plans that have contour data, other software like AutoCAD can be used to digitize contour lines, with Sketch-up exploding the site into 3-D. Using a specific planting plan, photo realistic images can be developed in Photoshop to visualize the human scale experience from the otherwise 2-D sheet of paper.

A case study of 1920s Los Angeles demonstrates the use of a range of digital methods to understand built and unbuilt projects designed by the Olmsted Brothers within the historic context of that period. Examples include a series of qualitative maps from the Home Owners' Loan Corporation on perceptions of social class and ethnicity, georeferenced to park proposals by the Olmsted firm, and compared against Frederick Law Olmsted, Jr.'s written reports to understand the pattern of spatial routing around poor neighborhoods. Using the firm's planting plans, unbuilt parkways through Los Angeles were digitally created in Photoshop to understand Olmsted's written intentions of the visual quality of the design. The significance of the study is that digital techniques offer unlimited value and application to the landscape historian, with new ways to understand the spatial quality of historic narratives as well as technical plans.

Landscape Strategies for Culture Phenomenon in China

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Keywords: Landscape Culture, China, Culture Phenomenon.

Chinese traditional gardens pose great influences to the world's and a wealth of studies related to the culture of the gardens have been conducted all over the world. However, the rapid pace of China's urbanization continues to pose challenges for the continuation of its landscape culture——what is the culture of contemporary Chinese landscape and how to show the specific part became a significant and urgent problem to be solved.

The China's contemporary landscape culture phenomenon can be stated in three aspects: the preference for foreign cultures of new generations; the lack or marginalization of elite culture; confusion of culture concept and value because of the complicated way of thinking. The reason for the appearance of the phenomenon is complex since culture is influenced by the development of economy, science, aesthetic, etc. However, an overall view of landscape architecture is that all studies can be classified into one concept: the relationship between human and nature. This paper presents five strategies from three aspects of aesthetic, philosophy and science respectively, which can represent Chinese particular landscape culture: the aesthetical experience of normal life, simple but delicate design, concept of harmony between man and nature, touring in nature, scientifically use of the concept of Fengshui.
One strategy, touring in nature, would be explained specifically, which is a different narrative measure from foreign garden design. This paper analyses this strategy by comparing strategies of China and foreign countries plus typical cases.

Logistical Urbanization: Old and new territories for landscape architectural research and practice

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Keywords: Logistics, Urbanism, Urban Theory, Contemporary Landscape Architecture, Transportation Geography

This paper frames present and potential landscape architectural practice by historically periodizing American urbanism through the lens of landscape and logistics. Borrowing and rearticulating concepts from transportation geography and critical urban theory, the paper describes four major periods from the early 20th century to the present day, each defined by a convergence of economic shifts, technological advancements, and spatial changes. Two major trends, "interiorization," and "exteriorization," have emerged since 2000; both trends reflect changes in logistics activities that hitherto predominantly occurred in major coastal centers of commerce. A sharp increase in the volume of goods imported by the United States is one major driver of these trends: U.S. waterborne foreign containerized trade increased from 15 to 29 million TEUs between 1997 and 2007. [1] "Logistical Urbanization" describes the interiorization and exteriorization of logistics towards mega inland ports and higher capacity offshore transshipment hubs as catalysts of distinct urbanization processes.

From Susan Snyder and Alex Wall's "Emerging Landscapes of Movement and Logistics" (1998) [2] to Charles Waldheim and Alan Berger's "Logistics Landscape" (2008) [3] to Clare Lyster's "Learning from Logistics," (2016) [4] logistics is a growing discourse in the design disciplines. However, the area of landscape and logistics, and by extension landscape architecture, remains under-explored. This paper examines landscape through the lens of logistics and uses case studies, thick description, and landscape visualization methods to question design's traditional vocabulary and analytical categories for describing the urban. Since the turn of the 21st century, landscape architecture has produced a range of high-profile projects on outmoded infrastructure and waterfront brownfield sites, available because logistics evolution rendered them defunct. While not discounting the contribution of these projects to the discipline, this paper argues that deepening the discourse on logistics through the lens of landscape can offer new lines of inquiry and sites of design for landscape architectural practice.

Morrell and Nichols' Historical Park as an influential setting for North Dakota's Art Deco Capitol Building.

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Keywords: Historic American Landscape, Capitol Grounds, Historical Park, Art

The Capitol Complex of North Dakota reflects important shifts in landscape architecture and architecture styles from the picturesque and neoclassical to the international style of modernism. Unfortunately, there is little documented about the important place in design history the Capitol building's architecture occupies, and slightly more than a footnote regarding the Capitol ground's landscape architecture that preceded it. This study aims to inform historians and the public about the story and national significance of this historic landscape. It also seeks to tell the story of how the capitol grounds uniquely influenced the 20-story art deco tower built in 1932 and situate it in the rich neoclassical history of capitol complexes in the United States.

The State Capitol Grounds of North Dakota were designed by the distinguished Minneapolis landscape architecture firm of Morell and Nichols in 1919. The "General Plan for Arrangement of Capitol Grounds and Historical Park" provided a gracious blend of classical and picturesque sequences laying the framework for 50 years of building. Traced on this elegant plan are expressions of major intellectual currents of the early 20th Century (Remele 1989). The General Plan which was designed to "consider the problems of civic development and plan for the ultimate growth and needs of the community" informed all of the neoclassical and modernist buildings in use today (Morrell and Nichols 1911).

A historical study and analysis conducted through literature review, archival research from several institutions, and interviews with architectural and landscape architectural historians informed the extent of this study.

Situated in the context of other American Capitol complexes, the Capitol Grounds and Complex of North Dakota were largely completed when a fire necessitated the construction of a new austere building for the capitol site, thus making this one of few state capitol buildings where the monumental architectural design was responding to the approach of the landscape architects.

From their 1911 publication, Landscape Architecture, Morell and Nichols say, "The need of a Landscape Architect to plan for the development of various kinds of Institutions is seen today in many instances by the sad result which has been the outcome of building from time to time without any given plan for the future growth." This study provides a historical summary and positive example supporting their statement.

New Directions in Heritage Conservation in China

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Keywords: Heritage, Landscape, China, Conservation, Planning, Design

The panel proposes new directions in heritage conservation in China through four case studies in planning and design of cultural landscapes. The focus of the state sponsored heritage practice has been largely on preservation of monuments to the exclusion of their surroundings and living communities. Heritage is a commodity for generating a rich tourism economy. The four papers are based upon a new and emerging paradigm in heritage studies in which projective planning and management of cultural landscapes preserves the integrity and vitality of heritage in midst of ongoing social changes. The first case study is of the historic Nanjing City Wall that is being preserved by the government as a monument in a picturesque setting by removing poor neighborhoods in its vicinity. The ongoing preservation efforts are critiqued and an alternative model for integrating the historic wall in the everyday life of adjacent neighborhoods is proposed by reviewing the history and representations of the City Wall, and the important relationship between the wall, adjacent sites, and the entire city. In the second case study, culinary heritage of Chengdu, the world-famous Sichuan cuisine, is proposed to be conserved through the concept of 'tastescape', defined as a combination of landscape and culture in which eating becomes a situated event. The study focuses on the streets in historic neighborhoods in the inner city of Chengdu. The food streets are proposed as 'tastescape' through site design and programming in which eating is combined with participating in theaters, making local art, and cooking. The third case study reinterprets landscape tradition in classical literature and art to demonstrate its relevance to contemporary architectural and landscape design practice. The built works of well-known designers such as I.M. Pei, Kongjian Yu, Wang Shu, Feng Jizhong, Li, Xinggang, and Zhu Yufan are analyzed to understand how designers have employed traditional design techniques such as layering, framing, foci, seclusion and boundary, and experience in sequence viewing. The critical review of landscape representations in the past and contemporary built works adds a new perspective to the discourse on heritage practice with implications for future designs of museums, art galleries, and gardens. The fourth case study draws upon traditional vernacular housing in the Yangtze delta region to develop the design language for housing the land-lost farmers in Suzhou. It demonstrates that built heritage has a role in mitigating the cost of social change and transition from rural to urban way of life.

Postwar Urban Redevelopment and the Politics of Exclusion: The Case of San Francisco's Chinatown

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Keywords: Urban Renewal, Gentrification, Ethnic Minority

In the 1950s and 1960s, the first wave of urban renewal occurred in American cities. It was characterized by the state-sponsored bulldozer that remade downtowns, encouraging scattered private-market gentrification. Holston criticizes modernist planning as utopian because of its pervasive ideal of transforming "an unwanted present" into "an imagined future" (Holston 1999, 158). The model of modernist planning is to forge a subjective appropriation of the new social order through the means of architectural and urban design. The utopic paradigm that was intended to create an egalitarian and cosmopolitan urban culture, however, tends to generate a dystopic version of urban life that encourages a privatization of public space, which invariably exaggerates social stratification and hierarchy (Holston 1999).

The social, economic, and political transformations of the postwar era significantly impacted the development of San Francisco's Chinatown. In 1943, the United States repealed the Chinese Exclusion Act of 1882 (which prohibited the immigration of Chinese laborers), and in 1965 the institution of the Immigration and Nationality Act abolished Asian quotas. The changing demography in the 1960s and 70s aggravated the housing crisis of the community and its need for more outdoor spaces. In addition to community development pressure, overseas investors and the expansion of San Francisco's financial district drove up the community's real estate values. Even the traditional family and district associations who had formerly charged low rents to the commercial and residential units in their properties couldn't resist the temptation of high profits by selling their buildings to developers. These pressures led to worsened conditions in Chinatown, but they were also the catalyst for a new sense of mission to preserve Chinatown from urban encroachment and neighborhood displacement.

This article examines the landscape changes of San Francisco's Chinatown under the forces created by urban redevelopment after World War II. Using archive research, it describes the contested process of community development, and documents the intricacies of urban renewal as a complex rhetoric at Chinatown's spatial struggles. Socially constructed as a space of "otherness," San Francisco's Chinatown illustrates the ways in which the urban redevelopment process was intermingled with the social and cultural tensions inherent in a plural and liberal urban society. It also reveals how the existing categories of ethnicity and cultural identity have been renegotiated in a changing urban context.

Preliminary Study of the Design Principle of Tuisi Garden

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Keywords: Chinese Traditional Garden, Tuisi Garden, “JingMianWenXin”, Design Principle, Artistic Conception

Introduction

Tuisi Garden located in Tong Li Town, is one of the prestigious traditional private gardens in China. But, in my opinion, it’s the most delicate private garden to express the philosophy of the Chinese culture's worldview and the theory of harmony between man and nature.

Furthermore, it is the Daoism that express the harmony between man and nature in the humanized nature. In the view of Chinese gardens, the Daoism carried by literature and realized by landscape (mountains-and-waters). In other words, the literature (name of scenery) express conception, while the landscape expresses the image. Therefore, the Chinese garden is an art of conception and image, which called artistic conception.

Tuisi Garden, as the climax of gardening in the last dynasty of Chinese history, reflect the characteristic of thousands of years in Chinese gardens. It explains philosophy of Chinese garden, and created by the artistic conception through the methods of Jing Mian Wen Xin.

Methods

Combined the analysis of historical articles, and through site surveying (measuring, photo, and sketch) to analyze the space arrangement of Tuisi Garden.

Analyzing the garden from conception to image (mountain, water, construction, the name of scenic, plants), summarizes the essence of Chinese garden.

Results

Tuisi Garden was built by Ren Lansheng in 1885 when he was impeached from the position of an imperial official. The garden had its name from a verse in the Chinese traditional historical book Zuo Zhuan, "When he forwards proposals, he shows loyalty to his country; when he retreats he reflects and mends his ways", expressing Ren's intention of seclusion and the complex psychology hoped into the government officials.

The whole garden unfolds from the residential area, middle courtyards and the garden. The difference is that the most other private gardens in Suzhou just have the sequence of residential area and garden, without the middle courtyards.

Centering-around a pool, Tuisi Garden, employs a near-water style of placing the buildings, stones and plants which back from the water’s edge. It is a series of buildings to express the owner’s intention towards official career.

Conclusion

The aim of this research is to facilitate a better understanding of the Chinese traditional private garden art of conception and image. Eventually, the essence of the harmony between man and nature, and the design method of the literary implication embedded within the garden design serve as a reference for expression of artistic conception in contemporary landscape design.

Protection and Regeneration of Historic Environment in the Urban Area of Tianjin - A Case Study of the Regional Clustering of the Five-Avenue Folk Park Square and Xiannong Courtyard

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Keywords: Historic Environment, Protection, Regeneration, Urban Culture

According to the "International Charter" of the ICOMOS, the historical environment can be protected and regenerated by preserving, restoring, renewing and rebuilding, to preserve cultural significance and increase cultural value and highlight the importance of history. The leased territory formed in modern times has become a major feature of Tianjin urban culture. In this paper, a case study was made of the regional clustering of the Five-Avenue Folk Park Square and Xiannong Courtyard. This paper makes a comparative analysis of different restoring and renewing ways for the historical environment in the same region: Folk Park Square adopts the way of rebuilding while Xiannong Courtyard adopts the way of renewing. Analysis contents include protection and regeneration strategy and design method, benefits and achievements and deficiency brought by transformation, citizens' satisfaction degree and future development prospect, etc. It is learned from case analysis that effective methods of regeneration of historical environment and expected benefits and achievements provide reference and experience for protection and regeneration of other historical environment of the same kind, realize unification of inheritance and innovation and are of great significance to sustainable development of local features and regional culture of Tianjin. The research significance of regeneration and protection of historical environment is that effective regeneration and protection strategy is able to extensively coordinate with mainstream policies of urban development such as protection of historical environment, industrial economy development policy, cultural development, tourism development and educational development. Historical evidence found in the process of studying regeneration of historical environment and record files can make historical records for later generations. Protection and regeneration of historical environment can protect human cultural assets from irreversible destruction in the course of history and preserve important cultural monuments, historical sites and cultural landscapes for later generations. To some extent, it also reduces the pressure of urban development to reserve more green and open space for the city, which is of substantial significance to the sustainable use of human resources.

Quantitative Comparison between Chinese Garden and American Designed Landscape Influenced by China: A Case Study of Naumkeag and Xiling Seal Engravers' Society

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Keywords: Chinese garden， American designed landscape， Space syntax， Flowing Fragrance Garden， Humble Administrator's Garden

Chinese garden had a greater impact on American designed landscape, and many scholars had abundant achievements. Zhang Bo did a systematic and comprehensive study. He provided 91 cases of American designed landscape and architecture influenced by Chinese, which reflected the historical process and the scope of Chinese elements influencing on American (Zhang Bo and Jin Ji, 2016, p.117-123). Through the practice of local culture out of China, it is helpful to increase the recognition of Chinese garden culture and its communication history.

Space is the value of traditional garden. Previously, there is more of emotional and qualitative research. Currently, a number of techniques have contributed to the rational and quantitative analysis of garden space, which can make up for the lack of research on the traditional garden space. Space syntax is a theory and technique of spatial ontology reserch based on geometric topology. It discusses space logic relation and has formed a set of unique analytical methods and architectural theory.

We will take two gardens as the research objects, one is Flowing Fragrance Garden in Huntington library which is one of the America designed landscape influenced by China and another is Humble Administrator's Garden. Depthmap software is widely used in space syntax analysis. Based on the establishment of the feasible and visual area models of the two gardens and the calculation of four indicators: control value, connection value, depth value and integration value, we get a quantitative analysis. Among them, the feasible and visual area models reflect accessibility and visibility of space, corresponding analysis of the relationship between each spatial nodes and effects of gardening elements on space sight. The control value reflects the influence of a space on the surrounding space in a space system, and the connection value reflects the closeness of various nodes to the whole space system, and the depth value reflects the minimum distance of two nodes, and the integration value reflects the dispersion degree of various nodes.

The research will provide a new method from different angles for further research on Chinese, American and even other countries' gardens, providing a scientific basis for the construction of modern garden with traditional garden space.

Recognition and Conservation of Cultural Landscape Elements of Jiuzhai Valley Natural World Heritage

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Keywords: Cultural Landscape, World Heritage, Conservation, BBO Model, Jiuzhai Valley Natural World Heritage Site

Cultural landscape is a special category of World Heritage, which emphasizes the preservation of the combined work of nature and culture. In Chinese Natural World Heritage, the combined work of nature and culture are prominent and unique, even though they are included of the World Heritage List under the natural criteria. Nevertheless, these cultural landscape elements of natural world heritage sites are often hidden beneath general appearance, thus are easily ignored in conservation practice. In order to identify these seminal cultural elements, this study proposed a Belief-Behavior-Outcome Model (BBO Model), assuming that beliefs, behaviors and outcomes are the key elements that can reflect the interaction between man and nature in the world heritage sites. We found that beliefs, namely the way people perceive and coexist with nature and supernatural phenomena, affect the human behaviors within and to surrounding environment, leaving outcomes in the form of living imprints, constructions and architectures, specialized common space, etc. These three kinds of elements affect each other in a loop, constituting the combination of natural and cultural production. Consequently, the circularly nested trinity of Beliefs, Behaviors and Outcomes will facilitate the identification process, leading to a holistic approach of conservation. Taking Jiuzhai Valley Natural World Heritage (Jiuzhai NWHS) as the case study area, the aborigines deem the Jiuzhai NWHS as the sacred mountains and lakes which directly relate to the praying and sacrifice ritual history, and the resultant monuments and sacred places.

Although the aborigines in Jiuzhai are all Tibetan, their beliefs, behaviors and outcomes are different from those of the vast Tibetan area. In terms of outcomes, each village has their own sacred places with unique functions. In terms of behavior, some can be seen or even participate in by tourists, some do not. But the tourists have limited knowledge of the sacred system. Younger generation of aborigines studying or working outside tend to give up their traditional beliefs. Through the empirical study of Jiuzhai NWHS, we confirmed the existence and significance of BBO Model, which has made a positive contribution to the protection of local biodiversity and cultural diversity. The beliefs, behaviors and outcomes in Jiuzhai NWHS and expected other World Heritage Sites should be recognized, recorded, and passed down, to improve the unparalleled combined natural and cultural work of each sites.

Re-inventing the Garden Culture in Korea: Focused on the Apartment Complex in Seoul

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Keywords: Garden Culture, Apartment Complex, Content Analysis

Only a few decades ago, Koreans owned their gardens and enjoyed a gardening independently while living in low-rise residential housing. These cultures are likely to have disappeared along with fast modernization after the Korean War. The apartment complex deemed the symbol of rapid economic growth and urbanization has become the most common residential typology in South Korea since the 1960s, replacing the low-rise residential housing. Called "the Republic of apartment," apartment dwelling culture in contemporary Korea is one of the socio-historical products reflecting aspects of Korean life (Gelezeau, 2007). Given that Korean residence styles have been closely associated with garden culture, apartment housing has a huge potential representing the contemporary gardening culture. Although the evitable result of the limited exterior spaces of high-rise and high-density apartments for the number of residents is decreasing private garden spaces, I noted the fact that many apartment residents enjoy gardening in their daily lives and apartment landscape has reflected this garden culture.

Through time-series analysis of newspaper articles associated with both apartment and garden from the 1980s to the present, this study examines how the contemporary garden culture has changed in apartments. Garden culture in this paper refers to the continuous and spontaneous activities and concerns associated with cultivating or gardening regarded collectively. The thing most found to be frequent and ongoing is cultivating or decorating activities either indoor or balconies where they put pots or sculptures as well as make veggie patches. The personal gardening appears to be extended to community activities across the outdoor spaces, such as creating communal kitchen gardens. The increasing interests in gardening have influenced apartment landscape as well.

The research about contemporary garden culture has received scant attention, especially in terms of a rapid shift of residential culture in Korea. It is expected that this study will contribute to a better understanding of Korean contemporary garden culture. As future research, in-depth case studies can complement the current research methodology, giving empirical evidence.

Research on Climbing Sequence Designing for Chinese Traditional Mountain Scenic Areas Based On the Perspectives of Physical Energy Expenditure and Scenery Appreciation

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Keywords: Sequence Designing, Chinese Traditional Mountains, Physical Energy Expenditure, Scenery Appreciation

This research aims to find a way both inheriting traditional mountain hiking culture, and meeting the demand of modern exercise and recreation, when designing new hiking routes in Chinese traditional mountain scenic areas. The study aims to establish the bridge between traditional and modern hiking cultures, and also to establish the bridge between scenery appreciation discipline and the the science of physical exercise.

As the recreation demand fast growing in recent 10 years in China, many traditional mountain scenic areas are facing with the problems of overcrowding and the needs to build new hiking routes. Traditionally, hiking to the top of the sacred mountains in China always has aesthetic and spiritual meanings; while in modern hiking areas, it has new functions with environment education, physical exercise and so on. These two aspects are expressed in different way. In Chinese traditional hiking route designing, the idea of sequence and nodes are used, different nodes will be given different but related spiritual meanings, and all nodes are connected into a sequence with a whole spiritual meaning. while in the modern hiking routes designing, the energy consumption is always an important basis for the stops' location. How to design a new hiking route, both inheriting traditional sequence design characteristics, and meet the demand of modern hiking function, become a challenge.

Mt. Taishan is the head of the Five Sacred Mountains of China, as well as one of the World Cultural and Natural Heritage sites. This study takes Mt. Taishan as the case, to design a new hiking route in the east side of the mountain, to help decrease the visitor pressure in the traditional Middle Way.

Firstly, from the perspective of modern physical energy consumption, rest stops for hikers are studied; Secondly, from the traditional designing perspective of aesthetic and spiritual meanings, the meanings of hiking sequence and nodes are discussed; Finally, those two perspectives are combined together, , 4 main nodes and several minor nodes are defined, and the whole route is divided into three sections with a new sequence meaning of " aesthetic learning - practicing - creating".

From the case study we find that, when designing new hiking routes in Chinese traditional mountain scenic areas, physical energy consumption could be the basis for visitor rest stops designing, while the aesthetic and spiritual meaning added to the routes could be more important, which is heavily influenced by resources along the route, and also closely related to designers' creativity.

Research on Landscape Feature and Evolution in Plants Place-names in Beijing Area

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Keywords: Landscape Architecture, Plants Place-Names, Plant Landscape, Toponymical Planning, Regional Culture

With identification and stability, place-names act as the carrier by which local people get familiar with the city. The reflection on landscape feature and identification in specific historical periods of place-names, named after plants, are concluded as the regionalism. Past research has regarded urban geographical names as entity and concentrated on the systematic frame. However, special study on plants place-names, a branch of the system, has received limited attention from researchers.

This paper was conducted on plants place-names individually. From the perspective of toponymy planning, this article pursues the landscape feature and historical evolution by the regional feature of plants place-names in the historical capital city, explores the value of the regional characteristics and rethink current situation in contemporary urban planning in Beijing. For further study, 185 pieces of plant place-names，ranging from administrative division place name, natural geographical object place name to human geographical object place name, were founded, sorted and quantified combining literature review with field research from Jin dynasty (1194) to 1990. Meanwhile, the historical origin, cultural connotation and conservation status were recorded. After analyzing the distribution and historical development of plants place-names, the article concludes preliminarily that, the distribution of plants place-names is centered in the old city, especially in Xicheng District, about 59%. It can be speculated that the long history of city construction, the large population, highly dense living environment and the urban land's development and intensive utilization may be the core factor leading to the spatial distribution. With the historical evolution and urbanization, the frequency of plants place-names is gradually decreasing. Statistic shows 82.7% place-names have disappeared or are confronting with a huge threat. In addition, the distribution range is narrowing, and even disappearing. The conclusion makes us imply that regional culture represented by plant place-names is also lost due to the development. In this study, a large number of basic data is collected from literature and historical records, which prone to provide reliability for the results. To some extent, it seems to expose the limitation of the research scope, for which might to be carried on further study.

Research on the Cultural Tradition and Landscape Planning of the ancient " Shanshui Cities" in Sichuan Basin —— a case study of Chengdu and Langzhong

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Keyword: Shanshui City, Cultural Tradition, Landscape Planning, Sichuan Basin

The paper based on the theory of "Shanshui City", setting Chengdu and Langzhong of Sichuan basin as the study focuses, analysis the impact of traditional culture in the ancient city of construction process, the relationship between the nature and city landscape planning, summarizes three kinds of landscape patterns in ancient "Shanshui Cities" --"cosmic pattern", "natural pattern" and " ethical pattern". Among them, the "cosmic pattern" originated from the primitive worship of the ancient basin. It makes order of the city and nature, based on the "rule of universe “. This paper takes Chengdu as a case to analyze. "Natural pattern "with the "FengShui" theory as the support, from the perspective of nature and artificial to create a communion with nature to provide a basis for urban landscape, and this paper takes Langzhong as an example to carry on the example analysis. " Ethical pattern " is originated from the Chinese ancient feudal ethical code, it makes order of the city and the nature, based on the principle of Etiquette. This paper takes Chengdu and Langzhong as an example. Through the research of three kinds of patterns, from the perspective of the intrinsic relationship between culture and landscape, this paper reviews the important theories of the construction of the urban landscape planning of ancient landscape in Sichuan basin, summarizes the construction wisdom of traditional "Shanshui city" landscape planning, improve the research theory and method of landscape of "Shanshui city".

Research on The Formation and Evolution Mechanism of Linear Heritage of Han River Basin Under the Background of Population Migration

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Keywords: Migration of Population, Han River Basin, Linear Heritage, Evolution Mechanism

The river basin area is one of the important places for the origin and development of human civilization since ancient times, so there are many cultural heritages left. The protection of isolated heritage site cannot meet the requirements of heritage organic development especially in river basin. Therefore, the protection needs more profound understanding of the historical background and inherent relation between heritage sites so as to establish a protection system. This paper takes the cultural routes in Han River Basin as the research object, and tries to establish a heritage protection network. Han River Basin takes an important and special geographical position in China, it is an important North-South migration corridor of the civil population migration in history. The population migration was chosen as background for Han River Basin heritage research. Historical research methods were used to analyze the population migration process of different historical periods, and numbers of migration routes and heritage sites were sorted out during the history of population migration. Based on the different motives of migration, the migration movements were divided into four periods---the pre-Qin period, from the Qin dynasty to the Sui dynasties, Tang dynasty to Song dynasty, Yuan to Qing dynasty. Then different migratory routes were mapped by period. Two conclusions were made on the basis of historical analysis. Firstly, the heritages along the cultural routes have different characters and functions because of the population migration. Secondly, the inherent relationship was found between the heritage sites in different period. The important role of population migration in the communication between two regions and the inner region was proved by these two aspects. Finally, GIS was used as technical means to overlay the two map layers of heritage point and migration route network. As a result, the cultural routes network under the background of population migration of Han River basin has been deduced. Based on these, landscape fragmentation of the network was analyzed, and its degree of coherence and complete protection approaches were further researched. As a prospect, the complete heritage network of Han River basin will be built, meanwhile its value evaluation and systematic protection method will be deeply discussed. So, all works above provides theory basis and data support for the expectation, and promotes the organic development of the cultural routes of Han River basin by the way of grasping historic development and characters.

Revealing the Historical soundscape of Mount Huangshan National Park during Ming to Qing Dynasty from 23 Pieces of Travel Notes

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Keywords: Historical soundscape, Mount Huangshan National Park, Travel notes

The historical soundscape research is essential in Chinese national parks. It will not only fulfill domestic demand on soundscape conservation of Chinese national parks within China, but also international demand on creating a more comprehensive sound recognition to the world from a Chinese perspective. The soundscape research, especially the historical soundscape research is huge lacking in Chinese national parks. In order to fulfill the research gap, this paper took Mount Huangshan National Park as an example to reveal its historical soundscape. By applying the grounded theory, researchers coded 23 pieces' representative travel notes from Ming to Qing dynasties. From the word frequency accounting and analysis, research concluded 5 facts of historical soundscape of Mount Huangshan. Findings showed that 1) there were almost 18 types of soundscape recorded in historical Mount Huangshan, which includes in the natural sound and anthropogenic sound. 2) From the word frequency accounting, the natural sound was more popular than the anthropogenic sound in historical Mount Huangshan. 3) The water sound was the most important soundscape feature, and water sound perception was the most remarkable perception in historical Mount Huangshan. 4) The natural soundscape was very diverse in history, and highly related to the landscape characteristics and appreciation methods. 5) The anthropogenic sound which related to Buddhism and instrument playing added the aesthetic atmosphere to historical Mount Huangshan. In further analysis, we also know the relationship between auditory sense and sense of sight. The soundscape was shaped by the landscape features. The landscape parameters such as height, width, season, climate and related environment setting will shape the soundscape and auditory sense. The sound timbre was shape by the landscape character. Evidences were proved and discussed in this research. In textual records, literati's enjoyment, sadness, homesick and other kind of motions were caused by the soundscape.

Besides, from the comparative analysis of Mount Huangshan soundscape between past and current, researchers also implied that the water soundscape was decreased and the anthropogenic sound was increased. Some water feature soundscape tourist routes even disappeared in the recent decade. This finding provided a glimpse into potential modifications to tourist routes designation and soundscape conservation of Mount Huangshan National Park.

Revelation of the Germany Federal garden exhibition (BUGA) to the Chinese Garden Expo

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Keywords:

A garden show, also called garden festival or horticultural EXPO, is a fair with some garden and horticultural themes. A plenty of garden shows have been accomplished in many countries so far with different sizes and levels. Western contemporary garden festival was originated in the vast reconstruction of the western cities at the end of the Second World War. Germany is one of the most successful countries that has promoted the construction of the urban green spaces through exhibitions in the world. Germany Federal garden exhibition (Bundesgartensehau in German; Abbreviation for BUGA) has given a new starting point for the city's development and vitality.

Large-scale urban events have played an important role in promoting urban development and environmental landscape construction, improvement of living environment and prosperity of urban culture. BUGA has hold once every two years since 1951.With the improvement of the continuous growth and the development of the city, the forms and procedures to host the landscape exhibition are gradually becoming mature. The first objective of the BUGA is to rehabilitate the postwar urban environment and to organize the exhibition as an opportunity to build cities because of the good results and positive significance for urban development so as to organize the BUGA better in many large cities. So far Germany Federal garden exhibition has hosted the 33th.

China has held 15 sessions of different types of the garden shows since 1999 which is later 48 years than German's. There are three levels of garden-Expo in China which are the international garden show; Chinese garden show and Provincial garden show. Chinese garden-Expo is based on the national conditions, not only is an imitation of the leading European countries garden-expo. The paper takes the development of the BUGA as the research object because of the problems they have encountered and the advanced achievement on these issues which may be a revelation to Chinese garden-expo. In order to create a good garden environment, garden exhibition should be a cutting-edge and scalability, as well as the characteristics of popular science. Where and when to hold the Garden Expo in China should be more carefully chosen and strict checked according to the ordinance, thus constructing a demonstration and influence of Garden Expo.

Searching for Cemeteries: Death and Burial in West Virginia's Coal Company Towns

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Keywords: Cemeteries, Coal Mining, Cultural Landscapes, Company Towns, West Virginia, New River Gorge National River

Between 1880 and 1930, the coalfields of southern West Virginia hosted hundreds of mining operations and were populated by thousands of miners and their families. This booming enterprise necessitated the creation of coal mining company towns, also called coal camps, which were often located in topographically isolated, previously unsettled hollows (Gillenwater 1972). Often built to last only a few decades and segregated by race, these towns included dwellings for miners and administrators, a company store, churches, and schools (Gillenwater 1972, Rehder 2004, Tams 1963). Many of West Virginia's mining towns are no longer in existence, quickly abandoned as industrial coal operations moved to more lucrative locations in the area and beyond. Nevertheless, these historic cultural landscapes were complex and saturated in critical issues such as race, ethnicity, religion, and gender.

Scholars in many fields have analyzed mining company towns in the United States, but little research has been done on associated burial practices and cemeteries. Francaviglia noted that the "cemetery is one of the most revealing social landscapes associated with mining communities" yet study of cemeteries in West Virginia has been sparse to date (1991, Orr 2015). Fatal accidents during coal mining operations were both common and expected, yet there is a dearth of evidence describing what cemeteries were like, where they were located, and what, if any, distinct burial customs were established.

Located in the southern West Virginia coal fields, the New River Gorge National River (NERI), which became a unit of the national park system in 1978, was once home to over 40 coal camps that are now abandoned. Encompassing nearly 73,000 acres, NERI provides a unique opportunity to study the remnants of coal camps protected from outside interference since the park's inception. The National Park Service has studied, to varying degrees, the cultural history and landscapes of the coal camps within its borders, but little research has been completed on cemeteries in park.

This paper suggests that the location of cemeteries varied somewhat in coal towns in NERI, but they were not randomly placed. Factors such as the rugged terrain of the New River Gorge, which coal company owned a town, and the population of a town impacted cemetery location decisions. This paper relies on historic records, maps, and photographs held at the Eastern Regional Coal Archives, the New River Gorge National River Library, and the Chesapeake and Ohio Historical Society, together with current GIS mapping and field work, to reveal details about coal town burial practices and cemeteries in the New River Gorge National River.

Situation and Development of Local Landscape Under Urbanization Background ---A case study in Zhangguying village, Hunan province

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Keywords: Landscape architecture, Sustainable development, Local landscape, Urbanization, Local characteristic

The sustainable development of local landscape is of great benefit for biodiversity conservation and coordinated development between land use and ecological protection as well as the improvement of sense of place and cultural identity. With the rapid development of urbanization, urban construction cause that much local landscape has been damaged to varying degrees.

In this situation, clarifying the circumstances of local landscape is significant meaningful to regulate the relationship between humanity and nature, protect the geographical features, and fuse traditional culture and modern life.

Zhang Guying village has a unique geographical landscape and regional cultural landscape, but it has been affected by the development of urbanization and tourism. Therefore, doing the research of Zhang Guying village urban situation and proposing corresponding measures of protection and development, has reference function towards protecting and improving local landscape. Taking Zhangguying village of Hunan province as an example, this study analyzed the local characteristics of the natural and cultural landscape, and revealed the degeneration of the natural landscape and the diversity of cultural landscape which is under the background of urbanization. It raised the protection and development strategies of the local landscape, which many things should be done to reduce the effect of urbanization, such as new buildings should be set up with trend of terrain, clean up the polluted water system and build a new drainage system. Moreover, repairing barren mountains by growing local plants and decreasing dumped farmlands can recover the broken natural landscape. Then utilizing modern technology and local resource to optimize and recover the roads and buildings. Adopting the way which combing system and emphasis to highlight local culture characteristics of the village. Above-mentioned methods have been reshaping the cultural landscape to extend the regional culture. At the same time, this research combined the protection and development of natural and cultural landscape to promote the sustainable development of local landscape. One of the best methods to promote the sustainable development of the local landscape, is updating local landscape on the basis of the protection and investing economic benefits we obtained into protection in return.

Teaching across landscape cultures

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Keywords: Landscape History & Theory, Landscape Architecture Education

This paper reflects on the challenges of constructing landscape history & theory courses across different teaching contexts in Hong Kong and Australia against the background of different, yet highly sophisticated landscape traditions – the traditional western landscape architectural historiography that has formed the basis of conventional landscape architectural history and theory courses; the classical Chinese landscape tradition; and the Indigenous Australian relationship to land and country. These were courses were developed and taught by the author at undergraduate and graduate levels in a period between 2014 and 2016 at the University of Hong Kong, and then at the University of Technology Sydney. The courses also had to address the different expectations and backgrounds of diverse student audiences: from Hong Kong, Southeast Asia, mainland China and multicultural Australia, adding to the complexity of the cross-cultural currents involved.

The courses looked at landscape in various cultural forms, exploring its role in different societies and topographic settings across time. They were each organized around a series of definitions that continue to exert profound influence on contemporary approaches to landscape design in an increasingly globalized and converging landscape architectural profession. Students examined the notions of landscape, nature and environment, their forms, functions and meanings (including at a specific linguistic level), as well as the way in which landscapes themselves and specific ecological settings, respond to and shape cultural values. The issues covered in the courses engaged interdisciplinary themes ranging from art history to aesthetic theory, social history, politics, religion, urban planning, cultural geography, anthropology and comparative literature. The Hong Kong courses, in particular, considered approaches from the Chinese landscape tradition in parallel to Western and other traditions in landscape thinking. This was intended to provide a bridge between students' own cultural background and other significant cultural approaches to landscape. The courses drew on primary and secondary sources and considered both textual and visual evidence. The readings were a mixture of philosophical, literary, scholarly and historical texts, representing the diversity of discursive types preoccupied with the landscape. The courses were intended to serve as a first point of entry for students into some of the theory and assumptions that underpin the landscape architecture profession, and aimed to foster in students a sharp eye and critical thinking to enable an understanding of landscape issues in a way that enables them to engage with these ideas in their design practices in a way that addresses some of the cultural shortcomings of landscape design thinking in Asia and Australia that has historically been derived from a predominantly western model of landscape architectural history and theory education.

The paper examines the theory behind the development of the courses' structures and contents, and presents the results of qualitative student written feedback and oral interviews, as a way of considering how this teaching approach and format could be extrapolated for a more nuanced teaching of landscape history and theory across cultures and regions.

The design research of original scene simulation teaching process in Foreign Landscape History

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Keywords: Foreign Landscape History, Original Scene Simulation, Teaching Process

The case teaching is a major content in teaching process of Western Landscape History. Two problems were found in the teaching process: the students lack of the intuitive sense of the case and the connects of teaching and designing course is insufficient. The research introduces the original scene simulation to teaching process and divide the teaching process into three steps. The first one is collecting the teaching materials such as project plan, real-world photos and three-dimensional models. The second one is the teaching process, including the interpretation of the plan, showing located photos and model presentation. The third one is students learning process, which includes preliminary cognition of the space based on plans, spatial realistic reproduction based on real-world photos and spatial perception validation based on three-dimensional models. These three steps create a method to make students understand a case, even further think about the case, then to verify whether the process of thinking is correct or not. Meanwhile, this article will present how to introduce the original scene simulation into teaching process through the presentation of Vaux-Le-Vicomte Castle in French classical garden.

The Evolution and Characteristics of Chinese Contemporary Landscape Architecture Aesthetics in The Multicultural Contexts

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Keywords: Chinese Contemporary Landscape Architecture Aesthetics, Evolution, Characteristics

Background and Purpose
Since China's reform and opening up (1978-), Chinese contemporary landscape architecture aesthetics under the context of cultural diversity was deeply Influenced by European and American aesthetics, philosophy and art. The relevant research about Humanism aesthetics and Scientism aesthetics had been quickly introduced into China (Jin Xuezhi,2000), reflecting aesthetic ideas such as ecological beauty, minimal beauty, earth art, formal beauty etc. in the landscape architecture works. The presentative features of these works had huge differences from those which under the influence of Chinese traditional aesthetics. So in the face of traditional landscape architecture esthetics continuation and the learning from foreign various esthetics, this paper aims to arrange theories and works about Chinese contemporary landscape architecture esthetics since China's reform and opening up, analyze the evolution process and summarize the characteristics in order to explore a development trend and new perspective of Chinese contemporary landscape architecture aesthetics.
Method

Selecting period from 1978 to 2015, this study uses deductive methods of history and collects continuous and authoritative data. The data set of theoretical research came from books and papers which mainly from China National Knowledge Internet (CNKI) database; The data set of practical and award-winning works mainly came from IFLA Student Competition, Chinese Society of Landscape Architecture (CSLA) Student Competition, Award of China Construction Science and Technology, Industry Award of National Excellent Engineering Survey and Design. And then use SPSS software for statistical analysis to reflect the evolutionary framework on the timeline and geographical distribution.
Findings and significance

Through the data classification and statistical analysis, Chinese contemporary landscape architecture aesthetics showed obviously periodic development on the timeline. This paper firstly divides the evolution development process into three stages included: Resuscitation and Introduction Period (1978-1989), Chaotic Development Period (1990-2005), Local Action period (2006 - present)". Secondly, Chinese contemporary landscape architecture aesthetics showed an integrated characteristic from laggard to synchronous on the timeline; While on the geographical expansion, the characteristics included: region evolution unbalanced characteristic, "Post-colonial Culture" mutational characteristic, first-mover area linked characteristic. Finally, it forecasts that the contemporary landscape architecture aesthetics will tend to be more rational and base on national characteristics. The significance of this paper is to help improve the landscape architecture aesthetics theoretical system that reflect Chinese contemporary features, and provide a new thinking perspective for the present landscape architecture planning and design.

The Future of Modularity in Landscape Architecture Theory and Practice

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Keywords: Modular Construction, Landscape Construction, Construction Methodologies, Construction Theory, Mass Customization, Case Studies

Implied or ignored, modular construction in landscape architecture has become integral to our construction process; yet, it has received little attention within the discipline and receives scant mention in our most frequently used reference books on construction and materials (Calkins, Hopper, Thompson and Sorvig). The goal of this paper is to argue that "modular construction" opens up new ways in which to approach site construction and in some cases, also offer better performance value and economic value. Just as there have been long-standing dialogs in architecture (Anderson and Anderson) and product design (Kieran and Timberlake) regarding modular construction and assembly, landscape architects need to explicitly discuss its potentials, success and failings in order for the profession to grow with its building technologies. In order for landscape architects to truly harness the potential benefits that modular building strategies offer, we first have to acknowledge that this is another path that can lead to advancements in critical practice. We need explicitly incorporate it into our research and practice agendas and not leave it as an implicit "silent partner".

The impact modular construction has had on our field will be illustrated through case studies of recent projects and competition entries that reveal just how integral this approach is becoming to our process of building. Additionally, this paper will illustrate, that the term "modular" is now too simple to satisfy all of the options now available to us. As such, the case studies have been broken up into several new categories of modular construction from simple applications to ones that are increasingly complex in form in order to create more ways of defining approaches available to us: 1) "Simple Modules" (Dixon), 2) "Complex Modules" (Margolis and Robinson), 3) "Modular Subassemblies and Dialogs" (Lister, Smith) and 4) "Flexible Mass Customized Modules" (MWS Linear).

While some of the biggest trends in landscape architectural construction over the past 20 years have focused on the recent explosion of available landscape construction materials and sustainable construction techniques (Calkins, Thompson and Sorvig), we have not fully recognized the potential that modular construction offers. The development of this paper will articulate and reframe the relationship between modularity as a theory and the material practices of landscape architecture. This paper will posit how the material means of modularity, specific kinds of elements and their mass production and mass customization (Pine) could be formalized in landscape architecture practice.

The Giant Stride: Its Historical Progression from "Safest" to Most Dangerous Type of Playground Equipment

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Keywords: Risky Play, Supervision, Playground, Playscape, Giant Stride

In 1908, Arthur Leland wrote that the giant stride was one of the "safest" types of playground equipment. A 1920 study found few serious injuries associated with giant strides, and during the 1930s, the National Recreation Association's standards called for one in every elementary school. As late as 1958, George D. Butler noted that the giant stride "has considerable developmental value and gives much joy to children." Today, however, the giant stride is the textbook example of "unsafe" play equipment that violates the standard of care designers are held to in court. Robert B. Kauffman and Merry Lynn Moiseichik recently wrote: "A giant stride on a playground invites an eventual accident and lawsuit." Why did professional opinion on the giant stride's safety change so dramatically? One likely factor is its changing materiality. Children swung around early giant strides on ladders made out of rope. These were largely replaced with galvanized steel ladders in the 1920s in an effort to reduce liability associated with breakage. Such steel play equipment was celebrated for its safety by its manufacturers, though playground supervisors wrote about injuries associated with the new materials.

Another possible factor was the surfacing used under giant strides. At a time when falls from jungle gyms were already being recognized as a hazard that could be mediated with sand landing areas, experts were encouraging the use of hard surfaces under giant strides due to worries that children running around these features would create ruts. Changing supervision regimes likely affected views on the giant stride as well. While giant strides may have required less supervision than most early 20th century equipment, a number of professionals who advocated for the giant stride, including Butler, noted the need to teach children how to use the equipment safely. A problematic 1958 study of playground injuries also likely played a major role in the removal of the giant stride from American playgrounds. Its author concluded: "that the use of all the playground apparatus except the giant stride is relatively safe." The study used a reductionist approach to research that failed to consider the surfacing used under the equipment and lobbed all types of giant strides into a single category. American safety guidelines followed suit—and discouraged the use of giant strides categorically, so even a redesign that addressed safety concerns would be financially risky to introduce. Today, giant strides have all but disappeared from America's playgrounds.

The Grass Ceiling: Towards an alternative history of landscape architecture in Chicago

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Keywords: Chicago, History, Contemporary Landscape Architecture, Urbanism, Urban Planning, Architecture

Since the turn the century, the discipline of landscape architecture has undergone a renaissance in academia and in practice. Firms like Michael Van Valkenburgh Associates, James Corner Field Operations, Sasaki Associates, and West 8 are major shapers of the contemporary urban realm and leading schools of landscape architecture are setting new enrollment records. However, despite these global trends, the discipline's academic and professional presence in Chicago remains undersized relative to other major urban markets such as New York, Los Angeles, and Toronto. One result of this is its ostensible appearance to many as "wide-open," "ripe," or "untapped." At the same moment, local practitioners and historians point to historic and mid-century works of landscape architecture by Frederick Law Olmsted and Dan Kiley as evidence of a strong landscape presence in Chicago, and in the process, overshadow the present-day discipline.

Through interviews and case studies, this paper establishes a historic periodization of landscape architectural history in Chicago that dispels the notion of limitless opportunity for landscape architecture in Chicago. Instead, it describes a "grass ceiling" for the discipline of landscape architecture resulting from the convergence of four historic and contemporary conditions. First, the ongoing dominance of corporate architecture firms like Skidmore, Owings & Merrill. Second, the continued role of landscape architect-as-consultant—not project lead—by Chicago area landscape architecture firms. Third, the attribution of Chicago's well-established lakefront park system, regional parks, boulevards, and forest preserves to either architect Daniel Burnham or other historic figures not necessarily associated with landscape architecture. Fourth, a persistent view of the city and region by its inhabitants and designers as wholly artificial and existing in spite of, rather than within, its ecological context. These forces have produced an invisible barrier for local landscape architecture offices, perpetuating conditions for primarily international landscape architecture offices or local architecture offices to work on new high-profile landscape architectural projects.

The Natural History of Beijing

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Keywords: Natural History, Beijing, Landscape Architecture

The Natural History of Beijing explores the underlying geology, hydrology, soils, climate, and other factors that contribute to its current urban design and morphology of Beijing. As Aldo Rossi questioned in The Architecture of the City, how does the environment influence the individual and the collective? This question is far more interesting than the opposite one of how humans influence their environment, he argued. As such, this presentation establishes a grounding - often missing in the practice and history of urban design - on the natural history of Beijing. Among the findings of this investigation are the slight topographic elevation of the Forbidden City above the surrounding plain and the correspondence of ancient courses of the Yongding River with historic imperial gardens and contemporary public parks.

The Power of Water in the West: From Agriculture to Cities

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Keywords: Water, American West, Water Rights, Agriculture, Urban Design

The Colorado River Basin has a long history of providing water for many of the southwestern states. The majority of the Colorado water has historically been designated for agriculture, and more recently the need has shifted to the cities and development. Over time, the water demands stem from population, agriculture, recreation and the environment. The purpose of this paper is to study the Colorado River Basin history, the development of the Colorado River Rights and the success of the Colorado River Compact of 1922. How have water rights affected access to, use and the sharing of water among seven states and Mexico? The location of the natural water supplies has not been aligned with human settlement patterns. Much of Colorado's water falls west of the Continental Divide, while the state's 80% of the population lives on the east side along the front range. By law, Colorado is allowed to use only 1/3 of its water. By legal agreement, 2/3 of water from the Colorado basin must continue to flow downstream to other states. These physical and legal constraints on our water use, along with population growth will eventually leave Colorado with a major water supply gap. How will Colorado agriculture survive through drought, population growth and urban development? This ecological emergency will affect population centers, human health, food production, and wildlife habitats. What can we do as urban designers and land planners to utilize water use efficiently as growth occurs? In order to fully understand the potential global draught problems west of the Continental Divide, research on the history of the Colorado farms and their water rights leads to studies on growth of southwestern cities and their water use and consumption. Our law allocates the amount of water we can use and for what purpose. Drought is pressing the limits of how and where we live.

The Regional Culture Characteristics in Classic Gardens on Yangtze Delta – A Hitorical study of Jichang Garden, Wuxi, China

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Keywords: Culture; Variation, Garden Design, Landscape Practice, Classical Gardens on Yangtze Delta

Jichang Garden is an outstanding example of classic gardens on Yangzi Delta, the heritage of Jichang garden includes gardening techniques of ideology, culture and landscape design theories. The establishment and development of the garden has played a very important role in prosperity in classic private gardens. In this paper, based on literatures on plenty of documents including poetries, history records and local chronicles, accompanied by findings in landscape paintings, research has been done on the relationships between the local culture and design theories of the garden. The study focus on developments and variations of gardening aesthetics of idea and means from Ming to Qing Dynasty, including the motivation, value choice, art style, factualism as well as the far-reaching influence ,etc. 4 characteristics are concluded based on the literature search and statistics, including change of aesthetic sentiments and appreciations, progress of pattern, development of garden lifestyle as well as themes, particularly the concern of the relationship between traditional Philosophy, such as the Confucian, Taoism as well as Buddhism genes and in variations of features and forms. The study attempts to trace back to the origin and chronological development of the regional characteristics of the unique design style of classical gardens on the Yangtze Delta, which would be of great value not only to the protection of Jichang garden through physical and nonphysical ways, but also to the fierce problems of lacking of regional characteristics in Chinese temporary landscape design.

The Spatial Construction of Soundscape in Chinese Gardens

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Keywords: Chinese Garden, Soundscape, Spatial Construction, Landscape

The Chinese garden is a landscape garden style that has evolved over three thousand years. An idealized miniature landscape was created by Chinese emperors, scholars, former government officials, and merchants to express the harmony that should exist between man and nature. As an important component of the Chinese garden, the soundscape can embody the artistic conception and design skills of garden designers. This paper aims to investigate the development and strategies of soundscape design in Chinese gardens, through a systematic review of famous soundscape attractions from the perspective of spatial construction. In total, 62 soundscape attractions met the inclusion criteria, comprising specific sound sources and receiver points. The soundscape design of Chinese gardens matured in the Qing dynasty (1636 AD-1912 AD), the last dynasty in China. The majority of included soundscape attractions are located in royal and private gardens in Northern and Southern China, whereas there are few in public and temple gardens. In terms of dominant sound sources, the natural soundscape accounts for approximately 90% of the total attractions, waterscape being the main type of natural soundscape. Although the number of artificial soundscapes is smaller, they offer a wide variety of vivid sound sources, such as the temple bell, the paddle, and Chinese traditional musical instruments.

The Study on Vernacular Landscape Evolution and Spatial Patterns in Fuyang County, Hangzhou City, China

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Keywords: Vernacular Landscape, Fuchun River basin, 'The Dwelling in Fuchun Mountain', Landscape Elements, Intervention, Landscape Evolution; Spatial Patterns

As an important type of cultural landscape, vernacular landscape is a product of human activity coexisting with nature. Taking vernacular landscape in Fuchun River Basin in Fuyang County， Hangzhou City, China as a main study object.

'The Dwelling in Fuchun Mountain', a Chinese outstanding painting of the landscape was created by ink landscape painter Huang Gongwang at the end of the Yuan Dynasty (1347-1354 A.D.), which depicted the scenery of the Fuchun River. Today, the landscape in this region has been conserved well despite rapid urbanization, which is becoming a destination for photographers and tourists. To understand the vernacular landscape how to coevolve with human development could serve as a reference for future landscape protection and construction in the river basin and in areas.

Byusing 'The Dwelling in Fuchun Mountain' as a foundational artifact, and appling iconology analysis and field observation to explore the process and drivers behind the landscape's evolution from different perspectives, the paper summarized the mutual interaction between human and nature as well as landscape spatial patterns in the process of vernacular landscape evolution.

It is showed that vernacular landscape elements in Fuyang County include the natural environment, water conservancy facilities, agricultural cultivation and local settlements. These elements interact with each other as both causes and effects; human interventions combine with a cultural respect for nature and the value of living in harmony with nature. In addition, the landscape continuously evolves as part of rural production practices.

These elements constitute 4 types of landscape spatial patterns, which emphasize the importance of vernacular landscape and the way of people living in harmony with nature, draw people's attention on vernacular landscape protection and sustainable development. As such, this study proposes to consider the sustainable development of vernacular landscapes by continuing inherited practices, in harmony with nature and sustaining historical landscape features.

Tracing the evolution of Regional landscape system and the development of mountain-water urbanism in Suzhou, China

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Keywords: Suzhou City, Regional landscape system, Mountain-water city, Shallow mountain, Water system, Intervention

A city exists in a natural system, while most natural environment is not entirely suitable for human dwellings. By lasting human intervention with nature as an adapted territorial landscape evolving a regional landscape system, the city exists in the system and continues to adjusting, developing and growing.

This paper analyzed the process of Suzhou city's evolution as "mountain-water city" in China from the perspective of Landscape Architecture. By applying the iconology analysis, literature research and field observation to explore the process and drivers behind the regional landscape system and the city's evolution from different perspectives, the paper summarized the mutual interaction between human and nature as well as mountain- water- city pattern in the process of regional landscape system evolution. It is showed that the unique favorable natural resource conditions of Suzhou city enabled it to gradually cultivated civilization. Under this advantage, local residents adapted abundant and lasting manual intervention to reshape the river system in order to prevent flood and to irrigate the farm field, in addition, constructed canals and other water transportations which followed the existing topography and watersheds, to protect the natural environment, while ensuring safety and security, and to boost the urban economy, that helped to build an ideal habitat environment. The urban and suburban landscape worked together, and eventually evolved regional landscape system. Within this regional landscape system, the shallow mountain area in the suburban was the key factor that connected the "Urban-Suburban" regional landscape system.

This paper mainly focused on the old City of Suzhou and the regional landscape system inside and outside it, and concentrated on the "Mountain-Water-City" model, which was consisted of urban and suburban landscape, and the formation of "Urban-Suburban" regional landscape system, and also analyzed how the west shallow mountain area of Suzhou city melted nature and humanity, constructed a landscape system that beyond city boundary, and enabled sustainable development, and concluded that the build of "mountain-water city" should base on the protection of natural landscape, and coalesce the city and natural landscape from the view of regional landscape system.

Uncertainty and Complexity: Identity Contemporary Urban Park Design in the Era of Landscape Urbanism.

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Keywords: Uncertainty and Complexity, Urban Park a, Urban Public Space, Rem Koolhaas, Park de la Villette, Downsview Park

Contemporary urban parks have stepped over their planning boundaries, becoming linked and integrated with vibrant urban areas at unprecedented rates. The natural matrix of urban parks allows them to provide refuges from the Olmsted period that makes them differentiated from other constructed urban spaces. In contemporary Asian cities, particularly Chinese cities, high density and high centralization are common. This requires the exploration and development of new urban park forms that can be better integrated into complex urban form. This review of two Rem Koolhaas and OMA competition projects Park de la Villette in France and Downsview Park in Canada, compares the relationships between public space and public park design in contemporary cities. Considering the "Culture of Congestion" and "City of Exacerbated Difference" as proposed by Koolhaas, this paper extends this theory to the urban parks, one is "Horizontal Congestion" strategy for Park de la Villette, and the other is "Uncertain Complex System" for Downsview Park. Analyzing the uncertainty and complexity of design approaches that respond to contemporary urban development, how the urban park could be efficiently and aesthetically integrated with and into urban growth.

Wars and cities: The spatial dynamics of street networks in Shenyang, China (1898-1966)

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Keywords: Urban Morphology, Chinese History, Space Syntax, Urban Landscape, Urban Form

The link between cities and historical mass violence due to war is both strong and complex. Studies have explored war's impact on cities mostly by analyzing the destruction or reconstruction of urban areas from economic, sociological or political perspectives. Few study have examined spatial dynamics of urban road networks and city centers before and after wars. Additionally, previous studies on war-city relationships typically focus on one particular military event; no studies have made time series analyses in regards to how city form survived and developed under various military events and political structures. This article crosses the boundaries of historicism, cultural/political and spatial studies to examine the implications involved with wars. Moreover, this research is the first study using space syntax as a tool to reveal the impact of historical military actions and military-oriented planning on city road networks and urban form.

The paper does not focus on war's destruction on buildings, but is concerned with how Shenyang grew under different political and military oriented planning and practices, which occurred because of multiple wars. In the first part, we address the issue of wars in Shenyang. We argue that the wars occurring in its history produced multiple colonized districts and brought a cultural mixture, providing the context of the occurrence of a collage of various elements of urban form. The second portion is devoted to a study of the military-controlled planning and construction within Shenyang; both qualitative analysis of the urban planning ideologies and quantitative analysis examining the road network characteristics of the military constructed city are conducted. The quantitative space syntax analysis was developed with data using eight historical Shenyang mappings arranged around five major military events, including the Russian invasion, the Russo-Japanese War, the Warlord Zhang occupation, the Chinese Anti-Japanese War and the LiaoShen Campaign.

The city construction process during wartime reflects a spatial competition between different power groups. The military-oriented urban development led to residents' migration and highly integrated road network at each of the expanded districts. There were various types of road forms and fragile connections to the old city center slowly became less integrated with time. Additionally, the location of the city center changed under various wars and post-war planning practices. Road network form contributed to much of these changes. This study offers empirical evidence on road network transformation between wartime and improves the understanding of war-city relationship.

Landscape Performance

Assessing Landscape Performance of a National Park Service Treasure: Mount Rushmore National Memorial

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Keywords: Landscape Performance, Benefits Methodology, National Park Service, Landscape Renovation

Mount Rushmore Memorial, sculpted by Gutzun Borglum and established in 1941, portrays the busts of presidents George Washington, Thomas Jefferson, Abraham Lincoln, and Theodore Roosevelt. In this Landscape Architecture Foundation (LAF) Case Study Investigation (CSI), James and Roeber (2015) partnered with Wyss and Associates to examine the first site in CSI history under the National Park Service. The purpose of this case study was to collect data and measure the environmental, social, and economic impact as landscape performance for the memorial.

In order for the performance of a public space – such as a memorial in this case – to be deemed successful, the claim should be substantiated with research. Deming and Swaffield (2011) noted that through the dynamic intersections in research, landscape architecture will expand through formalized ways of collecting and validating knowledge. Ozdil, Richards, and Earl (2015) asserted that value assessment of landscape architecture has begun to meet evaluative needs through systematic efforts such as the Landscape Performance Series, sponsored by LAF. In this analysis, James and Roeber (2015) studied performance factors after a $57 million Visitor Services redesign completed in 2001. The memorial attracts nearly three million visitors a year and was ultimately being "loved to death." Features of the memorial infrastructure and landscape including parking, pedestrian and vehicular circulation paths, plaza areas, and accessibility to the sculpture, were degrading and inadequate.

The methodology used to establish findings included: on-site observation, survey data collection, post-redesign material take-off calculations, and interpretation of data collected from the National Park Service and completed economic generation models.

Data collected led to key findings that include: increased hardscape areas, curbing, railings, and implied separation by 40% in the redesign to direct and contain unintended pedestrian circulation. These amenities minimize the impact on the landscape as seen in soil compaction and plant ecosystem damage, and demonstrate a reduction of unintended pedestrian traffic on the landscape at 95% containment. Additionally, the number of post-renovation annual visitors increased by 450,000, or 29%, between the 1980s and 2000s, and in turn, increased annual visitor spending by $27.8 million. The redevelopment also provided access and visibility to the monument for 91% of visitors surveyed, and 81% noted the renovation had the feeling of a National Memorial.

The significance of this presentation is presenting tangible measurement of landscape degradation controls, the influence on the social perceptions of a national memorial, and visitorship attraction and its impact on the local economy.

Assessment of A Restoration Design Proposal On A Large-Scale Project In California Using A Landscape Performance Assessment Tool

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Keywords: Ecology, restoration, large scale, design assessment

The study presents the Lower Walnut Creek Restoration project as a case study for assessment of ecological design applications on a large-scale site in Contra Costa County, California using Integrated Valuation of Ecosystem Services and Tradeoffs (InVest) and Geographical Information Systems (GIS). Many researchers and professionals in landscape architecture have acknowledged importance of environmental factors to landscape design applications (McHarg 1969; Lyle 1985) and collaborated with scientists and ecologists for their design projects. Although, many researchers have made much efforts into the ecological design and its considerations (factors) in design projects, much less studies have been proposed on the assessment of ecological applications, especially, on large scale projects rather than small scale projects such as storm water management designs and tree plantings. Some researchers have pointed out the importance of assessments of the ecological considerations and principles (Lovell and Johnston 2009), and their post-construction performance as one of the measures of sustainable landscape design (Yang et al 2016). Yet, many case studies displayed are small or medium scale design projects rather than large scale projects depicting ecological system assessment.

Main purpose of this study is to explore the assessment process of restoration design proposals on a large-scale project as a case study of an ecological design proposal assessment. For the assessment, the study uses 'Integrated Valuation of Ecosystem Services and Tradeoffs' (InVEST), one of the Landscape Performance Series Benefits Toolkits (LPS 2016), which could compare projected benefits using Geographic Information Systems (GIS). The study goes further to compare outcomes of the assessments with design proposals' intents. The study, first, explores 3 different ecological design proposals; one with immediate or short term ecological considerations, one with projected or long term considerations, and one with long term considerations with ecological system approach for the project. Then, the study assesses the proposals using the scenario generator in InVEST Tools. The assessment outcomes of the different proposals are compared with their intent and objectives. Results of the assessment for three different project approaches indicated that the long term systemic approach was the most ecologically beneficial compared to the immediate ecological considerations. However, the study also found that the overall ecological benefits and their effectiveness of implementation could be changed when economic and policy conditions are considered.

This study provides guidelines and strategies assessing ecological design proposals on large scale projects. It also offers measurable comparison for ecological design proposals and potentially helps stakeholders in making decisions for design directions and considerations for similar projects.

Creative Playscape: A Post-Occupancy Evaluation of the Smale Riverfront Park Heekin Adventure Playground, Cincinnati, Ohio

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Keywords: adventure playground, post-occupancy evaluation

Recently completed Heekin Adventure Playground on the banks of the Ohio River is at the forefront of a growing movement among landscape architects and designers who are rethinking the concept of playground. In the past few decades, play advocates have stated that most playgrounds in United States failed to nurture biological, psychological and emotional development of a child because they are not challenging or diverse enough to capture child's attention which contributes to future learning difficulties. Furthermore, most playgrounds are not fulfilling their expected roles as community spaces because they are not place-based or do not connect to the unique features of neighborhoods. Unlike the criticized default cookie-cutter playgrounds, Heekin Adventure Playground provides a unique, custom-designed play environment that references river's history and appropriately challenges children. The park has become a popular attraction in Cincinatti for both local families and tourists with an impressive density of three children per square meter in the summer. As it is increasingly expected that design decisions are supported by research evidence, learning of a park's usage through a post-occupancy evaluation is essential for successful playscape in the future. A study of Heekin Adventure Playground aims to understand how adventure playground design affects the way children play.

This presentation exhibits an analysis of 45 hour-intensive investigation of post-occupancy evaluation depicted in quantitative and qualitative infographic diagrams. A study was conducted through a systematic behavioral mapping, play pattern tracking, and structured and open-ended interviews on site with parents and members of the park board. The main goal was to understand how design elements generate a creative play that supports holistic development of a child according to acclaimed four types of play theory by Sara Smilansky. The result shows that besides the unique play features, the configuration of these features also plays an important role on how children play. The park has two distinct layouts of play features clustering together and play features spread out with their own rooms. These layouts influence differently on types of play, the time children spend with each play features, the level of engagement, interaction between other children, and physical distance between children and parents. The area where play features are clustered in one zone shows a higher engagement in play activities. Understanding of how the playground layout affects how children play and learn is valuable information to support an evidence-based design for practitioners and students within the field of playground design.

Designing with Pollution: Expanding the Performance of Residential Open Space in Beijing

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Keywords: Computational, Pollution, Performance, China

Numerous researchers (Esch (2015); Excell, (2015); Walton, et al. (2015)) highlight the public health implications of long-term exposure to air pollution. In 2015, the seriousness of China's air pollution was dramatically demonstrated in journalist Jing Chai's documentary Under the Dome. Given that the major factors generating China's pollution including the burning of brown coal and emissions from cars and factories lie outside the influence of landscape architecture, how can designers engage with such a serious issue in the design of contemporary open space in Chinese cities? This question formed the provocation for a thesis project that focused on the design of a new residential development in the Daxing District, Beijing. Surrounded by office buildings and industrial sites in the highly-polluted district (Jianzhong et al, 2014), the site presented a great opportunity to apply a research-driven design methodology that explores the role of the computational and real-time data in bridging the gap between scientific knowledge and design speculation.

Beginning at the scale of urban morphology, review of scientific literature revealed the speed and direction of wind was the most influential parameter for air pollutants distribution at the local scale (Yuan, Edward and Leslie, 2014). Working with CFD simulations on the relationship between prevailing winds and residential block configurations (adopted from Chinese standards), a spatial strategy for the residential layout was established to encourage the best possible atmospheric conditions, which encouraged the dispersal of air pollutants through the external spaces, while maintaining critical factors including solar access for housing. Shifting to the scale of inhabitation, an interrogation of the times of year and day that residents experience the lowest pollution levels revealed that while on average summer has the lowest pollution levels, winter mornings presented the lowest readings of any time. Equipped with this knowledge, the detailed design of external spaces emerged through the ambition to maximise the usability of open space during winter mornings, and then to develop responsive micro-atmospheric behaviours in the open space through the combined effects of materiality, program and vegetation.

This design investigation highlights the potential of computational tools and real-time data in developing performance driven design responsive to contemporary issues including pollution and climate change. Through the interrogation of the relationships between building layout, topography, vegetation and material selection, designers can have a greater control of the performance of open space, understood at the scale of the district and the finer scale of detail design.

Eco-Wisdom Knowledge System Digging of Spatial Management of Flooding and Drought at Yu-Jia Traditional Village where called ‘the Canal Town in Draught Area’

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Keywords: Sponge city, Agriculture civilization, Regional culture, Ecological wisdom, Yu-Jia traditional village

Confronted with both flooding and drought hazard for hundreds of years, Yu-Jia traditional village creatively combines drainage and water saving system into its living space, and forms the unique spatial pattern of ‘the Canal Town in Draught Area’. From the perspective of ‘make the best use of everything’ and ‘run in cycles’ knowledge system of traditional agriculture civilization, the article aims to extract the layout pattern of the drainage and water saving system and living space in Yu-Jia village, and elucidate the interaction relationship between them. Meanwhile, the principles and patterns of space design are concluded to cope with flooding and drought hazard. The internal mechanism of space formation is analyzed from the aspects of agriculture civilization, climatic characteristic, landform feature and regional culture. Finally, the article summarizes the ecological wisdom of space construction of traditional village, which is characterized by low technology, low cost, low impact and passive response. Study on the ancient ecological wisdom and construction philosophy of traditional village will provide new thinking for the local construction of sponge city.

Evaluating the Socio-Cultural Benefits of Urban Green Infrastructure in Portland's Pearl District

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Keywords: Green Infrastructure, Soci0-Cultural Benefits, Physical Activity

Worldwide, 'blue-green' Planning and Landscape Urbanism have authored a new urban development model founded on a green infrastructure of parks, natural areas, public, semi-public and private landscapes. In addition to their aesthetic value, these landscapes perform significant eco-system services related to biodiversity, physical activity, stormwater management and community identity and biophilia (Van den Berg Hartig and Staats 2007, Ahern 2011, Waldheim 2012, Beatley, 2012). Research on the benefits of green infrastructure has developed many toolkits for landscape performance assessment, but these tools emphasize environmental over cultural benefits. A more holistic approach to landscape performance must include biotic, abiotic and cultural dimensions of eco-literacy, direct experience of nature, physical recreation; experience and interpretation of cultural history; solitude and inspiration; opportunities for social interactions and stimulus of artistic expression (Ahern 2007 p.269).

This paper investigates the cultural performance of three urban parks in Portland, Oregon as a foundation for a comprehensive future assessment of their benefits. Early planning documents described Jamison Square, Tanner Springs, and The Fields as 'green infrastructure' and compared them to the city's historic Park Blocks. In October 2006, the author engaged in a week-long study involving 30 minutes-long, morning, midday and afternoon observations to assess the socio-cultural performance of the three parks. The mixed methodology involved observing and mapping park visitors, their age group, apparent gender, and physical activity levels (walking, running, dog walking, exercising/power walking, strolling with children, sitting, etc.). A final set of open-ended questions assessed the quality of the experience from a participant-observation perspective (Cooper Marcus and Francis 1997)

The observations reveal that the performance of Portland's newest green infrastructure is deeply affected by the diverse conceptual approaches taken by its designers. Peter Walker's Jamison Square functions as a civic neighborhood space where park features afford many opportunities for socialization for many user types. In good and inclement weather, one can observe small gatherings and groups playing bocce, picnicking or people watching. Unlike Jamison, Tanner Springs is an iconic urban stage and open-air textbook. Native plants and historical remnants connect users to the environmental history of Portland and stimulate their creativity, but does so at the expense of physical activity. The Fields is the most active of the three, attracting scores of dog walkers, runners and 'speed walkers' and lunch-breakers. This pilot study suggests the high potential for green infrastructure to serve as a foundation for community and health, yet their highly-designed nature presents challenges to their adaptability and long-term resilience. More research and a more extended set of observations are needed to confirm these preliminary findings.

Evaluation of The Thermal Comfort and Health Benefits for Residential Gardens

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Keywords: Landscape physical environment, Physiologically Equivalent Temperature, negative air ions, health garden

Studies on negative air ions (NAI) began in the 1970s. Negative ions in the air were found to act on the parasympathetic nervous system and relax the nerves, whereas positive air ions (PAI) were found to act on and excite the sympathetic nerves. Many cases have demonstrated the beneficial human health effects of negative air ions. The Objective of the study is evaluating the thermal comfort and health benefits in residential gardens for producing landscaping guidelines for health-oriented garden design. Monitoring sites were set at a residential garden in Taichung City, and were systematically equipped to record physical environment factors. Recorded data were used to monitor and calculate the Physiologically Equivalent Temperature (PET) and air ions. The PET and NAI values at the sampling sites were used to estimate the spatial distributions in the study garden by the Kriging geostatistic method. The research findings showed that plant point charge increased negative air ions in garden areas, forming a health environment for human body. However, the air conditioners in the corner of the garden produced positive air ions that may lead to opposite effects on human health. On the other hand, the research found that participants perceived comfort or slight warmth in the studied region, and the spatial distribution of the PET appeared at diverse times and spatial variability characteristics. In other words, participants perceived comfort at distinct locations during different time periods. Moreover, the research results also suggest that waterscapes and plants could increase negative air ions, which reduce the temperature and enhance thermal comfort in the garden effectively. The proposed approach is an effective tool contributes to landscape performance evaluate in green space.

Evaluation of The Over-Summering Capacity of Sedum Lineare On an Extensive Green Roof in Shangha

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Keywords: extensive green roof, Sedum lineare, over-summering capacity

Green roof is an efficient substitute for green spaces in urban environment (i.e. sufficient green roofs, according to LEED standards at least 50% of all roofs in a city, will alleviate heat island effect). The Municipal Government of Shanghai has encouraged the construction of green roofs since 2002. But only some new-built or reconstructed commercial/public buildings conducted green roof projects and more than half of these green roofs are intensive ones. The enormous existing buildings render an important field to promote green roof construction. The crux of constructing green roofs on the tops of existing buildings is the limitation of roof conditions. The restricted load capacities and existing structures represent a scoping for extensive green roofs. Consequently, the limited substrate depth and the lower maintenance requirement make it difficult for the plants to survive the extremely hot and dry summer in Shanghai. The Sedum lineare is one of the most recommended plant species for extensive green roofs in eastern China. It has strong heat and dryness tolerance. However, most evaluation experiments were conducted in laboratories and thus ignored the actual rooftop conditions and disturbances. This study constructed a trial extensive green roof on an existing sloping roof in Shanghai and conducted an on-the-spot experiment in mid-2016 to evaluate the over-summering capacity of Sedum lineare. Shanghai witnessed one of its hottest summer with long sunny days and heavy typhoon storms in 2016. The results showed that Sedum lineare survived all the harsh conditions on the sloping roof in summer but its visual effect was degraded observably during the continuous sunny and dry days. The coverage of plants decreased and pests fed on the succulent leaves of Sedum lineare after heavy storms. In order to maintain the delightful green color and coverage of Sedum lineare, limited irrigation is suggested when the average daily environmental temperature is above 30°C. The evaluation will help to set maintaining strategies for extensive green roof to survive the harsh summers in Shanghai.

Flooding and Drought Hazard Spatial Management Performance Analysis of Yu-Jia Traditional Village Based on Hydrological Ecological Risk Assessment

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Keywords: Sponge city, Eco-wisdom, Traditional village, Hydrological ecological risk assessment, Performance analysis

Modern city faces the increasing risk of water security, while the traditional village in China, which has been supported by local eco-wisdom knowledge system, works well for hundreds or even thousands of years. The core reason is the unique eco-wisdom knowledge system of coping with flooding and drought hazard in the village unit. Quantitatively evaluating the flooding and drought hazard spatial management performance will benefit the application of quantitatively ecological wisdom for set of practices in china. Based on the theories and methods of urban hydrographic ecological safety, the research takes the flooding and drought hazard space of Yu-Jia village as an example and selects the hydrological ecological risk assessment (ERA) as main analysis technology. Meanwhile, through constructing the multi-factor overlay analysis model with three factor of hydrological sensitivity, landform and human settlements, flooding and drought hazard spatial management performance in traditional village can be evaluated. The result of performance analysis illustrates the coupling relationship of flooding and drought hazard space planning, and characterizes the eco-wisdom quantitatively in traditional village. Then, the eco-wisdom can be translated into quantitative objective and principle of urban design for modern sponge city. Through flooding and drought hazard spatial management performance analysis, eco-wisdom knowledge system in traditional village can be quantified and visualized. It will promote better application of ecological wisdom in the top-level design of modern sponge city plan, and provide reference for the development pattern of the new rural construction.

How Do the Landscape Elements Act on Thermal Environment? A Case Study in Humid and Hot Area

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Keywords: act on, thermal comfort value, landscape elements, humid and hot area

It provides significant theory and technological foundation for planning comfort thermal environment by the aid of studying the effect of landscape elements on thermal environment, because comfortable thermal environment could stimulate outdoor activities, especially in hot and humid area.
Taking Baihuatan Park for example, it discusses effects of landscape elements acting on thermal environment in summer. The Baihuatan park lies in Chengdu city, China, a typical hot and humid climate city. Seven observation sites: over-pool, pool-shore, pavilion-over-pool, pavilion-on-land, under- banyan-trees, under- laurel-trees and open-space are selected in the park. Hand-held aerographs and solar radiometers are set at seven observation sites to observe and record climate parameters value every five minutes.

WBGT (Wet Bulb Globe Temperature) index, instead of single climate parameter, was used to analyze and evaluate the thermal comfort effects, because thermal comfort is comprehensive perception of all climate parameters by person. In view of thermal environment design, many mathematical models have been set up by researchers to analyze and evaluate thermal comfort, and the model proposed by Dr. Dong adapts to hot and humid climate, and so it is adopted here. The model is as follows:
WBGT=(0.8288Ta+0.0613Tmr+0.007377SR+13.8297RH-8.7284)V-0.0551
Ta, air temperature, ℃; Tmr, radiation temperature, ℃; SR, horizontal solar radiation, W/m2; V, wind speed, m/s; RH, relative humidity, %; WBGT, Wet Bulb Globe Temperature, ℃.

So, the WBGT value could be obtained basing on data of climate parameters observed. Combined WBGT values with climate parameters, the effects which landscape elements act on thermal environment could be analyzed quantitatively and results are summarized below.
(1) The landscapes of water, plant and architecture all can improve thermal comfort, and water has much better effect on thermal comfort than other elements. During observation time, the mean WBGT values of water landscape, plant landscape (except laurel trees), architecture landscape and open-space are 29.6℃, 31.5℃, 31.8℃ and 37.7℃ separately.
(2) Wind plays significant role in ameliorating thermal environment. In humid and hot area, high relative humidity and high temperature are great factors to degrade thermal comfort, while wind could drop relative humidity and temperature considerably. The laurel trees have uncomfortable thermal environment with mean WBGT value of 35.3℃ for low wind speed, high relative humidity and high temperature.
So, in hot and humid climate area, it is the relatively most effective way of amelioration thermal comfort to change wind speed through water landscape.

Importance-Performance Analysis: A useful survey technique for measuring social benefits of landscape performance.

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Originally developed for marketing analysis, importance-performance analysis (Martilla and James, 1977) has been used extensively in hospitality and tourism research and is a good candidate for measuring landscape performance. The technique has survey participants first rate the general importance of an item of interest, then rate how that item is performing in a given instance. For example, an item of interest might be "viewing green trees from your office window". A participant might be asked to rate "It is important to see green trees from my office window (strongly disagree – strongly agree)". Then a follow up question would be "I see green trees from my office window (strongly disagree – strongly agree)". When graphed, the two questions together can help establish if an area of interest is performing over or under expectations.

Importance-performance analysis was used to evaluate social benefits at the new US Coast Guard headquarters—a landscape designed intentionally for high performance at many levels. The analysis studied satisfaction, physical accessibility, walkability, views, social interaction, and other various benefits of interest to designers. One hundred and one (101) office workers from the US Coast Guard headquarters were handed survey cards and asked to complete them during their lunch period. A ninety-five (95) percent return rate was achieved. A scale ranging from "strongly disagree" to "strongly agree" was used for all questions.

Results showed all major design parameters were performing well (all importance and performance ratings averaged in the "agree to strongly agree" side of the scale. However, closer inspection of each item individually shows where improvements can be made. For example, "window views" ranked highest among all items for importance, but lowest among all for performance suggesting an area where improvement might be needed. On the other hand, ecological impacts of design ranked lowest among all items for importance, but was second highest in performance suggesting that the design exceeded expectations in that area. All items examined through the survey will be discussed during the presentation.

Although this technique is susceptible to researcher bias, importance-performance analysis was found to be easily applied and suitable to study landscape performance at the US Coast Guard headquarters. It should be considered by researchers studying landscape performance as an effective approach to quantifying design benefits—especially for social aspects of design.

Landscape Performance for Raingarden Maintenance: A Post-Project Assessment Study of RiverSmart Homes in Washington, D.C.

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Keywords: municipal stormwater incentives, rain garden maintenance, stormwater management, private property

Governmental agencies have developed a number of ways to address best practices for managing urban stormwater at the residential scale. Increasingly, a number of governmental agencies are taking a decentralized approach to stormwater management via individual parcel assessments and residential stormwater rebates for homeowners (Keeley, 2007; Larson, Caldwell, and Cloninger 2014; Newburn et al. 2013; Puzey, Dana 2009). Washington, D.C. and Maryland have developed residential stormwater rebate programs as a way to implement stormwater management at the residential scale.

Yet despite the growing frequency of these stormwater rebate program, very little is known about the landscape performance of the maintenance of various stormwater best management practices, including raingardens. Research suggests that over the long-term, rain garden performance degrades (Schwartz 2015). Anderson (2011) found that homeowner-maintained rain gardens ranging from 2-4 years old had poor storage capacity and were only able to store and infiltrate 40% of the designed stormwater volume. Despite these findings, long-term efficiency of rain gardens can be still difficult to determine because rain gardens are still evolving in relation to their hydrologic, biologic and chemical settings (Tornes 2005).

Our study developed a framework to identify landscape performance for the maintenance of rain gardens. We conducted a physical site assessment of 28 raingardens—which ranged in age from 1-5 years— that were implemented as part of Washington, D.C.'s District Department of Energy & Environment's (DOEE) RiverSmart Homes program. We then surveyed the participanting homeowners about their raingarden maintenance practices. We then analyzed rain garden performance by social, ecological, and economic criteria and conclude with recommendations on improving landscape performance for rain garden maintenance.

Some of the initial findings from the physical assessment included the following: 1) new raingardens had quicker infiltration rates than old rain gardens; 2) In terms of maintenance, new rain gardens were being maintained better than old rain gardens based on their maintenance performance (standing water, weeds, berm presence, ponding depth); and3) ponding depths of the studied raingardens ranged from 2 inches to 13 inches; 4) a total of 59 different species found in the rain gardens with Penstemon, Itea virginica, and Echinacea purpurea among the most popular species planted; and 6) Clethra alnifolia, Phlox subulata, and Chasmanthium latifolium had the highest survival rate. In terms of the social dimensions of rain garden maintentance performance, initial findings from the survey included 1) property beautification (82%) and reduction of flooding or standing water on the property (75%); 2) benefits included increased wildlife habitat (45%) and community benefits (55%); and 3) satisfaction (70% noted that they were very satisfied, with an additional 17% being somewhat satisfied).

Multifunctional Riparian Wetland Performance

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Keywords: Riparian Wetland, Wetland, Water Quality, Multifunctional Landscapes

Riparian wetlands are used to treat polluted river water or are the last opportunity to treat stormwater or wastewater from sanitary sewers. But these wetland projects provide a host of ancillary ecosystem benefits including recreation, habitat, education, open space and aesthetic opportunities. Examples of these multifunctional riparian wetlands in China and Taiwan are presented with particular focus on the wetland created for the Shanghai Exposition in 2010. This project was designed by Kongjian Yu (Turenscape) and now is known as Houtan Park. The design, construction staging and data demonstrating the water quality improvement will be presented. Each of the ancillary benefits listed above as well as food production and sculpture displays will be discussed based on construction drawings and images of the project during construction and in images from 2010, 2012 and 2015.

Pre-Design Development Assessment with SWAT to Improve Urban Landscapes: Southwestern Medical District in Dallas, Texas

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Keywords: SWAT, Design Process, Performance, Evaluation, Stormwater, Water Quality, Water Quantity, Urban Landscape

Landscape architecture (LA) has recently started seeing a significant rise in evaluative studies among the scientific and professional community, perhaps as a result of growing concerns related to rapid urbanization, climate change, and environmental degradation (LAF, 2016;---,2014). The traditional design process (Murphy, 2005; Simonds, 1998) in LA literature typically included a "Post-Occupancy Evaluation" process in the final stages of a project (Marcus & Francis, 1998). Several methods adopted in evaluative LA research commonly focused on landscape performance in post implementation conditions, with a relatively superficial use of technology to address contemporary urban problems. However, with the advancement of computer technologies, opportunities to assess and predict performance before project completion have emerged.

The purpose of this research is to assess and predict stormwater runoff and its impact on a site and watershed scale using Geographic Information System (GIS) and the Soil and Water Assessment Tool (SWAT), specifically during the design development stage of the landscape planning process. The research is an attempt to investigate water quality and quantity in an urbanized watershed before project construction and completion. The research uses SWAT, a physically-based model that presents opportunities for hydrological modeling. The study adopts the case of the Southwestern Medical District in Dallas, Texas, which encompasses 350 hectares of the Headwaters Turtle Creek Watershed. The study looks into the proposed Urban Streetscape Master Plan for the district, and assesses various scenarios using SWAT.

The research findings highlight the importance of predictive modeling in landscape architecture and planning. Recent technological developments in GIS allow for the application of geoanalytical methods that challenge conventional planning methods, and broaden the design approach using quantifiable measures specifically in the design development phase of a project. Assessing various scenarios for development presents landscape architects and planners with the tools for forecasting and reducing environmental stresses by proactively designing landscapes to minimize unfavorable environmental impacts.

Integrating GIS and SWAT enables researchers and professionals to use geospatial technologies in adaptive and responsive planning and design, and supports decision-making processes with various scenarios for development and alternative design solutions (Wilson, 2015). The research highlights that once the software functions are improved to meet the needs of landscape architects and planners, it can assess stormwater runoff quality and quantity with ease in pre-design development phases. Thus landscape architects and allied professions can have a more comprehensive and responsive approach that informs the built and natural environment in urban contexts.

Promoting Landscape Performance Measurement: A Collaborative Baseline Data Collection Experience

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Keywords: Baseline data, Documentation, LAF, Landscape performance

The Landscape Performance Series was initiated by the Landscape Architecture Foundation in 2010. The program attempts to evaluate high-performing landscapes after they are constructed and occupied. As a backward evaluation system, landscape performance advocates using a pre- and post-performance comparison to show value and make the case for sustainable landscape solutions. However, when conducting pre- and post-comparisons, one difficulty research teams encounter is lacking baseline data. Examples of these data include site images, water quality, soil fertility, noise level, and user satisfaction. These data can no longer be collected once a project is constructed. Because of this, we proposed an idea to team up researchers and practitioners at a project's early stages to systematically measure performance. The purpose of this article is to show our experience and lessons learned in this pre-teaming attempt and explore strategies to advance landscape performance evaluation.

We studied a project located in Midland, TX, which proposes redesigning a downtown block and plaza area to an active outdoor space that would hold various beloved city events and accommodate downtown dwellers' social life. Our research started at the point when design was finished while construction had not yet started. The research included three steps. First, we studied the design documents to understand the site, project goals and design strategies. Then, we created a plan, list of metrics, and schedule for performance measurement. Second, we used online sources (e.g. ArcGIS, City, Department of Police) to collect part of the baseline data. Lastly, we visited the site to collect the remaining data. These data will be compared with two sets of post-performance data that are planned to be collected first when the project is constructed and then occupied (3-5 years after construction).

We feel the pre-teaming is an effective method to collect baseline data and monitor the Midland project's construction and occupancy. It allows us to collect baseline data systematically for later comparison with post construction data. Additionally, it provides opportunities to gather cost information to facilitate cost-benefit analysis. However, in this pre-teaming attempt, both researcher and practitioners conducted the research voluntarily, which might prevent pre-teaming from being made a routine practice. We believe, to expand pre-teaming and advance landscape performance evaluation, we need to 1) pursue research grants or clients' financial support, 2) publish guidelines to direct baseline data collection and landscape performance quantification, and 3) train the next generation of landscape architects to collect baseline data and measure landscape performance.

Research on Landscape Performance of Wuhan Garden Expo based on Carbon Sequestration of Green Plants

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Keywords: Wuhan Garden Expo, Landscape Performance, Carbon Sequestration, Influencing factors

With the improvement of the function of carbon Sequestration and oxygen release in the garden green space is paid attention in the construction of livable city, quantitative research on plant carbon sequestration capacity of landscape plants has gradually become the main content of scientific evaluation of landscape environmental benefits. Combined with on-site research, GIS technology analysis of Plant community structure in the tenth Garden Expo of Wuhan ,Square grid method is used to divide the Wuhan Garden Expo into 100 standard samples, The carbon sink is divided into five grades, Reference and utilization of National Tree Benefit Calculator of American Landscape Performance and CITYgreen Software, The carbon sink efficiency of each sample area of Wuhan Garden Expo is calculated and analyzed, And analyzes the influencing factors of carbon sink change. According to the quantification results, from the perspective of plant type, plant age and specification, community structure, the scientific evaluation of the carbon sink of Wuhan Garden Expo Garden, and the formation of different scenic spots of green carbon sink recommended model, The aim of this study is to provide references for the use of high-carbon sinks in different landscape types.

Serviceability Evaluation and Layout Optimization of Green Space Based on Spatial Reachability from the Perspective of Built-Environment Regeneration -A Case Study on Wuhan East Lake High - tech Zone

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Keywords: landscape architecture, accessibility assessment, recreational green space, service efficiency, urban new area

It is the starting point to perfect the urban green space system of landscape architecture discipline by promoting the smart optimization of urban park green space and improving the service level of urban green space. The traditional green land rate, per capita green area and other indicators in the ability to reflect the urban green space has been limited. Scientific evaluation of the recreational green space service performance, we must address the urban green planning functional indicators, evaluation methods and layout optimization issues.

The study takes the recreational greenbelt of Wuhan East Lake High-tech Zone with an area larger than 2h ㎡ as the research object, constructs a two-step mobile search method, network analysis method and other methods of accessibility evaluation program, based on the balance between supply and demand and space accessibility of green service efficiency evaluation. The study found at the macro level, accessibility evaluation based on non-spatial elements can be completed from the viewpoint of supply and demand. At the micro level, the accessibility evaluation based on spatial elements can be completed from the perspective of convenience. Comprehensive overlay can reflect the research objectively and objectively. The effectiveness of social services in green space. Then, the reasons for the difference of recreational greenbelt accessibility in high-tech zones are summarized. Combined with the trend of development, the layout and design optimization strategies of greenbelt in the built-up area are put forward, and the existing planning optimization and adjustment plan is forecasted.

This study constructs the evaluation system of green area accessibility for urban new area, and explores the strategy and method of improving service efficiency of green space based on the result of accessibility evaluation. To help urban managers to objectively understand the urban green space; to facilitate public green travel; to improve the efficiency of planners; for other cities to evaluate high-tech zone to provide reference for green accessibility.

Stormwater management applied in the community park between China and Singapore

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Keywords: Stormwater management, community park, low impact development, life cycle cost

Stormwater management continues to evolve as a result of increased regulatory requirements and a desire to create sustainable solutions that attempt to bring urban water cycle closer to the natural hydrologic cycle. How to optimize the function of stormwater management practices is a key challenge to landscape architecture and stormwater management? The study lays particular emphasis on finding the approach of integrating stormwater management practices into landscape design, and assessing the cost-effectiveness of stormwater management structural practices. Based on the four-step process of stormwater management in community park, this study compares the content about landscape hydrology, non-structural practices, management objects and structural practices in Hillside Eco Park, China and Crescent and Pioneer Halls, Singapore, analyses the environmental benefits and life cycle costs(LCC) for the structural practices in these two parks. The results shows that: (1) four-step process is a suitable method which can be used for implementing sustainable stormwater management in community park; (2) both China and Singapore face the problem of providing vibrant living landscape for people in stormwater management in residential communities; (3) the evaluation of environment benefit and LCC is an effective way to measure the effectiveness of structural practices for stormwater management, and it should be used in the planning phase for optimal design for stormwater management in community park. The methodology used in this study could be useful as reference for stormwater management combined with landscape design in the community parks.

Study on Social Performance of Urban Landscape: Case Study of Daguan Wetland in Guangzhou

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Keywords: Landscape performance, Social performance, Social value; Behavior, Case study

Urban landscape has proven to be efficient on the improvement of land security and public health, as well as the aesthetic experience it brings. With the development of urban landscape design, the public and academia has realized that a booming living space cannot exist without people and their activities, and a well designed, built and managed outdoor space is essential for the motivation of spontaneous and recreational activities.

As the rising study of landscape performance, urban landscape project has shown its huge environmental and economic and value, yet social performance of urban landscape also counts. Daguan Wetland is a recently built urban landscape project according to theory of "sponge city". While the research and discussion of "sponge city" projects mainly focus on the environmental performance such as pollution treatment and storm water control, the social performance, which is also an important part of sustainable urban landscape, is rarely mentioned.

This paper by building a case study of Guangzhou Daguan Wetland, lay particular emphasis on aspects such as visiting behavior, mood of visitors, evaluation of visual, social impact, etc. Using observation, interview and downtown and onsite questionnaire, with the help of Internet research, mood analysis software, data analyze software, this paper aiming to introduce indicator and method of social performance assessment, summarize the social value of Guangzhou Daguan Wetland based on its character and type, and communicate the significance of the urban landscape to society.

The results show that
1. Daguan Wetland is well known in Guangzhou now. It attracts nearby residents to relax daily and provides the residents a good entertainment place on weekend and holiday.
2. Most visitors come with family by car on vacation and their main activities include walking, taking pictures, picnic, etc, while the children are interested in water, plants and insects.
3. When coming, the visitors generally feel happy and enjoyable, so it can be deduced that it could effectively alleviate the tension in work and life.
4. The landscape display and signage system let the citizens understand the sponge city and wetland ecology visually and the wetland improves their aesthetic and functional cognition about modern urban landscape.
5. Wetland park is important in urban planning, design and management area and it has the potential to upgrade the citizens' lifestyle towards a happier, healthier and more ecological way.

The Design Performance of the Community Greenways in Shenzhen, China

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Keywords: Community greenway, Design performance, Bike lanes, Shenzhen, Pearl River Delta

Non-motor travel has been considered as one of the key solutions to solve the environmental problems of modern cities. Bike lanes, which form the main component of the community greenways in the central built-up area of Shenzhen, are supposed to encourage more bicycle users for daily travel. Do all types of bike lanes work well and how does the design of bike lanes influence residents' use? Our study explored the characteristics of the traffic behavior of 4 typical bike lanes in 4 communities in the central area of Shenzhen. The constructed 4 types of bike lanes are: Two-way independent bike lanesTwo-way Independent BL, bike lanes in greenbelt besides main roads, Greenbelt BL, bike lanes with updated material on sidewalk, Updated material BL, and bike lanes marked by white lines on sidewalk, White line BL. 12761 users' behavior were observed by video cameras, and the result shows (1) White line BL has the highest utilization rate by bike users (145 bikes/hour) and 70.3% of bike users choose to use bike lane, Two-way Independent BL attracts the most bike users (96.8%) and has a relatively high utilization rate(104 bikes/hour) , while the utilization rate of Updated material GW (25 bikes/hour, 52.1%)and Greenbelt BL (22 bikes/hour, 40.1%)are significantly low. (2) The interference of pedestrians on Greenbelt BL (76%) and Updated material BL (79.5%) is significantly high. Moreover, E-bike and tricycle are the main traffic modes sharing bike lanes with bike, but they don't have significant effect on bicycle flow on all types of bike lanes. (3) Two-way Independent BL has the least retrograde traffic behavior; it provides the safest bike riding conditions. The retrograde traffic behavior on White line GW is relatively higher and indicates potential safety problems. (4) More than two pedestrians walking together and avoiding retrograde E-bike and tricycle are the main cause of all kinds of travelers swerving between walk and bike lines, followed by using garbage can and avoiding the hanging branches of the street trees. The swerving traffic behavior on Two-way Independent GW and Updated material GW is significant lower than the other two; these two kinds of greenways provide a relatively smooth and safe biking condition.

In summary, the utilization rate of White line BL is the highest, but the retrograde and swerving traffic behavior create safety problem. This can be reduced by widening the walk lanes, building two-way bike lanes and updating the bike lane materials. The utilization rate and service quality of Two-way Independent BL is relatively high, but with too much interference of pedestrians. The interference can be reduced by widening the walk lanes to meet the needs of more than 2 people walking together. Both the utilization rate and biking condition of Greenbelt BL are significantly low, so this paper suggests that the construction of Greenbelt BL should be avoided, and the Updated material BL should be marked with white lines to improve the utilization rate by bike users. This research contributes a reference for the bike lane construction of community greenways in other cities.

The Ecosystem-Service Performance Analysis of the Three-Hills and Five-Gardens in Beijing, China

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Keywords: Landscape Performance, The Three-Hills and Five-Gardens, Regulation and Supporting Service, Cultural Service, Landscape Pattern

"Three-hills and Five-gardens" refers to the Xiangshan (Fragrant Hill), Yuquanshan (Jade Spring Hill) and Wanshoushan (Longevity Hill), and the Jingyi, Jingming, Changchun and Yuanmingyuan gardens and the Summer Palace (Beijing Municipal Planning Commission, 2002). They are located in the foot of the Western Hills of Beijing that breed Chinese imperial gardens owing to the pictured landscape of hills, sparking streams and paddy fields (Yue, 2014). These hills and gardens have such a great collection of royal gardens features immersed in the surrounding nature: Xiangshan with the Jingyi Garden and Yuquanshan with the Jingming Garden were mountain resorts with pine-cypress forests and traditional architectures, the Changchun Garden once was the palace of empress dowager, the Yuanmingyuan Garden where the emperor of the Qing Dynasty resided and handled national affairs were famous for cultural relics including its extensive cluster of traditional gardens, architecture and other art works, the Summer Palace was the emperor's garden retreat including Kunming Lake, the halls of Joy and Jade Billows and Longevity Hill. Thence, nowadays the Three-hills and Five-gardens is used to describe the Western Hill imperial gardens, for none of imperial gardens in northwest Beijing are better known than them (Liu, 2010; Qian, 2016). The Three-hills and Five-gardens has been protected as the cultural relics sites and as the whole.

However, no negatively, the integral landscape of the Three-hills and Five-gardens surrounded by natural mountains, and rivers and paddy fields have disappeared with the long-time urban growth (Liu, 2011; Qian, 2016). Set against the backdrop of a jumble of urban communities, cultural & educational, and commercial lands, the Three-hills and Five-gardens might not only be the hub of protecting Chinese classical royal gardens, but also be hoped as the potential key part of green buffers that ecologically benefit dwellers in the Center of Beijing (Yue, 2014). Then what kind of services the Three-hills and Five-gardens could ecologically perform and how about the capability of ecosystem service?
This work aims to evaluate the regulation and supporting service of the Three-hills and Five-gardens for boosting its ecological service of green buffer. Carbon sequestration, runoff reduction and air purification was selected here. Integrating the theory of InVEST model and Citygreen model, this paper firstly developed an easier approach to quantify carbon sequestration, runoff reduction and air purification based on land use types, tree species and vegetation coverage, as well as topography. The result showed that the total amount of carbon sequestration in the Three-hills and Five-gardens was 2.3 million tons, and the carbon storage per unit was 32 ton/hm2; the total amount of runoff reduction was about fifty-nine thousand cubic meters, and the total amount of atmospheric pollutant- clearance was about four thousand and six hundred tons, the atmospheric pollutant-clearance per unit was 0.69 ton/hm2. Then this paper analyzed the relationship between ecosystem services and landscape patterns to reveal the main factors of affecting ecosystem-service performance. The result showed that three ecosystem services were dominated by dual pattern factors of land cover and topography. And it was illustrated that gardens such as the Summer Palace that have (mountain) forests connected to open water bodies, could perform three types of ecosystem services better. It is hoped that this quantitative

The Role of Small City Parks in Urban Sustainability: Case of Soundscape Park in Miami Beach

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Keywords: landscape performance, sustainability, post-occupancy evaluation, small city parks, urban sustainability

Landscape performance is defined by Landscape Architecture Foundation (LAF) as "a measure of the effectiveness with which landscape solutions fulfill their intended purpose and contribute to sustainability". This paper reports on a landscape performance research developed in association with LAF in 2016. With a focus on performance benefits, this paper examines a recently built urban park design project in Miami Beach, Soundscape Park. The park is a high profile public space designed by West 8 and built through a partnership between the City of Miami Beach and New World Symphony Academy, a symphonic conservatory in Miami Beach. LAF's systematic case study investigation method is utilized for conducting the research and its documentation. Primary data collection methods included on-site user surveys, user counts, user behavior observations, and temperature comparison studies. Secondary data was collected from the firms involved in the project's design and construction, other stakeholders, and public records and databases. The two most important design elements of the park are; 1) Custom-designed and wine covered steel pergolas, which shelter visitors from the high temperatures of the region, 2) An audio-visual program area, which allows for space to sit, view, and hear performances emanating from within the concert hall at concert-level quality. The quantified benefits the study identified are tied to sustainable design strategies employed in the project's design and reveal the positive impacts such strategies can have on urban environments. The research identified that the park has contributed to an increase in nearby property values, improvements in user perceptions of the site, and an increase in the sequestration of carbon dioxide. Custom-designed pergolas and increased canopy cover reduced air temperatures in the park by an average of 4.7° F when compared to the adjacent sidewalk. With an unusual park programming that accommodates audio-visual needs of the community, the Soundscape Park has also increased user exposure to music performances or other cultural events according to 45% of survey respondents by hosting over 50 events annually.

Research on Waterfront Green Way Landscape Performance Evaluation Index System--Hangzhou as an Example

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Keywords: Waterfront Green Way, Landscape Performance, Evaluation System, Sustainability, Hangzhou

At present, a number of provinces in China, including Zhejiang, is rapidly advancing greenway planning and construction work, and the lack of greenways evaluation feedback system, resulting in the problems of greenway planning and construction have not been timely response, which adversely affects the function of greenway, a comprehensive greenways evaluation system is urgently needed.
Domestic research on urban greenway evaluation system still in the exploratory period, mostly about the evaluation on certain aspects of greenway nature or function, research mainly focused on the landscape resources evaluation (including plant landscape evaluation, landscape visual evaluation, etc.), functional evaluation (including ecological benefit assessment, recreation function evaluation, etc.), post occupancy evaluation (POE), there are few scholars combine the Pearl River Delta, Guangdong province greenway construction, put forward a more comprehensive quantitative evaluation system.
The study is based on the historical background of Zhejiang greenway construction rapid development, and Zhejiang geographical features, which is rich of water systems, take Hangzhou waterfront greenway as the object , introduce landscape performance evaluation (LPS), extract its sustainable landscape characteristics(covering environmental, economic, social three aspects), referring to case study investigation(CSI) about trail or greenway landscape performance from American Landscape Architecture Foundation, to study on the index selection and system construction of the greenway landscape performance evaluation, to support evaluation feedback for the constructed waterfront greenway in Hangzhou, while promoting the renewal and maintenance of the project and the realization of scientific greenways management; also to provide a scientific basis for the Hangzhou authorities to develop close, long-term greenway planning, improve and enhance the quality of construction of greenways; it will make up for the domestic Landscape Performance Study shortage, help to improve landscape architecture and industry to develop towards evidence-based design.

Trees for conserving energy: knowns and unknowns

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Keywords: urban trees, energy conservation, sustainability

Trees are well-known for reducing cooling and heating demand by modifying microclimates resulting from solar radiation and wind speed on and near buildings (Erley and Jaffe, 1979; McPherson and Rowntree, 1993). Since the 1970s, many studies have investigated the effects of trees on residential energy use, but they have reported a wide range of energy-saving performance using different methods and study locations. Some recent studies have questioned the effectiveness of tree planting for energy conservation when considering factors such as updated building codes and long-term tree survivorship (Ko et al., 2015ab). Although there are many studies showing their energy-saving effects, an updated and comprehensive review is needed to gain a clear understanding of whether/how much trees save energy and what leads to the differences in the findings.

Given this gap in the literature, this study provides an updated and comprehensive review of trees' energy-saving performance by assessing peer-reviewed studies on this topic. This study aims to answer three questions: i) what is the variation of existing studies in terms of their major disciplines, geographic distributions, methods employed? ii) how much reported cooling and heating energy-savings and penalties vary, and what are their causes? and iii) what are the implications for practitioners and future research?

Findings reveal that the overwhelming majority of the relevant studies have been conducted in North America, with strong concentration in California. 34 peer-reviewed studies were published from 1983 to 2015 by 16 different journals across disciplines mainly from arboriculture and forestry, energy and building science, and urban planning and landscape architecture. Researchers used both simulation modeling and empirical approach equally. Reported energy-savings for cooling widely varied from 2.3% to 80% and those for heating ranged from 1% to 20%, depending on climate, method, and assumptions for buildings and trees.

Important implications for practitioners and future research on urban tree planting were made by calling for: i) planting in optimal locations if possible as well as increasing overall canopy; ii) giving priority to vulnerable communities with older and poorly insulated houses and low tree canopy; iii) increasing tree survivorship, iv) monitoring tree survival and growth to provide evidence for realistic assumptions in models; and v) conducting more research for providing locally specific energy savings across diverse housing types. This study contributes to evidence-based tree planting and landscape design for sustainability.

Valuing natural reserves using the Contingent Valuation Method

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Keywords: Contingent Valuation Method (CVM), Willingness to pay (WTP), land-use value, natural reserve, tobit model

In countries with higher population density, natural reserves have been frequently under threat from land and property developments. Unlike developed areas of which their use-value is directly calculated by the potential rent of the buildings or the price of agricultural produces within them, it is hard to quantify values of natural reserves as they contain resources not to be utilized but to be reserved (De Groot, Alkemade, Braat, Hein, & Willemen, 2010). This circumstance leads underestimation of the value of such areas, often resulting in their conversion to other uses.

Against this backdrop, we investigate the economic value of maintaining natural reserves. In Korea, natural reserves are one of the four land-cover types, whereby the other three are urban areas, agricultural areas and industrial areas. Once designated, the area is under systematic preservation and control to protect sensitive natural environment including water resources, coastal zones, habitats of endangered species, water sources, fishery resources and cultural heritage assets.

Our main methodology is Contingent Valuation Method (CVM); it is widely used to estimate wiliness to pay (WTP) for non-market economic values (Mitchell & Carson, 1989). The scenario would be that natural reserves are planned to be converted to three other land types, and we ask the WTP for preventing that plan, then compare the collective WTP for the natural reserves and potential profits generated from the newly designated land type (Ninan & Inoue, 2013). Our CVM analysis comprises two-step process; first, we conduct pilot survey using open-ended question method to set the initial offer payments, and second, we conduct the main survey using double-bounded dichotomous choice method whether participants are willing to pay the two bid amounts, lower and upper bound. For the first survey, we use Tobit modeling since such data has censored distribution (Lee & Heo, 2016; Pruckner, 1995), and for the second survey, we use probit modeling to deal with data of dichotomous responses.

This study will provide policy makers with empirical guidelines in considering repeal of natural reserves for more intense use.

Landscape Planning and Ecology

A Decision Support Method for Urban Plant Selection Based On the Habits of Sunshine Requirements

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Keywords: Decision Support Systems (DSS), Solar Radiation, Geographic Information Systems (GIS), Urban Plants, Plant Database

Sunshine is an important factor which limits the choice of urban plant species, especially in the environments with high-density buildings. In practice, plant selection and configuration is a key step of landscape architecture, which has relied on an experience-based qualitative approach. However, the rationality and efficiency of this need to be improved. To maintain the diversity of plant species and to ensure their ecological adaptability (solar radiation) in the context of sustainable development, we developed the Urban Plants Decision Support System (UP-DSS) for assisting plant selection in urban areas with diversified solar radiation. Our methodology mainly consists of the solar radiation model and calibration, the urban plant database, and information retrieval model. The structure of UP-DSS is also presented at the end of the methodology section, which is based on the platform of Geographic Information Systems (GIS) and Microsoft Excel. An application of UP-DSS is demonstrated in a residential area of Wuhan, China. The results show that UP-DSS can provide a very scientific and stable tool for the adaptive planning of shade-tolerant plants and photoperiod-sensitive plants, meanwhile, it also provides a specific plant species and the appropriate types of plant community for user decision-making according to different sunshine radiation conditions and the designer's preferences.

A Study of the Spatial Form of Sponge Body under the Structural Restriction of Viaducts: The Case of Wuhan

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Keywords: Viaduct construction, Shaded green under viaduct, Low Impact Development (LID), Sponge body, Spatial form

Shaded green under the viaduct is part of the green space of road. The “spongization” of the shaded green space for resolving rain pollution on deck and rain utilization is a new way to use shaded space under the viaduct, which conforms to the “Sponge City” construction principles in our country. With the knowledge of viaduct bridge structure, and the study of Wuhan’s 40 different viaducts, this article analyzes the transection into space type of green space under the viaduct, the height of shaded space under the viaduct, and the structure of viaduct piers. What’s more, this study uses Ecotect Analysis software to simulate the natural environment of the space for viaduct structure under different shade of viaduct, and then discusses how to apply Low Impact Development methods to different fields of shaded green space. There are some preliminary conclusions: (1) The sponge body form of purification, stranded, storage, usage, and emission could apply to the whole shaded space under the viaduct. (2) The sponge body form of purification, usage and emission could apply to the shaded green space where the space under the viaduct is driveway greening in the middle of the street about 3 meters or above. (3) The sponge body form of emission through ecological grass ditch, shaft and so on could apply to the shaded green space where the space under the viaduct is in the form of greening narrowly in the middle road within 3 meters and driving on both sides.

A Study on Landscape Performance Assessment of Hubs Based on Green Infrastructure of Wuhan High-tech Development Zone

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Keywords: Green Infrastructure, Hub, Landscape Performance, Evaluation Model

Through the assessment and quantification of the landscape benefits on the core components of the urban Green Infrastructure, the assessment results of the hubs were translated and expressed in graphs, which providing a referable and identifiable blueprint based on the Landscape Performance assessment for the control of urban development. Exploring the model of the landscape performance evaluation based on the basic unit of the hubs to promote the development and application of the Landscape Performance assessment in planning and design field.

After sorting out the functional characteristics of the urban Green Infrastructure, a summary table which presents the functional benefits of Green Infrastructure was formed through classifying and screening. Taking the Wuhan High-tech Development Zone as an example, extracts the Green Infrastructure Network structure system of the region was epitomized in this paper, three typical hubs which are representatively and multiple functionally were selected, including residential areas, urban center areas and suburban wetland recreation areas. Combined with GIA (Green Infrastructure Evaluation System), investigation and analysis, expert evaluation and other methods to analyses and evaluate the landscape benefits of those areas comprehensively, the main functions and effects of those different hubs for the development of different areas are clarified. Then the assessment results will be translated and expressed in graphs with the combination of the GIS spatial data processing technology, thus creating a blueprint to guide the development and construction of new urban area.

Based on the summarization and classification of functions and benefits of Green Infrastructure, a set of maps of Green Infrastructures refer to functional and benefit classification are shaped, which represented three kinds of main function ecological, social and cultural benefits. According to the analysis of landscape benefit of three typical hubs of Green Infrastructure Network in Wuhan High-tech Development Zone, the results of landscape benefit evaluation with different functions are formed: Residential Area Hubs with Social and Ecological Function, Culture Efficiency-oriented Hubs of urban centers and the ecological functions of the rural wetland recreation centers. It provides a set of blueprints which can be easily identified and referable based on Landscape performance evaluation, for the development of three types of typical regional in Wuhan High-tech Zone which is also conducive to the construction of Green Infrastructure Network System in Hi-tech Development Zone additionally, the model of Landscape Performance Evaluation of Hubs based on Green Infrastructure Network has been generated."

A Synthetic Cartography of Dredging in The Southeastern United States

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Keywords: Sediment, Coasts, Infrastructure, Dredge, Cartography

"As the physical substrate that forms the base layer of coastal and estuarine environments, sediment is a literal — and critical — infrastructure for a wide range of landscapes including wetlands, littoral zones, beaches, and coastal settlements. These landscapes are both valuable and valued. However, data on and understanding of the movement of the sediments that form and sustain them is fragmented into organizational and disciplinary silos. This fragmentation extends to the ways that sediments are moved and obstructed by human actions, which range from the fast, intensive, and intentional, like mechanical dredging, to the slow, unintentional, and largely unnoticed, such as the accumulation of sediments behind dams. The scale of this human influence is expanding rapidly. Geologist Roger Hooke has estimated that humans are now the earth's preeminent geomorphic agents (Hooke 1994).

Despite the scale of anthropogenic sedimentary manipulation and its crucial role in building (or eroding) landscapes, landscape architects have remained relatively disengaged from the choreography of sediments. This presentation argues that one valuable avenue for landscape architects to engage sediments is by addressing gaps in the understanding of site and regional patterns of sedimentary manipulation through the technique of synthetic cartography — a form of mapping emergent in recent landscape architectural practice and research that generates spatially-explicit knowledge through synthesis (Holmes 2016).

This presentation demonstrates this potential through the example of a synthetic cartography focused on dredging in the Southeastern United States. This work maps the choreography of sediment across this geographically diverse region, which includes North America's largest delta, the Mississippi River Delta; extensive barrier island systems on both the Gulf of Mexico and the Atlantic Ocean; a number of major ports including Houston, New Orleans, Mobile, Savannah, and Charleston; and a pair of inland canals, the Gulf and Atlantic Intracoastal Waterways, that stretch along the full length of the region's coasts. In order to both argue for the importance of the engagement of coastal sedimentary issues by landscape architects and to show the value of synthetic cartography as a discipline-specific research method by which landscape architects can contribute to these topics, this presentation describes findings from this research including the need to consider beach nourishment and navigational dredging simultaneously; differences between those two forms of manipulation that complicate developing a holistic approach to sediment design; and the potential value of building landscape intelligence into the process of designing, constructing, and operating dredged material containment facilities."

In conclusion, She Junnan's academic thoughts on Lingnan Garden expanded the theoretical system of the Chinese Lingnan Garden and provided a new perspective and an excellent reference for the construction of the Lingnan modern gardens.

Re-cycling Waste: Adapting Aspects of the Pearl River Delta's Dike-Pond System for Flood-Control and Fish Farming on Virginia’s Four Mile Run

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Keywords: Reuse, Aquaculture, Agriculture, Fishing, Recreation, Flood protection, Circulation, System

Since the 14th century, a highly integrated agricultural system called the dike-pond system has developed in the Pearl River Delta, South China. It is particularly notable for the way it recycles waste, re-using all by-products from the production of silk from silkworms in fish ponds, which are then sources of fertilizer for crops on the dikes, including mulberry trees, the main source of food for the silkworms. Furthermore, the dike-pond system itself works to control flooding, managing water as a resource, working with the river and its natural rising and falling rather than against it.

This paper begins with a description and analysis of the waste cycling of the dike-pond system, tracing its material flows and how full use of its by-products is achieved as well as how floods interact with the ponds. There are many reasons why the dike-pond system evolved as it did. But specific principles behind its making—using all by-products from its operations and spreading flooding across many resilient ponds—may have wider applicability. This paper discusses the possibilities of adapting these principles to a very different context, an urbanized tributary of the Potomac River, Four Mile Run between Alexandria and Arlington, Virginia. The Pearl River Delta and Four Mile Run share several characteristics in common: frequent flooding, a freshwater tidal situation, a surrounding population vulnerable to flooding, and communities interested in fish, fishing, fish farming, and agriculture.

This paper continues with a discussion of a design for floodable fish-ponds along Four Mile Run, borrowing the principles from the dike-pond system. It questions how to put together the components of dike, pond, fish, small-scale agricultural crops, and trees to deal with flooding, accommodate fishing, and allow for local agricultural production on the urban fringe. The design proposal suggests that integrating the aims of flood control, cycling organic matter in wetlands, ponds and farm fields, and providing fishing places, fish habitat, and open spaces can be achieved through the creation of a series of small scale ponds, above the five-year storm level, but floodable in stages with higher storm-water levels. In addition, the design shows a scenario for integrating such a flood system with fish-farming and agriculture, contributing limited waste to Four Mile Run. The study of the dike-pond system and the results of a design based on its guiding principles lead the authors to the conclusion that the centuries-old practices in the Pearl River Delta may be quite usefully adapted to urban, freshwater tidal environments, when and where the combination of components and processes explored are present. "

Assessing the Cool Island Effect of Farm Ponds in Taoyuan City

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Keywords: Cool Island Effect, Pond, Surface Temperature, Land Use

"With the rapid development of modern society and the booming urban systems nowadays, the original natural surface is getting replaced by artificial surfacing gradually. The urban circulation starts losing balance and temperature around downtowns constantly rises up dramatically. It causes more and more temperature difference between the city center and the suburban, leading to so called “the Heat Island Effect” in cities. Therefore, it raises more and more notice that how to alleviate the Heat Island Effect caused by urbanization. More scientists are interested in the topic associated with the Cool Island Effect, but most studies of the Cool Island Effect focus on green spaces and those plant buffer zones along the river. However, the study related to ponds is relatively rare; thus, this goal of our study is aim to fulfill the particular niche.

Regarding fast economic development of Taiwan, the Heat Island Effect not only happened in Taipei area, but also in the nearby city, such as Taoyuan. Therefore, impacts caused by this effect should not be ignored. Due to needs of pioneer residents (e.g., irrigation) and natural conditions in Taoyuan areas, ponds become the most representative of landscape characteristics. Our study objective is to understand the cool island effect in Taoyuan areas.

With the advance for information and remote sensing technology, Satellite Telemetry has advantages of high spectral, large range, simultaneous records and rapid acquisition data. Therefore, this study is using Landsat-7 ETM satellite imageries from 2002 to 2011 with the calculation of the surface temperature and ground station data to produce the surface temperature map of Taoyuan City. Also, this research classified the Taoyuan city into five land use types, including ponds, water, woodland, agricultural land and buildings. GIS applications and spatial analysis is adopted to access the relationship between environmental conditions around ponds and the Cool Island Effect in Taoyuan and the data related to particular matters.

Results showed that the Cool Island Effect could influence locations up to 300 meter from ponds. Environmental conditions around ponds and pond areas could affect the magnitude of the Cool Island Effect. The pond area is negatively correlated with to the temperature with a threshold. The impact would become less influencing once exceeding the threshold. In particular, the best area size is approximate 2-5 hectares with variations among locations. The Cold Island Effect of ponds can cool down ambient temperature in the range of 1 to 2.5℃. However, different building density could also affect the cooling effect. Thus, synthesis data and integrating maps can provide systematic information about the Cool Island Effect of ponds and related spatial distribution of temperature variations, benefiting future regional planning and design."

Assessment of Coastal Landscape as a Heritage Coast in Western Black Sea, Turkey

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Keywords: Coastal Landscape, Heritage Coast, Lava Pillars, Guzelcehisar, Geotourism

Coastal areas are sensitive for their cultural values and their distinctive ecological characteristics. Generating ecological landscape planning approaches based on a balance of protection and usage balance in coastal areas is particularly important for the sustainability of these sensitive areas. Guzelcehisar, an archaeological residential site on the rural Black Sea coast, the natural and cultural values of which have been significantly protected, was chosen as the study area. Located 17 kilometers from Bartin, it is one of the rare areas in the neighborhood of this city where citrus fruits can be grown in the Black Sea climate due to its microclimate. Guzelcehisar has 80 million-year-old special geomorphological formations featuring natural monuments in the coastal area and these formations are called the Lava Pillars due to their volcanic structure. The diameter of the lava pillars is 50–100 centimeters, and their height is over 30 meters. The lava pillars in the Northern Ireland, Scotland and California were put under protection and acknowledged as natural heritages. Guzelcehisar Coast Lava Pillars, which are among the suggestions for the Geological Heritage Inventory in Turkey, are one of the world's exceptionally developed natural formations. However, Guzelcehisar Coast Lava Pillars have yet to be known adequately in the country where they are located. This paper reveals the landscape potential of Guzelcehisar Coast Lava Pillars and compares it to their equivalents in the rest of the world. Strategic suggestions have been developed to evaluate the Lava Pillars focusing on sustainable tourism as coastal geological heritage areas.

Capturing a 100-Year Storm: Green Storm Water Infrastructure as Climate Adaptation Strategy in Central Pennsylvania

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Keywords: Climate Change, Green Infrastructure, Storm water, Ecological Design, Landscape Performance, Karst Landscapes, Pennsylvania, Campus Design, Interdisciplinary Design

The purpose of the study is to investigate the potential of green storm water infrastructure as climate change adaptation infrastructure in the regional context of the Ridge and Valley Province of Central Pennsylvania. In this region of karst geology, conventional practices of storm water infiltration are largely prohibited as sinkhole formation from the dissolution of limestone bedrock can compromise the quality of groundwater with the mixing of surface water (1). The prohibition of infiltration has limited urban drainage to unsustainable practices of discharging storm water directly into spring-fed surface waters, compromising the ecology of cold water aquatic eco-systems. With projections of rising temperatures and higher intensity storm events (2), coupled with growing urbanization, innovative applications of landscape as green storm water infrastructure can play a critical role in synchronizing urban, geological, and ecological systems to render urban watersheds resilient to climate change. The U.S. Environmental Protection Agency's "Campus RainWorks Challenge." served as a framework for this study (3). Conducted in the fall semester of 2015 at Penn State, the objective of the design competition was to foster interdisciplinary collaboration between students, their faculty advisor(s), and a campus facilities advisors to produce innovative designs for green storm water infrastructure on the campus of Penn State. The design team was comprised of a majority of students in landscape architecture, with representatives from civil engineering. Through consultation with campus facilities and an analysis of campus drainage infrastructure, students identified a site on campus that could serve as a pilot for innovative green infrastructure for karst landscapes. The design evolved in response to campus stipulations prohibiting infiltration, and climate change projections of frequent occurrence of high intensity storm events. Modelling served as a method. Through a process of feedback and iteration, the morphology of a "fluvial plaza" as both infrastructure and didactic public space emerged. Storm water simulation using Hydracad for a 100-year storm event, projected the design to significantly reducing the outflow in cubic feet/sec, and thus theoretically moderating storm water temperature by slowing it down. The study is important in that it can serve as a prototype for green infrastructural design that is specific to the geology and ecology of the region and responsive to a changing climate. The study would be more convincing with the quantification of storm water temperature entering and leaving the system, as thermal moderation is a critical consideration in the design of green infrastructure in the Ridge and Valley Province of Pennsylvania.

Characteristics of Forest Vegetation on Busan Metropolitan City and Potential Natural Vegetation

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Keywords: Potential Natural Vegetation, Busan, Vegetation condition

"In general, urban forest has functions such as absorbing air pollutants, easing excess heat energy, maintaining water circulation and biodiversity. For environment-friendly urban planning and management, it is necessary to understand the distribution and structure of urban forest.

This study was investigated for 3 years (2013~2015) to construct the basic data about characteristics and structure of vegetation of Busan.

Located in the southeastern part of the peninsula, Busan Metropolitan City(BMC) is the leading coastal city of South Korea. As the second largest city in South Korea, the population is about 360 million and the area is about 770 ㎢. Busan is located on the point where the region meets the East Sea and the Southern Sea, showing typical coastal and temperature humid climate. The land use status in Busan covers about 44 percent of the forests, 31 percent of urbanized areas, 13 percent of arable land, and 10 percent of the arable land.

In the results of vegetation survey, it was found out that Pinus densiflora, Carpinus tschonoskii, Quercus acutissima, Q. mongolica, P. thunbergii were main dominant species. And along the coast, P. thunbergii community was distributed widely.

Potential natural vegetation was made from synthetically the actual vegetation and climate data analysis. Because Busan is affected most of the coastal areas, Pinus thunbergii-Pittosporum tobira community will be distributed on lowland and Pinus thunbergii-Eurya japonica community on highland. The ratio will be high at most 37%. Especially according to the environmental conditions of coastal area, it is estimated that Pinus thunbergii-Eurya japonica community will be distributed up to about 21%. Quercus mongolica community on the north side of mountainous area, the area of distrubution will be 12.4% of total area.

Busan is a typical coastal city, the forest area within the urban area is higher than in other cities. Forest vegetation in Busan had been showed various vegetation types distribution depending on a condition of terrain, the micro-climate, and anthropogenic interference. Effective management will be selected through a systematic investigation and targeting, rather than proceeding with ordinary forest management that have been promoted."

Comparative Study of Green Infrastructure in Beijing and Philadelphia

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Keywords: Green Infrastructure, Storm Water Management, Sponge City

Background
Recently, the Sponge City has become a popular topic in China. Some regulations and engineering standards are successfully built. However, how can these standards form a network to serve the cities' storm water management system?

To answer this, we will conduct a comparative study of two cities --- Philadelphia (Pennsylvania, US) and Beijing (the capital of China). The reasons why we choose these two cities is that these two cities are located on almost the same latitudes and the climate is similar.

Purpose & Importance
The purpose of this paper is making two cities learn from each other concerning storm water management and more cities can get inspirations by this comparative study. In particular, this paper focuses on: 1) to find some Chinese traditional wisdom of storm water management. 2) to learn from the network of Green Infrastructure in United States; 3) to find out how these advantages will apply to Chinese sponge cities.

Methods
To reach these goals, researches will be taken:
1) Historically, we will review the spatial and temporal scales of storm water management of both cities. After this review process, we can answer following questions:
a. What is the physical conditions of these cities?
b. How does the storm water issue occur?
c. What efforts have been made by two cities? Are they successful?
2) Case study of Green Infrastructure network in Philadelphia, Pennsylvania, US.
a. We will use Arc-GIS to analyze the green infrastructure itself and how it gets along with neighborhoods, census, city facilities, different land uses, parks etc. to form a network.
b. SWAT (Soil & Water Assessment Tool) will be applied to assess both the merit and disadvantages of Storm water management in Philadelphia.
3) Based on case study above, we will review the Sponge City Regulations in China to give some suggestions.

Recommendation
Following an in-depth multi-dimensional analysis of preliminary research results, some ecological and environmental data need to be monitored and analyzed. Furthermore, more design solutions need to be taken based on specific site. Also, some supervisory mechanism should be studied to make sure the environmental health and context inheritance."

Cross-scale landscape planning approach oriented to boosting ecosystem services in mining areas

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Keywords: Landscape planning, landscape ecological zoning, landscape functional network, landscape restoration design, post-landscape regeneration

"Post-industrial landscape ecological planning has been a hotspot across landscape architecture, ecological engineering, and land reclamation and so on in recent years. As one typical post-industrial landscape, mining landscape always affects regional ecological security and sustainable development. Landscape ecological planning in mining areas helps to improve ecosystem health and human living environment through the functional reconstruction.

This paper aims to put forward a cross-scale landscape planning approach to construct the ecological security pattern in the mining area. Taken Liaoyuan National Park as a case, this paper firstly developed two index systems to evaluate the land functions: one is to evaluate the damage degree of lands based on detail surveying data; the other is the ecosystem service ability of lands based on the provision, regulation-supporting and cultural service. And this paper overlaid the above two spatial evaluation maps to implement the multiple landscape function zoning. The results showed that nine function zones were divided at regional scale, including ecological protection area, ecological restoration area, ecological reconstruction area, agricultural protection area, agricultural rehabilitation area, agricultural reconstruction area, cultural protection area, cultural recovery area, cultural reconstruction area. Then based on the function values and its corresponding ecological characteristics in these functional zones, this paper ordered land units and chose the first two highest units as the hierarchical landscape function nodes and to construct corridors through the software of ArcGIS， layered repeat this operation to further form a complete network of landscape functions. This multiple landscape functional networks on account of spatial evaluation would become the skeleton of local landscape planning and design. On this basis, we carried out the ecological landscape design of the whole park and the simulation design of Liaoyuan National Park planning results and the original municipal government made were analyzed and compared in many aspects. The results fully verify the scientific nature of this cross-scale landscape planning approach. Finally, this paper took three functional landscape nodes as local design cases to show how landscape restoration of sites played roles in the regional function. It is hoped that this cross-scale planning method might provide a post-landscape regeneration framework for urban planners and designers."

Cypress Creek Nature Park: Using Science and Design to Achieve a Harmonious Relationship between Nature and Technology

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Keywords: Inorganic Pollutants, Research by Design, Water Quality

"Cypress Nature Park in Montgomery, AL is the home of a diverse range of plants and animals. Cypress Creek flows through the park and into the Alabama River. The problem with this is that inorganic pollutants, PCE (perchloroethene) and TCE (trichloroethylene) from the surrounding industrial area and the neighborhood, flow directly to the creek, and this, along with poor storm water management, cause Cypress Creek lose its beauty and ecology. The main purpose of this design research is to increase awareness of the water quality, and to maintain the beauty of Cypress Creek Nature Park. Currently the community has little concern about water quality, and therefore, there is no perceived threat.

I use a mix of research methods to build my design research including hydrological research of the site, evaluation of the water pollutants, the potential of future pollutants and case study analysis of similar projects. My research findings show that Montgomery has two major PCE/TCE pollutant sites, one in the downtown area (Capital City Plume), and one on the southwest side of town (Coliseum Boulevard Plume). Furthermore, current downtown area development no longer supports water treatment practices for these pollutants. I found only one existing treatment to remove TCE, and it is located in the southwest area.

In my proposal, the polluted water in the downtown Capital City Plume is pumped to the southwest area thus merging the polluted waters, and consolidating the removal of TCE/PCE. This treated water is then released into Cypress Creek. I design a new downtown park (formerly the old City Water Works) to serve as an outdoor museum to help people understand the water cleaning process, and to educate people about the water treatment process. The community is engaged by conducting water quality test and sharing the data on the internet. The pipes that pump the polluted water from downtown to southwest, provide a trail of connectivity and environmental education to guide people to a better understand this area.

The importance of this study is to showcase how research by design can engage technological science, and provide scenarios of interesting, attractive and appealing solutions to help people realize the importance of water quality and increase their awareness of pollution."

Define the ‘Ecological Red Line’ and Integrate the Ecological Network in Urban and Rural Area: A Case Study of Yangzhou, Jiangsu

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Keywords: Landscape Architecture, Ecological Red Line, Ecological Network, Yangzhou

"‘Ecological Red Line’ is a regional Boundary line, which used to define the special area that needs to implement a proper conservation, in order to maintain national or regional ecological security and sustainable development in China. The proposal of the ‘Ecological Red Line’, which has been guided by the municipal environmental protection agency and released by the Provincial or municipal governments, however, did not match the specific area in reality. Therefore, an innovative approach is required to guide how to carry out the proposal and make the proposal becoming true.

The aim of the thesis is to establish the urban and rural greenbelt ecological system from the landscape architecture perspective and under supporting of RS and GIS technology by considering the current situation on the urbanization in China and taking Yangzhou city as an example, which is undergoing rapid urbanization, and by obtaining the information on the distribution of the ecological resources in urban and rural area through analyzing multiple GIS data, and integrating the ecological functions within the ‘Red Line’ region, and mimicking and amending the ecological corridor between different ecological systems through ‘least-cost’ modeling. The thesis integrates ‘Ecological Red Line’ and Urban and Rural Network together from spatial coupling perspective and try to promote the ‘Ecological Red Line’ better development in new era."

Design Strategies for Using Spontaneous Plants in Ruderal or Abandoned Urban Area

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Keywords: Urban Spontaneous Plants, Weed, Design Process, Control and Openness, People Environment Relationship

"As an urban area develops, much of its land area is developed, paved-over or built on. Some cities suffer from urban decay. When people move out and abandonment happens, nature moves in. Atlanta, GA, offers an instructive example, with impervious pavement ranging from 50 percent in areas of moderately dense suburban dwellings, to over 94 percent in downtown areas. In these areas, ruderal and abandoned sites are emerging, colonized by abundant pioneer plants who are silently breaking down the paved surfaces onsite and starting early succession. This phenomenon is shaping involved areas to be more sustainable and resilient places as plants can contribute to urban problems such as loss of habitat, the urban heat island effect, and storm water runoff control problems.

Recently, there has been a gradual but fundamental shift toward understanding the potential value of spontaneous urban plants (SUP) in terms of their distribution and ecological function. Despite the emerging discourse regarding SUP and related literatures (both botanical and urbanistic), there are few tangible design projects that make use of spontaneous urban plants in the design process. This research explores the potential ecological, cultural, and dynamic design values of SUP with systemic relationship to onsite urban problems.

In this research, SUP is defined as pioneer plants, whether native or alien, occupying in ruderal or abandoned urban area without human control. The first part of the research uses a process of literature review and case study exploration to conduct an analysis of existing Atlanta flora and urban ruderal or abandoned areas. As a major urban concentration within the Piedmont region, the plant succession of Atlanta flora is rapid and powerful, which indicated that SUP here could be a beneficial and efficient option to increase the vegetation cover percentage. However, different growing condition onsite and surrounding environment produces different potentials for design. The second part of the research chooses a specific ruderal urban lot in the Sweet Auburn Historical District as a site. Drawing upon design-as-research method, the research focus on both site approaches and Sweet Auburn community culture. The site is used to test a range of potential approaches to the process of designing with SUP, focusing on the balance between control and openness. The research studies and tests different proportions of control to openness in different approach processes, drawing conclusions regarding the utility and appropriateness of those approaches for designing with SUP in urban areas."

Early Successional Stage Landscapes in The Near Urban Forest: ‘Ecological Succession' Or ‘Landscape Interest?’

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Keywords: Miscanthus Sinensis, Ecological Succession, Landscape Interest

"Many places of near urban forest has been frequently destroyed by naturally or artificially such as landslide, fire, disease and insect pest etc. Usually secondary succession is quickly proceeding and sometimes making some unique landscape during short time in early successional stage in these places. Eulalia (Miscanthus Sinensis) landscape is one of specific and preferable landscape in the forest of Korea. Generally, the eulalia landscape has changing to pine forest or arid shrub land less than 10 years. Urban dwellers usually hope to keep this eulalia landscape near their home town such as urban park. However, if continuing this landscape, we should be disturbing the ecological succession by mowing or artificial fire biannually at winter time. Urban parks can use the mower for clear cutting but hardly use in the forest, so firing is best method for eulalia community (Fujita, 1987) both as the economically and effectively. Because of this action is strongly dangerous especially near urban area so if we want to keep this landscape then should be using trimmer.

Seunghaksan (Mt.) is located in the center of Busan city, the second largest city in Korea. Mountain top area of Seunghaksan had been developed large eulalia community because of frequent fires since 1960’s. But from 1990’s the firefighting system was highly developed even though mountains, so the fire damage was dramatically reduced both damaging frequency and size. So, the big fire has not been occurred around recent 20 years. Now over 70% of eulalia community has been already changed by tree forests and shrubs. Many dwellers suffering from nostalgia for the eulalia landscape and hope to rehabilitation.

As one-year survey of this area, we resulted around half area will be changing next succession stage very shortly. We suggested the affordable compromising management plan between ecological succession and maintaining eulalia community based on the current successional stage, soil condition, management effectiveness, trail location and viewshed analysis. As the result, 37% of total area is needed the artificial control for continuing eulalia community for keeping eulalia landscape. Even though we can’t continue total area of early successional stage, 1/3 of total area would be managed then we can keep the eulalia landscape effectively."

Effect on Mitigating Temperature by Constructing Large Park in Urban Area

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Keywords: Busan Citizen Park, Urban Heat Island

"Urbanization is posing increasingly strong impacts on Earth environment and local climate can be significantly affected. The environmental changes caused by urbanization make the temperature higher in comparison to the surrounding area. In most cities, urban population growth results in urban heat island(UHI). If UHI has a serious impact, it's not possible perfectly changing the city infrastructure in a short time. Many researchers have been considered how to effectively mitigate UHI by maintaining infrastructure. These solutions especially pay attention to the urban green space. Because green space is in range of main cause such as roads, buildings, etc., it plays a primary role as mitigating the temperature. The purpose of this study is to realize the importance and necessity of constructing urban parks as the functional effect of mitigating UHI.

Busan Citizen Park is located in the center of Busan Metropolitan city. It is surrounded by residential and commercial area of high density urban. Before making the park, U.S. troops were stationed and controlled the public access since 1950. As increasing the number of citizens demanding withdrawal of U.S. troops and the return of the site, it closed in 2005. It currently provides an important resting place as urban large park.

Research was conducted [1] how far it affects micro-UHI in high density urban areas. We classify our space type into 100m buffer; inside the park, from park boundary to 100m, 100-200m, …, 900-1,000m. [2] Before and after making the park, urban park conduct how much mitigate temperature in summer. It is clear that urban park mitigates the micro-UHI in high-density urban areas. The results of this research could contribute to future UHI mitigation policies and design guidelines for planning green spaces effectively in urban areas."

Evaluating Climate-change Sensitivity of Plants Using MaxEnt Model

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Keywords: Changing climate, Species distribution modelling, Environmental impact

"Climate change occurs a number of environmental challenges including species extinction which is one of the most important tasks that we should deal with. Estimating the sensitivity of climate change on ecosystems with predicting models using advanced technologies should be considered to respond and monitor ecosystem changes caused by climate change. This study predicted the habitat change of 44 climate change indicator plants (CCIP) caused by climate change, using the MaxEnt (Maximum Entropy Algorithm) referring as statistical mechanics. The MaxEnt model is based on an information theory to analyze the best approximation of unknown distribution by using the maximum entropy method considering the most spread out, and closest to uniform. For this research, the MaxEnt model interpreted the effect that climate change on CCIP by evaluating the change of β-diversity which is the ratio between regional and local species diversity. The β-diversity of this study was defined and it evaluated the climate change sensitivity weight (CSW) which was calculated based on the range of ±1. The CSW can quantify the effect of climate change of indicator plants and can be used as the decision making a tool for the preservation of biodiversity. If CSW is higher than 0, the habitat of the indicator plant expands due to climate change, while CSW is lower than 0, the plant is vulnerable to climate change. By adopting the results from the CSW analyses with indicator plants, this study determined a climate change sensitivity area (CSA). The CSAs are the biggest different places between present and future distribution of CCIP.

This study developed the potential quantitative method assessing climate change sensitivity using indicator plants. The result of this research will be applied as a decision-making tool for policy makers and planners to prepare and prevent environmental issues related to climate change."

Evidence-Based Urban Climate-Responsive Urban Green Space Design: A Literature Review

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Keywords: Urban Climate, Urban Green Space, Evidence-Based Design

"Many cities throughout the world are experiencing both urban heat island intensification (UHI) (e.g. Brown, 2011) and Global Climate Change (GCC). This combination is leading to an increase in health problems such as heat edema, heat syncope, and heat stroke (Centers for Disease Control and Prevetion, 2016).

It has been well established that appropriately designed urban green spaces can provide thermally comfortable environments. They can reduce susceptibility to heat discomfort and increase outdoor activities (e.g. Brown, 2011; Lee et, al 2013). Also, they modify urban climate at different scales. Studies have been implemented on various urban green spaces ranging from small site (e.g. Shashua-Bar et al, 2009) to large parks (e.g. Feyisa et al, 2014). Evidence has demonstrated that tree canopy cover (Graham et.al 2016), design of greenbelts (Bonan, 2000), and planting material choice in courtyards (Shashua-Bar et al, 2009) all have important consequences in creating thermally comfortable environments.

However, evidence from urban climate studies is always not readily available to landscape designers, and the information is often not in a form that can be used in the design process (Brown, 2015). Meanwhile effects of green space at different scales of urban climate (microclimate, mosoclimate, misoclimate etc.) haven't been examined yet. Urban parks, neighborhood parks, and courtyards all have strong potential to create thermally comfort environments, but only if they are designed using evidence-based climatic design principles.

This study examined urban climate research that has used quantitative methods such as physical measurements to study the climate of urban green spaces within the sub-layers of the city from a single tree, to small site scale (courtyards, street side green space between buildings), through medium scale (neighborhood parks, urban parks) to large scale (urban and region). To more clearly and specifically identify climate scale, the metric characterization (Brown, 2010) will be used to categorize projects. By summarizing results from studies on the relationships between urban green spaces to urban climate conditions, this study draws preliminary conclusions such as that land surface temperature is the main modified outcome by urban green space at the city and region level, while more specific variables such as relative humidity and air temperature can be detected to have significant differences with surroundings at the neighborhood park level. The results provide a guide for designers that identify how the urban heat island can be most effectively reduced by different scale urban green spaces through evidence-based climate-responsive design."

Feasibility Study on Near Nature Control of Waterfront Restoration in the Pearl River Estuary Area

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Keywords: Landscape Planning and Design, Near Nature Control, Waterfront Restoration, Pearl River Estuary Area, Hydrological Characteristics

The Pearl River estuary is one of the typical coastal wetland types in Southern China, which has significant value in both ecological and economic aspects. Over the past 30 years, large numbers of river bank hardening projects, such as reclamation, river levee and wharf, have directly changed the hydrodynamic environment characteristics of the Pearl River estuary area, which has led to a chain of ecological environment deterioration problems. The crucial concept of near natural control is to reconstruct the environmental basement near the original or natural state in the damaged area by artificial means, so as to gradually restore the sustainable ecosystem and create a rich local characteristics landscape. This paper focuses on the near natural control spatial restoration of hard engineering waterfront with low ecological function in the Pearl River estuary area. Based on the realistic regional hydrological characteristics of the Pearl River estuary area, we design a series of spatial waterfront modes according to the conditions and the needs of different surrounding land use. Those spatial modes are constructed by waterfront slope reconstruction, soil matrix improvement, mangrove and associated plant communities replanting, landscaping of the hydraulic structures and other ecological engineering methods, consists of varieties types of spatial units. Together, on the basis of meeting the functional requirements like irrigation, freight transport and flood control, whether near nature control is a feasible way to restore the natural material and energy flow of the Pear River estuary waterfront effectively, and gradually restore the diversity of its ecosystem, is what we looking to find out.

Formation and Development of regional landscape system inside and outside Jinan City, China

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Keywords: Regional Landscape System, Open Space System, Jinan, Urbanization Process

"The purpose of this study is to clarify the process of the formation, development, evolution and renewal of Jinan city's open space system; to reveal the reciprocal relationship between the regional landscape system and Jinan urbanization process; to provide a Chinese case for advocating landscape as infrastructures in the contemporary urbanization.

Jinan is an ancient city with history of more than two thousand years. It has undergone the evolution of Lixia ancient city, Licheng town in Qing and Han dynasties, the "Twins City" in Southern and Northern Dynasties, Qizhou town within a state (Mother-and-son Town) and the city in Ming and Qing dynasties. In the long historical process, Jinan city forms a unique landscape system with Chinese typical character of the mutual adaption of human and nature. Since modern times, the process of urbanization has been speeding up. A series of green system planning aims to avoid the serious destruction of urban ecological environment and unordered urban development, to continue the historical spatial pattern.

This study deal with two aspects, the city in natural landscape (regional scale) and the natural landscape inside the city (urban scale), through literature analysis and creative diagram.
(1) In the regional scale, the landscape environment has a certain effect on the site selection, safety, size, buildings and other aspects of the Jinan ancient city; Jinan forms the regional landscape system of "mountain--water—city."
(2) As for the urban scale, urban springs' space, urban parks and the open space constitute the complete open space system, which presents the wisdom of utilizing natural environment.
The relationship between landscape development and city construction as an organic whole is popular in China. This study analyzes the case of Jinan city from the perspective of regional landscape system inside and outside the city, in order to arouse the attention of landscape architects and planners rethinking about the relationship of urban and its surrounding environment. At the same time, this will provide an important reference for the future development of the contemporary city."

Ghats on the Ganga in Varanasi: A Sustainable Model for Landscape Conservation

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Keywords: Sustainability, Resilience, Kinetic Architecture, Renewable Energy, Pollution, India

"The land-water interface at the urban settlements on the holy Ganga's banks is fashioned out of the need to access the rising and falling water levels in the monsoon and dry seasons. The cultural landscape of this interface—ghats (steps and landings) lined by temples and other public buildings, pavilions, and kunds (tanks)—is layered and responsive to the river's flow. At Varanasi, where the Ganga reverses its flow, the 84 ghats in a 6.8 km stretch are an iconic image of the city. Their built fabric evolved over 800 years from self-organized systems of worship and pilgrimage. It is complex in its layering and detail, and in responding to natural processes was resilient in its recovery from natural disasters as well as cultural upheavals in the past. My presentation will interpret this built fabric in terms of its architectural and spatial vocabularies and describe how it supports the diurnal and seasonal rhythms of activities tied to the Ganga. The cultural landscape of the ghats is defined by situated events, natural--flooding, silting, and changing flow of the Ganga; and cultural including ritual activities and performances that sustain the public life. Today as climate change accelerates global warming and river flooding, the ghats face threats unprecedented in their scope for damage and loss of the immense cultural heritage. I propose a sustainable model that acknowledges the contingent and complex nature of this riverfront landscape in framing design and management strategies for conservation of the ghats.

Three aspects of sustainability guide the proposed conservation framework---resiliency, sentience, and zero waste. These are translated into physical design of the ghat landscape and their management policy. Proposals presented will include a resilient landscape on the east bank capable of absorbing the increasingly frequent flooding of Ganga; sentient architecture on the riverfront that is kinetic, flexible and portable, and uses solar energy for meeting the pilgrim and tourist requirements; and treatment of biodegradable waste generated by large number of animals and human activities on the ghats as a resource in compost gardens and dairy farms with the objective for reducing point-source pollution in the Ganga. Water, sun, and fauna are key to understanding local energy flows and utilizing them in redesign and reclamation. This is an alternative approach to the current infrastructural model followed by the government in building STPs (sanitary treatment plants), bridges, and roads that is not ecologically-sensitive, and does not possess adequate capacity for recovery in face of environmental disasters. The implementation of the proposed design and management strategies will lead to sustainable conservation of the ghats as a healthy and resilient cultural landscape."

Habitat-Site Analysis and Classification Leading Two Gardens Design Practice and Observation to Explore Ecological Design Method for Attached Urban Green Space in Semi-Arid Area of Northwestern China

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Keywords: Urban Green Space, Habitat-Site Context, Planning and Design, Site Design

"Cities in northwest China, while facing the feature and constraint of natural environment condition also the fragile ecological system, is more urgent to rebuild new ecological process in inner city area, during urbanization development. Urban green space is the important part of evolving in construction of urban ecology system. Comparing with the regional poverty ecology background and infertile land, planting site design and construction of urban green space could develop more adaptable and diverse condition of habitat site.

Rainwater management measures in semi-arid area try to deal with large difference of long drought, seasonal rainfall, soil, long recession of plant, also regional natural climate conditions; Site research analysis of urban green space for planning and design, focus little on habitat context of the site. The aim and view of site planning and design do few to “build” new habitat condition: sunlight, soil, water especially rainwater management in semi-arid area, wind, vegetation. This study chooses two typical basic habitat contexts, “full sunlight site” and “building and canopy shady site” of urban green space. Two sites of green space in the campus were choose to practice as the garden design, construct process, management and tests after construction, to find the design approach to form, improve the aim of habitat conditions, especially for narrative and transplantation community, also the microclimate of garden place activities. As “shady raingarden, and “full light raingarden”, rainwater collection and utilization design method is designed, constructed, and maintained, not only to control the water flood in abundant rainy season, but also to coordinate the context and form the garden habitat condition for some typical species, as template wet or dry condition for local herbaceous and grass species experimentally transplanted in two gardens. Microclimate change and also the costs of garden maintenance were tested and record for guiding’s in similar habitat site and space, as a representative case of urban green space in semi-arid area."

Implementation of best management practices to reduce nutrients from agricultural land use in the Midwest

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Keywords: Water Quality, Best Management Practice, Watershed, Feasibility

"The study presents the development of an implementation strategy of best management practices to reduce nutrients and improve the quality of water from agricultural land use in the Lake Bloomington Watershed in Illinois.

With the greatest estimated area of tile drainage in the Midwest, Illinois agricultural land contributes a major proportion of the nitrate and phosphorus entering the Mississippi River annually. This nutrient loading causes eutrophication of drinking water reservoirs and ultimately reaches the Gulf of Mexico where it is responsible for hypoxia. Reducing nutrient loads is a daunting problem which not only effects the Gulf of Mexico, the Great Lakes, and Chesapeake Bay in the U.S.A (Tomer et al. 2013), but also affects 400 plus industrial agricultural regions worldwide.

While various best management practices can be effective in nitrate removal including wetlands (Crumpton et al. 2008; Kovacic et al. 2006), riparian buffer strips (Jaynes and Isenhart 2014), and bioreactors (Christianson et al. 2009), their acceptance and establishment in Midwestern watersheds has been limited. Significant economic and social barriers have thus far prevented the large-scale deployment of the practices. In addition, while research indicates these practices can be effective in water quality improvement, studies have not shown that specific establishment of these practices on a large scale.

The primary goal of the research is to establish an implementation strategy for best management practices to improve water quality on a watershed scale. The research first explores best management practices applicable to Midwestern agricultural farmlands and establishes criteria for the practices. In addition, the study examines the criteria using GIS in the Lake Bloomington Watershed. Through the study, the project identifies environmental factors utilized for the analysis, list data limitations, and provide a clear implementation strategy of various best management practices using GIS on a large-scale application to improve water quality in the Midwest communities. It also offers additional support to current best management practices and strategies under development."

Initiating a Regional Open Space Strategy for Central Puget Sound: Process and Tools

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Keywords: Open Space Planning, Ecosystem Services, Regional Governance, Climate Change, Biodiversity, Health, Equity

"With rapid metropolitan population expansion, the need for conserving and enhancing open spaces for human and environmental health becomes ever more critical, and planning for connected open space systems at multiple scales–from city to region–is required. How can regional strategies that address our critical contemporary challenges be formulated and institutionalized? What processes are required, and what tools can serve effective processes?

This paper documents a case study model addressing these questions, the Regional Open Space Strategy for Central Puget Sound (ROSS), which won a 2016 ASLA Honor Award for Analysis and Planning. In its first 5-year phase, the ROSS operated as a university-led initiative to bridge between agencies and advocates, and bring together research, policy, and advocacy to conserve and enhance the region's resources. The initiative aims to strengthen connections between multiple disciplines; coalesce and give prominence to local visions with potential regional significance; document the range of considerable benefits that open space confers; and provide tools to aid decision-making so that resources are directed to the most critical priorities and to optimally reap the benefits that parks, trails, forests, farms, rivers and shorelines can provide.

The project relied upon processes initiated at both the 4-county regional scale–defined by the spatial jurisdiction of the regional planning body for transportation–and at the major river watershed scale. Task forces of experts and advocates were convened first at the regional scale to provide an overarching set of vision and values. Then, watershed task forces convened constituencies around stewardship of aquatic resources, "working" landscapes, community spaces, and recreation and trails. An executive oversight committee continued to convene throughout the watershed planning process to consider regional governance and finance possibilities.

Central to this foundational project phase was the exploration of methods and tools to document the ecosystem services–redefined as "open space services"–that conservation and enhancement provides. The team explored a range of ecosystem service valuation tools; monetized the value of open space services provided by the existing regional landscape (between $11 – 25 billion annually); evaluated the potential benefits of specific proposed projects; and shepherded the development of five white papers documenting specific benefits that open space provides in addressing the major regional challenges of climate change, biodiversity, equity, economy, and health. The planning team is currently developing an interactive GIS-based web tool that quantifies open space services provided by regional landscape types, including through the lenses of these five challenges."

Land Cover Patterns and Water Quality for Sustainable Urban Drainage Systems

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Keywords: Urban Drainage Systems, Storm water Runoff, Water Quality, Land Cover, Spatial Configuration, Geographic Information Systems, FRAGSTATS

"Cities are facing challenges with limited green space in accommodating increased storm water runoff and degraded water quality associated with impervious surfaces. With the rapid increase in population size since the early 1930s, the Phoenix metropolitan area has become one of the most fast-growing regions in the USA. As a result, nearly half of the metropolitan area is dominated by urban land use derived from the conversion of natural and agricultural lands. Recent studies suggest the positive relationships between the land use spatial configuration and water quality in a watershed scale. However, few studies have reflected the hydrological characteristics within urban drainage-sheds that are dominated by man-made infrastructures. This study aims to investigate the impacts of land cover spatial configuration on water quality within urban drainage-sheds in Phoenix. Urban drainage-sheds are delineated based on Municipal Separate Storm Sewer Systems boundary. FRAGSTATS is utilized to calculate landscape indices indicating land cover spatial patterns. Finally, Pearson's correlation analysis is applied to examine the relationship between water quality data and spatial pattern indices. The results demonstrate dynamic relationships between the spatial configuration of land cover and water quality from storm water runoff. Water quality in winter is likely to be degraded within urban drainage-sheds where there are more different land cover types, and where longer distance exists between patches of trees and grass land covers. In summer, water quality tends to decrease in drainage-sheds where more buildings, impervious, and soil areas present. The study contributes to the understanding of land cover spatial patterns in relates to water quality in an urban environment and provides insights for integrating land use planning and green infrastructure design to improve environmental quality in cities."

Marshes, Muck, And A Monoculture: A Design Approach to The Changing Landscape of the Saginaw Bay

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Keywords: Phragmites australis, Littoral Ecology, Invasive Species, Great Lakes

"As Christophe Girot questions in his 2013 essay 'The Immanent Landscape,' '...before succumbing to a more generalized form of environmental fatalism should we ask ourselves the question differently? Can landscape architecture not make a difference by reconciling ecology with more significant cultural and societal concerns?'

Like much of the world, the Great Lakes region has seen significant changes in its littoral regions due to shifts in climate. While people are worried about the effects of these changes on the current landscape, their responses have been mainly defensive in nature, focusing narrowly on singular issues and 'solutions' which largely adopt the 'environmental fatalism' Girot mentions above. Such a view rarely supports a response that might truly assist the communities with the inevitable changes of the coming decades in a proactive way. One such example has been playing out along the shores of the Saginaw Bay, a 1,143-square mile shallow bowl carved along Michigan's Lake Huron shoreline. As recent decades of low water levels began to uncover new territories in the Bay, the emergent land along with the majority of the coastal marshes became largely populated by a singular species; Phragmites australis. Local authorities and organizations, such as the Michigan Department of Environmental Quality, the Saginaw Bay Land Conservancy Organization, and Duck Unlimited have focused great attention on methods of Phragmites management and eradication, including an over 150 acre Phragmites Control and Restoration Demonstration project. While some management efforts have been successful, many efforts have proven inadequate in the long term. Considering the breadth and intensity of Phragmites within the Bay, along with its larger issues of contamination (the Bay has been an EPA Area of Concern since 1987), the situation in the Saginaw Bay is prime for a new approach to this Phragmites landscape.

This talk will introduce such an approach, one that more holistically considers this landscape's contaminated condition, the phytoremediation, biomass, habitat, and stability potential of the Phragmites australis species, and community's greater environmental, social, and economic situation. It will introduce approaches in utilization and management of Phragmites adopted in other countries where there is less of a stigma associated with the plant and will begin to suggest through work done in an advanced graduate-level landscape architecture studio, how landscape architects might leverage the design potential of Phragmites as a material to be worked 'with' and not 'against' in carefully considered situations."

Neighborhood Landscape Spatial Patterns and Land Surface Temperature

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Keywords: Urban Heat Island Effect, Green Spaces, Land Surface Temperature, GIS, Landscape Indices, Spatial Autocorrelation, FRAGSTATS

Urban green spaces provide neighborhoods with a wide range of health, social, and economic benefits. However, rapid urbanization has accelerated land use and land cover changes, and modified the structure and function of urban ecosystems. The major concern is that urban land conversions with large amounts of impervious structures increase the heat storage capacity of cities and change their microclimates, thus creating the urban heat island effect (UHI). Previous studies have reported positive effects of neighborhood landscapes on mitigating urban surface temperatures. However, the influence of neighborhood landscape spatial patterns on enhancing cooling effects has not yet been fully investigated. The main objective of this study was to assess the relationships between neighborhood landscape spatial patterns and land surface temperatures (LST) by using multi-regression models considering spatial autocorrelation issues.

To measure the influence of neighborhood landscape spatial patterns on LST, this study analyzed neighborhood environments of 15,862 single-family houses in Austin, Texas, USA. Using aerial photos, geographic information systems (GIS), and remote sensing, FRAGSTATS was employed to calculate values of several landscape indices used to measure neighborhood landscape spatial patterns.

Since the quantification of landscape patterns has been highlighted as an area of broad practical interest, developing methods to quantify landscape spatial patterns has been emphasized in many previous research efforts. Numerous landscape indices have been developed for monitoring natural resources by evaluating density, complexity, proportion, diversity, proximity, and richness of the specific landscapes. To select appropriate landscape indices measuring the quality of neighborhood landscape spatial patterns, this research applied the five main criteria: size, fragmentation, shape, isolation, and connectivity based on existing principles and guidelines which have been widely applied to ecological planning research.

In the final spatial regression model, larger green spaces and well-connected landscape spatial patterns positively contributed to reduce LST. In addition, less fragmented and isolated neighborhood landscape patterns were positively associated with lower LST values. The results support that ecologically healthier neighborhood landscape patterns are positively correlated to reduced LST value.

Our findings suggest that planning policy and guideline development should consider landscape spatial patterns to improve public health in neighborhoods. Larger patch sizes, well-connected conditions, and less fragmented and isolated landscape patterns are the main indicators of better ecological quality in landscapes. The findings of this research augment previous studies by considering the use of spatial regression analyses to investigate the role of neighborhood landscape spatial patterns on UHI.

Planning for Sea Level Rise and Land Use Change: Adaptive Conservation Planning to Conserve Biodiversity in the Matanzas River Basin, Northeast Florida

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Keywords: Sea Level Rise, Land Use Change, Biodiversity Conservation, Florida

Sea level rise and land use change are likely to be some of the most fundamental and important challenges for biodiversity conservation in low-lying coastal areas in the 21st century. To protect biodiversity in coastal areas, there is an urgent need to identify conservation priorities in response to sea level rise and land use change. In this study, an integrated modeling process using a geomorphological model (Sea Level Affecting Marsh Model), species habitat models, and conservation prioritization tool (Zonation) is developed to identify conservation priorities in the face of sea level rise and land use change. We present a case study in the Matanzas River Basin of northeast Florida that utilizes this integrated modeling approach with data for 38 focal species. We incorporate species-specific connectivity requirements in the analysis and compare the conservation priorities with existing conservation datasets including current conservation areas and the Florida Ecological Greenways Network (FEGN). Results show that current reserves are not adequate to protect some of the most important conservation priorities in response to sea level rise thus the current reserves need to be enlarged. However, the updated FEGN does serve as a good foundation to inform future conservation decisions relevant to sea level rise. To protect the top 10% conservation priorities, approximately 11,700, 10,900 and 15,200 acres of additional land will need to be acquired for the 0.5 m, 1.0 m, and 2.5 m sea level rise scenarios respectively.

Planning the Future of Coastal Georgia with Geodesign

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Keywords: Geodesign, Landscape Planning, Geographic Information Systems

"A 2-day Geodesign workshop, co-organized by the Coastal Regional Commission of Georgia (CRC), the College of Environment and Design at the University of Georgia (UGA), and a team from Centre for Advanced Spatial Analysis (CASA), University College London, led by Carl Steinitz, was conducted in April 2016 to plan for the future of Coastal Georgia. Over 40 stakeholders participated in the workshop which focused on multiscale, multi-jurisdictional planning for the CRC's 10-county region. The stakeholders were organized into 12 teams; 10 county teams and 2 regional teams, to analyze, evaluate, visualize, and negotiate future land use and conservation scenarios in real-time with the ultimate goal of reaching a consensus on a single negotiated design that met both the needs of each county as well as the 10-county region.

The workshop was designed to follow Carl Steinitz's Geodesign Framework which addresses a series of six questions about a study area with three iterations through the framework. The first iteration provides background and understanding of the study area, the second iteration identifies study methods and the study is completed through the third iteration (Steinitz 2012). Using the geodesignhub.com website, an open access geodesign software built by Hrishi Ballal during his PhD studies at CASA under the direction of Steinitz, workshop participants were able to collaborate and quickly create conceptual designs at the county and regional scale and evaluate the impact of those designs in real-time. Prior to the workshop, county and regional 2050 change scenarios based on population and economic projections and other considerations such as sea level rise were identified, and a series of 10 evaluation maps were created and used as the starting point for design in the geodesignhub.com software. The criteria for the 10 evaluation maps, topics ranging from green infrastructure, historic & cultural resources and housing to transportation, commercial and industrial; were defined by subject-matter experts and a matrix was created to document criteria and data needs.

Designs were made in three iterations during the workshop; first independently for each of the 12 groups, next through negotiations with neighboring counties and the final iteration included county and regional negotiations. The final negotiated design incorporated connectivity corridors and innovative land use strategies incorporating sea level rise projections. Results of this project are currently being used as part of CRC's plan implementation, education and outreach and CRC plans to continue using this software as planning tool for their region."

Research on the Effect of Soundscape Exceeding on Soundscape Evaluation Based on F-AHP

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Keywords: Soundscape Ecology, Urban Park, Green Space, Edge Effect, F-AHP

1 Background:
Soundscape regards sound as a kind of landscape in the environment, and emphasizes the relationship among people, sound and the environment, as well as people's evaluation of the sound. [1,2] Along with the acceleration of urbanization nowadays, noise has become an important issue that affects urban landscape and citizen health. Therefore, we not only need to control noise to reduce its negative effects, but also need to actively create a pleasant soundscape. [3] Soundscape ecology is a new interdisciplinary subject. By combining soundscape and ecology, it studies the physical effects, aesthetic influences and cultural influences of sound on human beings. [4] Study at home and abroad on soundscape was mainly concentrated within the park, few scholars studied soundscape on or out of the edge of urban parks. Therefore, this research based on soundscape ecology, explored the influence of soundscape edge effect on soundscape evaluation.

2 Purpose and Method:
Soundscape edge effect refers to the phenomenon that on the edge of different homogeneous units, namely zones with similar underlying surface, sounds interference and make the soundscape near the edge different from that of the interior.
Based on soundscape ecology, this paper studies the edge effect of soundscape. Taking West Lake Park as an example, through site observation and measurement and Semantic Differential Method, the study constructed landscape evalution on, inside and out of urban park boundary.

3 Results and Conclusions:
The main conclusions are as follows: (1) The edge of parks has an optimization effect on the soundscape, and in most cases, the soundscape edge effect of the outer side is more obvious than that of the inner side, and this effect affects the overall psychological feelings to some extent. (2) The intensity of the soundscape edge effect varies with different edge conditions; the intensity order is as follows: Topography> Plant community> Water> Square. (3) The main factors affected by soundscape edge effect include Noise sound, Atmosphere, Aesthetics, Emotion, Comfort, Valence and Attractiveness. In this paper, the soundscape evaluation of urban parks is extended from the interior to the edge and exterior of the park, thus providing a theoretical basis for the further research, planning and design of the urban park soundscape.

Riverfront Remediation and Redevelopment for Human and Wildlife Health

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Keywords: Riverfront, Phytotechnology, Storm water Management, Restoration

Historically, riverfront industries often polluted waters and sites with chemicals, leading to degraded ecosystem health on site and reduced numbers of aquatic wildlife downstream. These sites currently pollute the environment through residual chemicals left behind by industrial-era production factories. Urban riverfront redevelopment offers many possibilities to restore the wetland ecosystems and reestablish a connection between the site and city through human access. By redeveloping urban rivers for wetland protection and storm water management, cities can begin to regain their connections with the landscape while providing resilient ecosystems through restoration. This proposal identifies possibilities for riverfront redevelopment as wetlands and tools for restorative action aiding increased human access and wildlife health. A storm water management design utilizing four phytotechnology mechanisms is proposed for the ARMCO Site, a former steel manufacturing facility. Using plant material and landscape design, the ARMCO riverfront has been redesigned to unlock the full potential of treatment wetlands and showcase emerging treatment methods that could soon become typical cleanup procedure. A template for remediation design has been created with the techniques identified for remediation, storm water treatment, and habitat creation outlined in the design proposal. Three case studies have been assessed for performance effectiveness and used to develop design guidelines for human access and use of sites where phytotechnology has been implemented for industrial pollutants. Careful deliberation of storm water containment and flood plain levels define site layout while contributing design responses adaptable for year-round functionality coupled with landscape interest for each season. The techniques and planting palette have been tailored to address the specific site contaminants for the Missouri River riverfront but are adaptable for various contaminants and ecosystems.

Seedling Success and Methods of Prairie Meadow Establishment for Temperate Piedmont Regions

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Keywords: Meadow, Piedmont Prairie, Landscape Management, Public Perception, Meadow Design, Seed Establishment, Designed Plant Communities

"Landscape architecture must offer regionally appropriate design solutions nuanced to address the character, context, and perception of green infrastructure in public spaces. A growing body of work lies at the intersection of ecology, landscape architecture, horticulture, and planning and points to need for economically viable, low maintenance planting solutions that meet human aesthetic needs and provide greater ecosystem services.

This paper outlines the methods and results of year one of a five-year research study of designed seed mixes for the southeastern Piedmont of North America. Following protocols for in situ seeding methods developed by Hitchmough and others, this study proposes two unique seed mixes featuring native forbs and grasses. The approach is novel in that the conventional grass dominance has been reversed with forbs composing 80% of the seed mix to meet public aesthetic goals. Two seed mixes are trialed on two soil types times two management regimens: Mix A on clay, Mix A on clay plus sand blanket; Mix B on clay, Mix B on clay plus sand blanket. Each test plot measures eight feet by eight feet square and each combination is repeated four times, randomized, resulting in thirty-two test plots. Plots are irrigated overhead during the first three months of establishment. All plots are randomly burned or cut once yearly in late winter just before spring emergence. This first phase of the study will report seedling emergence and success rates by quadrat sampling.

The results of this study are significant in building a set of successful protocols for establishment of low meadow like plantings for use in public green infrastructure projects. Establishment methods and species mixes must be tested and developed for each specific ecoregion leading to unique place honoring approaches that meet human and ecological needs."

Small Green Spaces' Type and Structure for Microscopic Urban Heat Island Mitigation

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Keywords: Air Temperature, Microclimatic Design, Urban Block, Urban Heat Island, Urban Green Space

"Research to reduce urban temperatures and mitigate the Urban Heat Island (UHI) effect has focused primarily on the role of large urban green spaces as cool islands. As for small green spaces (SGs) such as street trees and pocket parks, although some studies have been done, only a few studies have investigated the density, size, shape, and ratio of green spaces. However, despite the expectation that small green spaces (SGs) provide high cooling effects and thus make air temperatures drop, such an effect in urban areas has been under-explored in comparison to well-documented UHI reducing effect of larger parks and urban forests.

The purpose of this study was to find types and structures of small green spaces (SGs) that reduce air temperature effectively in urban blocks. Six highly developed blocks in Seoul, Korea served as research sites. Air temperature was measured with mobile loggers on clear summer days, from August to September in (year), at street level. These measurements were repeated three times a day for three days by walking around the experimental blocks and the control blocks at the same time. By analyzing spatial characteristics, SGs within the six blocks were classified into their outward forms: polygonal, linear and single, or mixed. The polygonal and mixed types of SGs showed simple significant linear regression explaining that as the area and volume of these two types of green spaces increased, the blocks' urban heat island (UHI) mitigation (ΔTRmn) increased in a linear relationship. The experimental ranges of this research for the SGs were 100 m2 – 2,000 m2 of area and 1,000 m3 – 10,000 m3 of volume. In terms of area and volume of a polygonal green space with mixed vegetation, it indicated more than 300 m2 and 2,300 m3, respectively, to lower the air temperature by 1 °C; 650 m2 and 5,000 m3, respectively, to lower it by 2 °C. Our results indicate that the degree of cooling will increase when the larger proportion of green spaces exist in urban areas, which is a consistent result from previous research. With regards to the relationship between ΔTRmn and the polygonal types, the polygonal type of SGs showed a higher level of significance than the linear type in reducing air temperature. This is because the polygonal SG type tends to be clustered.

A configuration of the polygonal shape of SGs has an important role in delaying cooling air's diffusion. The mixed type of SGA and SGV showed significant in the final linear regression models. Mixed SGs can effectively block heat inflow and easily make cooling zones with multilayered structures composed of tall trees and understory plantings such as grasses, bushes, and small trees. More specifically, SGs with increased tree volumes block solar radiation between the tops of the trees and the ground and absorbs heat reflected from surfaces, while their evaporation volume increases the latent heat flux and lowers the temperature through wind ventilation."

Spatial Distribution Characteristics of National Protected Areas and the Inspirations to National Parks in China

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Keywords: China, National Protected Areas, Spatial Distribution, Natural Geography, Cultural Geography, National Park

Different modes of national protected areas are important basics of Chinese national parks. Analyzing the spatial distribution characteristics of national protected areas in China can help build a rational national park system. Given the natural, cultural, and geographical diversity, this article aimed to assess the spatial distribution characteristics of 12 in 3093 national protected areas in China, using ArcGIS and various quantitative statistical methods, including Nearest Neighbor Index (NNI) and cost-weighted distance method. By the above methods, spatial distribution characteristics of national protected areas in China were investigated nationally. The results were as follows. Firstly, national protected areas present an overall condensed state. Secondly, national protected areas covered all the cultural regions, sub-regions, and zones. All the natural regions, 90% sub-regions, and 93% zones were covered as well, which indicated that despite the high coverage, there are still important geographic zonings with no protected areas. Thirdly, existing national protected areas are highly clustered in the eastern and central areas which are flats and simultaneously are rich in water and plants with fertile soil. In addition, the main elements of cultural geography, such as cultural zonings, transportation accessibility, development of regional economy and population distribution, has close relationships with the number of protected areas. Fourthly, according to the relationship between distribution of national protected areas and development of regional economy, the provincial units in China could be divided into 4 groups. Fifthly, according to the relationship between distribution of national protected areas and population distribution, the provincial units in China can be classified into 4 groups as well. Recommended areas in the Chinese national park system was as follow: (1) discontinuation of the existing condensed state to achieve a balanced spatial pattern; (2) division of national parks into upgraded, integrated, and new modes to form a spatial framework; (3) national parks should be established in the western region with less protected areas, lower transportation accessibility and less human destruction; (4) the provinces with higher enthusiasm to ecology should be made pilot units.

Strategy System of Near-Naturalization for Urban Canalized River

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Keywords: Landscape Architecture, Urban Channelized River, Natural River, Near-Natural Strategy

The impact of urban sprawl and the flood disasters have led to the severe channelization of rivers, which thereby causes the loss of the functions of dynamic process and ecological service of the rivers. There has been a great demand for the near-naturalization of the urban channelized rivers due to the renewal of old cities and the river landscapes, along with the demand for ecological environment followed by the transforming public ideology. However, the river design has been generally oriented by flood control, which largely omits the interaction between human beings and the nature, the integration of the urban context and the water systems and the cooperation of the ecology and technologies. Bridging the professional knowledge of landscape spaces, ecological system and social humanity, landscape architecture can play a significant role in the process of river near-naturalization. The study puts forward the “Macro-meso-micro” multi-scale perspective based on the analysis of morphological characteristics and the automatism process of the rivers at the scales of “watershed scale-river scale-typical reach scale”, initially the system of near-naturalization strategies has been proposed. At the macro scale, urban rivers are part of the natural drainage basin. Referring to the ecological metropolis ideology and the river ecology ideology, four strategies of urban river near-naturalization have been presented, including flood control security, spatial structure, waterfront boundary and interdisciplinary. At the meso scale, the urban channelized rivers have been classified into three types according to its space characters and corresponding strategies have been put forward, including urban compact river way strategy, urban elastic river way strategy and new urban river way strategy. At the micro scale, near-naturalization strategies are put forward based on the river automatism process, ecological revetment treatment and river way plants selection. A list of the measures has been compiled. The formation of the strategy system is an important exploration for dealing with the future trend of channelization transformation in China.

Study on Landscape Ecological Design of Artificial Lake Based on Numerical Simulation-Application of MIKE21 Model in Mengze Lake Water Environment Planning

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Keywords: Landscape Architecture; Water Landscape Planning; Numerical Simulation; Artificial Lake; Ecological Design

"Artificial lakeare confined by water environment conditions such as single replenishment condition, closed flow and weak self-purification capacity. In order to create a sustainable water ecological landscape environment, the intervention of landscape planning should realize the multiple objectives, such as hydrodynamic improvement, water quality improvement and landscape optimization etc. How to scientifically measure the existing condition at initial planning stage, and to develop quantitative indicators to guide water landscape ecological design are still lack of effective tools and practical experience.

Taking the Mengze Lake as an example, two-dimensional hydrodynamic and water quality models were established by using MIKE 21 water environment simulation software to simulate the water flow and water quality conditions in the artificial water. The numerical analysis results will be translated into the scientific basis of water environment landscape design, the overall strategy of water space design for strengthening the hydrodynamic and enhancing water quality was proposed, and the planning scheme was quantitatively evaluated.

It is found that the water dynamics can be improved effectively by adjusting the water space form, the number and location of the inlet and outlet, and the layout of the hydraulic facilities. By reasonable allocation of water, floating water and submerged plants, an efficient plant ecosystem can be constructed, the water quality of artificial lake was effectively enhanced, and the risk of water quality deterioration of partial area was basically eliminated, so as to achieve the coupling unity of water ecological environment quality and the landscape effect improvement.

This study explored the integrated ecological planning method of integrated lake water landscape planning and aquatic ecological restoration technology under the guidance of hydrodynamic and water quality simulation, which can provide reference for the construction of similar project practice in the future."

The Construction Of "Natural to The City Landscape Corridor" Of Yang Jia Village

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Keywords: Landscape Architecture; Water Landscape Planning; Numerical Simulation; Artificial Lake; Ecological Design

Urban fringe villages are located in the border areas between nature and cities, where natural landscape and urban landscape strongly clashes, resulting in fragmentation and contradiction in the village landscape. Yang village is located in the fringe of Haidian District, Beijing. In order to better integrate the landscape of natural and city here, a south-to-north landscape corridor, namely a natural corridor to the city, is established, introducing the concept of ‘landscape corridor’ in the reconstruction of Yang Village landscape. The corridor connects three existing separated landscape areas and takes charge of corresponding landscape functions. 1. Mountain tourism Corridor, an important mountain trail, connects a series of rest and viewing platform; 2. Agricultural sightseeing Corridor, an important viewing channel, connects a number of picking garden, sightseeing nursery and horticultural schools; 3. Community transformation Corridor connects the central green of a number of communities, emerging contiguous green open space. Yang village’s landscape corridor has not only improved the village environment, but also promoted the integration of natural landscape and urban landscape, providing experience to the landscape reconstruction of urban fringe villages.

The Preservation of Water System in Western Gardens

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Keywords: Water System, Preservation, Restoration

"The role of water in the garden and the landscape unfolds on several levels: the design and stance composition of the garden, the relationship with the arts, the ability to involve the senses and psyche. These aspects are full of symbolic meanings that run throughout the history of Eastern and Western gardens and these aspects have influenced the turning points of the gardens. Therefore, water is the soul of a garden.

Nearly all gardens have a hydraulic system that more or less articulates and interacts with the internal components of the garden itself. Therefore, there is no garden restoration that does not use water as a fundamental physical and figurative element. The restoration of many gardens where water has a central role.

This article gives several water restoration cases of European gardens in recent decades (1980s -now), such as Villa d'Este in Tivoli, the Royal Palace of Caserta and Venaria (Italy), lênotriani systems (Versailles, Sceaux, Vaux) and also Chantilly, Giverny, Noailles (France), Schloss Hof in Marchfeld (Austria) and the Labyrinth in Barcelona (Spain). These have followed different paths, because the level of land modification and the availability of resources, the depth of knowledge and role of water in the system are different. These cases showed the restoration methods, technology and principles and the start points respectively.

Contemporary culture highlights the tendency of respecting the natural topography and the search for new forms of dynamic representation. The landscape is key in the transformation design and related to the environment. Water as an element becomes part of this new landscape vision, present in all life processes. This is shown in some projects, which tended to introduce new points of centrality, with the assistance of preservation and restoration of derelict garden land. The projects emphasized environmental sustainability through the implementation of a water treatment station, the creation of reservoirs and canals, the planting of native species.

The article explores the water restoration ways which is effecting theory and practice of modern landscape design. The aim is to shed light on the role of that water as other elements of garden played in the garden or landscape design is essential to the environment."

The Process of Slums Formation In A Metropolitan Fringe Based On Land-Cover/Use Change Dynamics Detection

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Keywords: Urban Slums; Transition Analysis; Topographical Character; Gangnam-gu

"Slum settlements are spontaneously built representing a single land-use type in urban fringes. Here, we examined the process of slum formation in marginal areas of megacities considering the role played by topographic features, using a case study of the Guryong Area (GA) in Gangnam District, Seoul, South Korea. Gangnam District is one of the wealthiest districts of Seoul, but there are several slum settlements near its border, which are in significant contrast to the developed areas situated nearby. We ask: What was the history of development of land-use and land-cover (LULC) from 1950 to 2015? What characteristics of slum formation were indicated by the changes in LULC? How was the formation of the slums related to the topographic features, and finally, what are the potential implications of this historical process?

We measured LULC changes in the entire GA from 1950 to 2015, and then analyzed the changes in one specific land-use type related to slum formation, defined as “spontaneous settlements”(Villages, slum or squatter settlements, informal settlements are unplanned, or un-modernized residential areas; constructions is < 6 m in height), combined with topographic data in 600-m-wide bands along the gradient of urbanizationIn addition, patches of spontaneous settlement that gained or lost area during four successive periods (1950-1975, 1975-1985, 1985-1994, 1994-2015) were identified. Then, we examined the relationships between slum formation and topographical features. The results indicated that the formation of spontaneous settlements was mainly led by agricultural activities before 1985, and development into slums was mainly due to isolation from the most easily planned and constructed areas in recent decades, such as at the foot of a mountain where the slope was 15–30%. Most of the land occupied by slum areas in 2015 had been forests and agricultural lands in 1985, indicating that they were built on land with advantageous soil characteristics for a wide range of vegetation types."

The Proposed Appalachian (USA) Geopark – Integration of Geologic, Environmental, Cultural Heritage and Community Planning, Design and Management for a wide-area Mountainous Landscape

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Keywords: Geopark, Appalachia, Landscape Planning

"Geoparks are somewhat unified geographical areas where sites and landscapes of international geologic significance are managed with a holistic concept of protection, education, and sustainable development. A Geopark (A UNESCO Program) uses its geologic heritage, in connection with the areas environmental and cultural resources to enhance understand and awareness of key issues facing society in that region such as sustainability and climate change (UNESCO 2016). Although the United States currently has no Geoparks, it clearly possesses areas that would be appropriate for Geopark status, and a prime candidate is the Appalachian region of southern West Virginia (WV) and as such planning is underway along with a second Geopark proposed for the upper peninsula of Michigan. Currently there are over 140 Geoparks worldwide and only two in North America with both in Canada. The Appalachian region is rife with deep gorges and ancient rivers that drove the rise of the US industrial revolution of the late 1800s—primarily through coal, timber, and from the waters of the many rivers that mark the landscape. The southern WV coal mining communities produced the fuel that transformed rural America into an industrial power, and at present the region contains numerous small mountain communities that are remnants of those early industrial days, as well as internationally significant environmental resources such as the gorge of the New River which is quite possibly the oldest river in North America and the almost 1,300 caves located in Greenbrier County in an area of extensive karst limestone. There are also heritage aspects linked with railroad, historical and military history, rural communities, with present day recreation focused on climbing, hiking, and wild river white water usage. This recreational aspect is critical as the proposed Geopark is within one day's drive for over 60% of the population of the United States.

This presentation will present the early planning efforts that are focused on the Appalachian Geopark including area identification, the design of future outreach and engagement efforts and the landscape planning methods that are being applied to landscape and community characterization in the region. These efforts are critical as Geopark planning is a combination of community from the ground up planning and engagement coupled with sound state-of-the-art environmental science and landscape assessment."

The Research on the Identification Method to Basic Ecological Space in Urban Area

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Keywords: Urban Area, Basic Ecological Space, The Identification Methods, The Identification Indicator System

"During the rapid urbanization of China, urban Landscape is in the state of changing, which shows the contradiction among the infrastructure, the agricultural land and the ecological land. Chinese government intends to launch a plan for the ecological restoration, aiming at finding a better construction method based on the characteristic of the urbanization. The identification to the basic ecological space in urban area is the key issue and hot topic. Based on the GIS, the biodiversity evaluation and so on. This paper takes Luan's urban basic ecological space planning as an example to discuss the identification methods, which will supply the technical support for the plan.

Research suggests that the basic ecological space is composed of the water resources protection area, the biological habitat and migration corridor, the geologic hazard sensitive area, the infrastructure and green corridor, the historic area, the woodland and farm land, the main urban park and the green system, and the link between them; the identification rate system are composed of seven types and twenty six evaluating indicators, which are the water cycle and water quality indicator , the bio-diversity indicator, the heat highland indicator and so on."

The Stormwater Regulation and Storage Capacity of Beitang Landscape and Its Application Scenarios in the Field Scale

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Keywords: Urban Area, Basic Ecological Space, The Identification Methods, The Identification Indicator System

Taking Yumin Village, Liangjiang New Area in Chongqing as an example, this article elaborates Beitang landscape's adaptive features for droughts and floods in mountainous regions and simulates the regulation and storage capacity of Beitang landscape by SWMM model on the field scale. With the assumption of urban development based on preserving Beitang landscape, it proposed 9 scenarios with different densities and locations. Finally, it proposes suggestions on the protection and utilization of Beitang landscape during the urbanization construction in the future.

It is found that the basic structure of Beitang landscape in mountainous areas consist of "hill", "valley", "pond", "paddy field" and "canal". Beitang systems which are distributed along the end of the runoff path and occupy an important drainage channel of flood are unique vernacular landscape as well as adaptive landscape to droughts and floods. It finds that Beitang system which consists of "pond" and "paddy field" can withstand a designed 24-hour storm which may only happen once in one hundred years. The results of rainfall simulation in 12 years show that Beitang system can control as much as 75% of the runoff. To keep Beitang system as a precondition, a development in the upstream of local watershed with high residential density has a minimal hydrological impact.

This research provides a model for the protection and utilization of natural water systems in rural areas during the construction of sponge cities, as well as for the transformation of the dispersed agricultural water facilities to urban landscape water conservancy during the urbanization.

Transform Asphalt: Reclaiming urban surfaces for ecological function

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Keywords: Emerging Ecologies, De-asphalting, Urban Degradation, Rustbelt, Material Ecology

"The world landscape is rapidly urbanizing and the presence of wide spread urban surface known as “asphalt” where we carry out our various urban operations is bound to proliferate. More than one-million acres (Joseph, 2012) of land, alone in the United States is paved with asphalt, now the most commonly used surface material in our urban environment. Though it has played a significant role in the progress of human civilization, it has disengaged the relationship between atmosphere and the rhizosphere, resulting in severe ecological degradation. Urbanization and its associated pavements have altered the topographies and natural processes of our cities to such an extent that it is not easy for the water, soil, vegetation and heat systems to function naturally. The resulting physical conditions are hindered systems and new emergent processes that are yet to be understood.

Transform Asphalt is a research design study that investigates the past and present complexities of this urban asphalt surface and specifically explores the in-situ regeneration of abandoned blackfields. Rustbelt cities across the southern edge of the Great Lakes contain more than a third of the land area covered by asphalt which has severely disrupted the hydrological systems of the region. There is strong potential to transform and adapt this material condition into an adaptive and emerging urban ecology, particularly focusing on sites along their associated waterways and other hindered hydrological networks. Approximately 122- acre asphalt surface in the Chicago Calumet Industrial Zone serves as a potential test plot for transformation towards restoring the metabolic functioning and hydrological systems. Though considered socially, environmentally and economically marginalized; such sites have potential to model new approaches to overcoming complex conditions of urban degradation.

This study focuses on an in-situ process based approach to treat the material on site by accelerating its degradation process and transforming the site to new productive uses by various landscape strategies. The approach towards transformation is through a choreographed attenuation where beneficial spontaneous vegetation, beneficial microbes, accelerator biosolids and compaction breaker roots are at work. Transform Asphalt is a project that aims towards setting up a model for a process based landscape strategy towards creating a template for social, cultural, ecological and economic change. The project questions current practices in landscape surface design and illuminates the need for transformation and innovation related to material ecology. It emphasizes the ecology of spontaneous plants and their role in urban ecology.

This theoretical research design study will call for a shift in paradigm to understand the contribution that landscape architecture can make by extending its tactics and methods toward transforming complex degraded landscapes into an unexpected and evolving new ecological urbanism."

Transforming Vacant Lands through Smart Decline

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Keywords: Urban decline, smart decline; shrinking cities, geographic information systems, land transformation model

"Despite projections of global urban population increase, many cities are currently facing severe shrinkage, or massive population loss for two or more years, resulting in increased vacant urban land and structural abandonment. As such, exceedingly depopulated urban areas are now seeking ways in which to more intelligently manage and regenerate deteriorating neighborhoods, while simultaneously strategically locating new economic opportunities in areas prime for new development. The inability to retain viable developments has necessitated a pending shift from traditional urban growth to the allowance of Smart Decline. This approach dictates that cities strategically develop in dense nodes where development potential exists while allowing parcels outside of these areas to simply be managed or decline. This research aims to develop and apply a design framework for Smart Decline through reclaiming and repurposing vacant lots in Dayton, OH, USA.

First, a series of U.S. shrinking cities are examined including Youngstown, Ohio, Flint, Michigan, Baltimore, Maryland, and Cleveland, Ohio where methods of inventorying, assessing, and regenerating vacant/abandoned parcels are compared. Findings are then applied to the study site. Second, nodal development zones are targeted in Dayton through a comprehensive suitability model using Geographic Information Systems (GIS), identifying five neighborhoods in the southwest of Dayton as highly developable. A GIS based land use/land cover prediction model known as the Land Transformation Model was then used to forecast future vacant land and pockets of urban decline. Using the LTM, vacant lands were predicted for 2023 using vacant land patterns from 2005 -2014. Factors used as predicted drivers were identical to Newman et al.'s (2016) model for vacant land prediction. Third, temporary functions and/or ecological infrastructure are prescribed for parcels outside of developmental nodes and within lots predicted to remain or become vacant in the future.

The research presented provides shrinking urban areas with a process and series of prescribed interventions to deal with urban decline using both developmental and landscape components. Revitalizing cities is vital to assure sustainable long-term urban development which caters to the expected urban population growth in the U.S. and globally as these cities already have the fundamental facilities and systems to serve urban growth. Rather than force new development into already decaying areas, the idea is to allow the city to right size itself and when the potential for development reappears in the distant future, the city can take advantage of new economic opportunities."

Urban stream restoration and conservation: A Case Study of Herring Run

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Keywords: Urban, Stream, Landscape, Sustainability, Conservation, Restoration, Design, Policy, Greenways, Blueways

"This paper investigates a 1.5-mile segment of an urban stream flowing through the Morgan State University Campus; this segment base is housed as a subset within the watershed level thinking. The main objective is to unravel underlying reasons as to why despite the availability of regional level stream restoration plans by key players such as US Fish and Wildlife Services Chesapeake Bay Field Office, there is a gap in design and implementation at localized level of stream segments.

For context, the Herring Run stream flows through one of the most urbanized area in northeast Baltimore, Maryland into Back River and the upper Chesapeake Bay. The Herring Run Watershed drains approximately 32.6 square miles, and most of it falls under residential or commercial land use zoning, in much of northeastern Baltimore City and a portion of central Baltimore County near Towson.

On October 10, 1996, a series of policy recommendations were adopted by the Chesapeake Bay Executive Council which included mandates on: protection of all streams and shorelines by a forested or other riparian buffer; conservation of existing forests along all streams and shorelines; increase in the use of all riparian buffers and restoration of riparian forests on 2,010 miles of stream and shoreline in the Chesapeake watershed by 2010. Despite these measures a field assessment of Herring Run identified and mapped136 Pipe Outfalls, 76 Exposed Pipes, 65 instances of Erosion, 46 Channelized Stream Sections, 29 Inadequate Buffers, 7 Unusual Conditions,1 Trash Dumping Sites, and 1 In or Near Stream Construction, besides 42 Fish Blockages as problem areas needing attention with Herring Run (Yetman,1998, pg 12). Field-reconnaissance, stream-walk surveys of the Herring Run, conducted over 2013-2016 have indicated to poor water quality with high water discoloration and sewer spill odor. Maryland Department of Environment –MDE, investigations confirm the findings and records that the fecal concentrations are high in Herring Run stream water (MDE, 2007, pg 19).

Despite these studies and detailed restoration techniques and conservation strategies, recommended by the key US stakeholders: Environmental Protection Agency, Federal Highway Administration, Army Corps of Engineers, the stream segment under investigation has not seen reparations and restorations.

One of the reasons is that a critical intermittent piece is missing, which is, a localized stream segment specific master plan for restoration. This study addresses this missing link and articulates a localized master plan for Herring Run stream segment. This is done through a multi-method research approach, which is outlined below as sequentially applied:

• The stream segment assessment starts with stream-walking field-reconnaissance survey, photographic analysis, and literature review and Google Earth map studies.

• Overlays of landscape systems and associated ecologies are transposed on stream plans and sections to acquire an eco-systemic understanding of the stream.

• Derelict stream conditions are mapped.

• Restoration and conservation and strategies, as used by the key players in the field such as the US: Environmental Protection Agency, Federal Highway Administration, Army Corps of Engineers and other stream restoration agencies, are reviewed for best application-fit and design guide for Herring Run stream segment through Morgan, is drafted.

Additionally, Maryland State and Chesapeake Bay Executive Councils' policies on urban stream conservation are critically reviewed for gaps between regional policy drafts and implementation at localized segment-specific sites."

Winter Microclimate in Linpan Settlement: Effects of Size and Tree Distribution on Linpan Environment in Chengdu plain, China

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Keywords: Linpan settlement, Linpan size, tree distribution, microclimate, winter

Linpan settlement (i.e., Linpan) is a typical and important rural settlement pattern spreading in southwest China, and most of them scatter in Chengdu Plain, which composed of farmers' houses with a large number of woods around, water and land. Linpan is the sub-village settlement and the elementary unit of the village within the scattered locations. It is also known as a beautiful and unique rural landscape in China. Meanwhile, it is an important part of the local ecological system. There is a comfortable microclimate in Linpan in different seasons, which always matches local people's preferences without intentional manage. The purpose of the study is to clear the variation of Linpan microclimate in winter and the impacts of Linpan size and tree distribution on the winter microclimate. Analyses of the extreme climate improve our understanding of the ecological mechanisms of the Linpan. Microclimate parameters (i.e., air temperature, illumination intensity, wind speed, relative humidity) were estimated in 12 Linpan samples in Sandaoyan town, Chengdu plain with similar tree canopy coverage rates in the winter of 2015. We found the role and importance of various factors vary widely depending on weather conditions, and there are complex interactive effects of factors. The results showed, among parameters, wind speed more than the weak solar radiation was the key factor controlling Linpan interior temperature in winter. The air and soil temperature of the Linpan were influenced by Linpan size, especially the air temperature exhibited a strong negative correlation with Linpan size. The illumination intensity and wind speed both showed the following decreasing trend: outside > edge > center of Linpan, but the relative humidity exhibited a opposite trend which further indicated a positive correlation with Linpan size. In addition, Linpan were classified into four groups according to tree positions (surrounding, central, unilateral, and scattered). Trees in Linpan showed an important effect on adjusting winter microclimate. Tree distribution patterns differed remarkably with respect to the winter microclimate. Surrounding pattern provided the maximum illumination for the inside area of Linpan in winter. However, the scattered pattern of Linpan showed the optimal temperature preservation in winter, because of its predominant effect of wind protection and keeping humidity. These results could be used for the new rural reconstruction and landscape design in the future.

People-Environment Relationships

A Method of Constructing Night Scene in Bridge Parks Based on Illumination Psychological Setting Effect ----Taking Wuhan Simeitang Park as an example

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Keywords: Psychological Setting Effect, Bridge Parks, Constructing of Night scene, Environment Behavior Science

"Being picturesque, waterfront, and highly accessible (in most cases), bridge parks have great potential to become attractive public spaces. However, the lack of illumination facilities and idleness in the management make these parks a less vibrant place, especially in the evening. As a result, some even become gray space with high crime rates, making these places less welcomed in turn. In this respect, a new landscape design approach with retrofit illumination facilities has become the key to breaking this vicious cycle in bridge parks.

This study practices theory of illumination psychological effect in the evaluation on the design of a typical bridge park. Simeitang Park in Wuhan is selected as the focus point of this study. Methodologies involved include case analysis, fixed observation, investigation, measurement of illuminometer, data collection, etc. supporting evidences were derived from surveys among users in the park and data collected in field trips. Both advantages and vulnerability of the park design are proposed based on an in-depth analysis and multi-dimensional evaluation from landscape and psychological perspectives.

It is validated that the attractiveness of bridge parks can be significantly improved by a reasonable layout of the whole park, redesigned tourists' routes and illumination strategies in a park scale. This study shows great interests in the typical semi-private space in this type of park, and design strategies are proposed with a consideration in this respect. It is highlighted that public activities and their needs should always be considered in the design of illumination facilities.

The research aims to promote a new design approach to improve the illumination and the overall environmental quality on a park level. The potential contribution and outcome of the research are to help designers of bridge parks identify and realize the various illumination facilities retrofit opportunities, provide a guidebook to cross common application obstacles in bridge park design or redesign activities."

A Study on The Mechanism of Place Attachment and Place Design Strategy in Liuhua Lake Park in Guangzhou, China

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Keywords: Place Attachment, Place Dependence, Place Identity, Design Strategy, Urban Park

"Interest in understanding person-place bonding can be found in a variety of disciplines. The place attachment literature also sees a significant shift from the research in ‘place’ towards the attachment that people develop with places. The two dimensions of place attachment generally acknowledged were proposed by Daniel R. Williams and Joseph W. Roggenbuck in 1989, that is, place dependence, a functional attachment, and place identity, an emotional attachment. While most researchers have studied place attachment from the perspective of human behavior and psychology, little literature regards the physical environment as an important factor affecting place attachment. The purpose of this study is to explore how place attachment is generated in places with different physical environment features in urban parks. Through empirical research, this study intends to eventually propose a reasonable place design strategy.

This study investigates Guangzhou Liuhua Lake Park, where places are divided into six categories according to their functions and physical features. The research methodology includes a number of questionnaires, interviews and site surveys. It also applies the two-dimensional structure (i.e. place identity and place dependence), which has been proved to valid and reliable for the measure of place attachment, and relevant statistical software and mathematical analysis. With quantitative and qualitative analysis, the research findings of place attachment in Liuhua Lake Park are: (1) There are significant differences in the degree of place attachment between different activities, where the highest lies in the fitness area and the public square, and the lowest in the children playground; (2) Age, activity duration and the number of participants are positively correlated with place attachment.

This study shows that urban park users’ place attachment towards different places has a close relationship with the form of activities. In urban parks, the stronger the purpose of spontaneous activity is, the deeper people’s dependence on the places will be. If the place has sufficient environmental conditions that can support activities and is irreplaceable, place identity might be generated and deepened. Therefore, from the perspective of place attachment, in the future development of urban parks, place design should focus on functionality and facility conditions that are sufficient for functional match."

A Study Report on Village Demolition and Resettlement in the Construction of Urban Public Greenbelt - Case Study of 'Three Hills Five Gardens'

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Keywords: Social Justice, Village Demolition and Resettlement, Public Participation, Judicial Safeguard

"In cities with fast urban growth, villages and urban development have often created friction zones where economic logics collide with interests for the locals. In Beijing, hundreds of villages are located within the urban grid nowadays. The absence of urban planning and the predominant informal urbanization have transformed these sites into genuine Urban Wormhole, hopelessly promoting urban growth and development. Coupled with imperfect laws and regulations, the social injustice springs out endlessly.

For this study, we reviewed preliminary data for the development of China's urban expansion and village demolition since the Reform and Opening-up, and conducted some field investigation in "Three Hills Five Gardens" area in Beijing, in which the connotation, causes and current conflicts of village demolition resulted from city sprawl are revealed. The friction between local interests and land value, added to the misunderstanding of rural habitats as ecological potential, is not exempt from conflicts and violence, drawing forth the value and interpretation of social justice in these areas.

Building up on the relevant domestic and international theories and cases, we propose several measures to realize social justice in the process of demolition and resettlement. First of all, in the perspectives of self-consciousness and public participation, residents, governors and other stakeholders should recognize the urgent need for social justice. Second, the social security system should be settled to clarify and supervise the connotation and process of demolition and resettlement. Third, looking at the aspect of legislation, demolition legislation, assessment, compensation as well as government duty should be settled as a premise for further sustainable development. Then, social security and judicial relief must be set up to protect the rights and interests of vulnerable groups. Finally, with greater involvement by urban designers, the strategies of social justice might find more rapid acceptance among all stakeholders."

Access to Nature and Adolescents' Mental Health: A Comparison of Multiple Methods

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Keywords: Adolescents' Mental Health, GPS Tracking, Lidar, Google Street View

"According to the World Health Organization, mental and substance abuse disorders are the leading cause of disability worldwide. The situation is especially alarming for children: around 20% of the world's children and adolescents experience mental disorders. Mental disorders in adolescence can have lasting impacts and affect well-being many years or even decades later. Fortunately, nature can promote adolescents' mental well-being, relieve stress, restore attentional fatigue and enhance resilience.
The majority of studies regarding children and adolescents' access to nature and mental health have used land cover type or vegetation index (NDVI) within residential neighborhoods as the proxy for their actual exposed environment. However, literature suggests children and adolescents spend the majority of their time outside their neighborhoods. As a result, we do not know if these measures accurately capture the relationships between access to nature and mental health.

To fill this gap, this study uses GPS tracking combined with two new approaches to assessing adolescents' access to nature: Light Detection and Ranging (LiDAR) and Google Street View image processing. We collected data from 155 adolescents from urban areas in central Illinois using GPS tracking for four consecutive days, and their mood states and stress levels during each day of data collection. High resolution (~.4 ft) Lidar data were processed to extract the percentage of tree cover along each route the adolescents took, along with eye-level percentage of tree cover identified using Google Street View images. We then conducted pair-wise correlations to examine the extent to which LiDAR and Google Street View image based measures associate with traditional measures based on land cover type and NDVI. The associations between the new and traditional measures of access to nature and adolescents' moods were also examined using regression and multi-level modeling.
The results reveal key mismatches between traditional measures of access and the more fine-scaled LiDAR measure and the Google Street View measure, which calls for caution in using neighborhood-based measures in investigating adolescents' environmental exposure and mental health. The LiDAR and Google Street View methods can be used in future studies to create more realistic and ecologically valid representations of individual interactions with a host of environmental variables."

Accessibility, Satisfaction and Tourist Behavior: Comparison Between Toll and Free Urban Parks in China

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Keywords: Urban Parks, Accessibility, Satisfaction, Tourist Behavior

Parks, important component of urban environments, provide a variety of benefits to city dweller, including relaxation, health, social activities, ecological safety, economic benefits, etc. Therefore, the quantity and quality of urban park is often used as a measure of effective and equitable urban service. Previous research focus on accessibility to urban parks which is influenced on by both physical and non-physical variables. However, in the toll and free park, satisfaction and tourist behavior are less involved. In the present study, we selected two similar urban parks in the amount of construction style and green space ratio and socio-demographic background and topography, but differed in toll (Datangfurong Park) and free (Qujiangchi Ruins Park) were investigated and evaluated by means of face to face questionnaires survey independently in each park. The questionnaire was divided into four parts: socio-demographic characteristics (e.g. age, gender, educational backgrounds, personal income, and habitation), accessibility (e.g. transportation, times and distance), satisfaction (tourists' perception of park environment, security and management and the behavior of tourists. The results showed that residents' satisfaction with safety and management of toll parks is higher than free parks while the landscape and facilities satisfaction for toll parks is no significant difference with the free parks. In addition, the toll park visitors include remote provinces and international tourists, but low accessibility for the surrounding residents. Compared with the free park, toll park’s visitors lack of diversity behavior.

Affordances of Urban Neighborhood Environment for Children's Outdoor Physical Activity: A Case Study of Yan-Dong-Yuan Community

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Keywords: Urban neighborhood, children's physical activity, affordance, environmental psychology, human behavior

"It is widely accepted that doing physical activity is beneficial to human health (Kohl & Hobbs, 1998; Pařízková, 2010; United States Department of Health and Human Service, 2008). Insufficiency of physical activity, however, is rather prevalent, especially in children living in cities (McCurdy et al., 2010). Meanwhile, neighborhood is a place in which children conduct outdoor physical activity generally (Veitch et al., 2006), so the design and environmental quality of urban neighborhood should be emphasized to achieve an increase in opportunities of children's physical activity in urban outdoor space.

In research on children's physical activity, the theory of affordance has been applied (Kyttä, 2002; Kyttä, 2004). Kyttä (2003: 56–57) suggests three different levels of affordance, namely perceived affordance, used affordance and shaped affordance, to describe and evaluate children-environment interactions. Unfortunately, current research on affordance for children's outdoor physical activity in Chinese cities is rather scarce.

This study contributes to addressing the current limits in understanding of and empirical evidence on the influence of urban neighborhood on children's outdoor physical activity in the light of the theory of affordance. It examines 1) what children perceive and how children use and shape the urban neighborhood environment, and 2) whether the affordances of current neighborhood environment (CNE) differ from those of children's dream neighborhood environment (DNE), and if do, how?

For a case study, Yan-Dong-Yuan community in Beijing, China was selected due to varied types of outdoor space and a great number of children playing and staying there, generating abundant data. In terms of research methods, a mixed-methods approach was used, i.e. cognitive mapping, semi-structured interview and statistical analysis. In detail, 6-to-12-year-old children doing physical activity in Yan-Dong-Yuan were invited to draw two cognitive maps about CNE and DNE of this community respectively. Subsequently, they were interviewed to explain what they had drawn and describe their experience in CNE. A total of 188 maps were collected finally, for identification, categorization and classification of affordances in both CNE and DNE, with statistical correlation tested.

The principle findings include: the quantitative relationships of the levels of affordance in CNE and DNE are the same (used affordance > perceived affordance > shaped affordance), but two new categories of environmental elements, "Fiction" and "Multimedia", are added in DNE. In addition, girls tend to perceive more types of environmental elements than their boy counterparts. Apart from theoretical and empirical contributions, the findings would also provide advice on urban design, such as to add media facilities in neighborhood to satisfy children's demands and to design specific activity area based on gender differences."

An Empirical Study on the Correlation between Grey Space Characteristics on Urban Commercial Street and Pedestrian Behavior in Wuhan, China

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Keywords: Grey Space, Commercial Street, Social Activities, Built Environment Variables

Defined as the transitional space between outdoor public space and entrance of social activity place (such as cafe, bookstore, etc.), grey space is widely considered as a crucial part of the overall quality of urban commercial street. The characteristics of urban public grey space have been long believed to affect how and where public life on the commercial streets would take place. However, there is few quantitative empirical studies that examine these potential associations through space and time. This paper discusses a method to analyze the spatial aggregation pattern of visitors' social activities on urban commercial street and explore the effects of spatial pattern and design characteristics of grey spaces on visitors' social activities in the context of urban commercial street. Wuhan Tiandi commercial pedestrian street served as a case study for implementation of this method. Eight representative sections of urban grey spaces on this street were selected and photos were taken every 15 minutes during one-week day and one weekend on each of the sections to record the specific locations where social activities had taken place. A spatial statistical analysis model was developed to explore the effects of built environment variables of the grey spaces on visitors' activities around these spaces.

An Evaluation of the Influence of Nature on Stress and Arousal Using Wearables

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Keywords: Environmental Psychology, Spatial Analysis, Biophysical, Stress, Urban Infrastructure

"Numerous studies have identified the linkages between the physical environment and its influence on mental health, well-being and human health broadly (e.g. Evans 1982; Kuo et. al 1998; Abraham, Sommerhalder, and Abel 2010; Berman et. al 2012). Ground-breaking research by Ulrich (1981) opened a new realm of insight into the value of exposure to nature and its capacity to quickly reduce stress. The purpose of the research presented here aims to further our knowledge of how the environment influences stress, in particular by identifying the influence of different environmental characteristics within nature and built-environments. The research question is thus: To what extent do different urban environmental characteristics affect stress-related responses in users? To assess "stress" or more appropriately, "arousal", we employed the use of a novel wearable to provide constant real-time biophysical data. The physiological biofeedback sensors, include electrodermal activity (EDA) and heart rate. GPS data was also collected in order to provide spatial location so that biophysical data could be associated with space. Combined, these data allowed us to conduct a temporal-spatial analysis to ascertain correlations between environmental characteristics in space and the associated arousal responses.

A study was conducted that included 17 student subjects who were tasked with walking alone along a designated urban route (1 mile) at night, chosen because it ensures exposure to a variety of environmental elements in a low density urban space where stress responses may be heightened because of the night setting. Physiological data from these routes were collected, as was a post-route survey asking individuals to rate their experiences of different places along their route. Data have been visualized and assessed, and combined with the quantitative post-route evaluations. The preliminary results suggest that wearables may provide adequate data in order to develop robust longitudinal studies to help researchers identify the extent to which urban infrastructure influences arousal and stress recovery. Based on the quantitative ratings of scenes, factors such as lighting and degree of enclosure or openness had impacts on ratings. However, caution should be taken with interpreting the results because there could be a wide variety of environmental and personal variables contributing toward the findings. This is particularly important given an uncontrolled environment. To ensure more reliable findings, many more participants will need to be studied and environmental and personal factors will need to be evaluated for their influence on experienced arousal measures. Nevertheless, this does not negate the capacity to use passive sensors to assess an individual's response to the environment through time, may provide us with new evidence for the importance of design and exposure to nature. This project may help to build a foundation for further studies which can assess the degree to which urban infrastructure and design influence our health and well-being. This information can then be used inform public policy and environmental design in order to improve public health."

An Exploration of Community Engagement in Informal Spaces: A Case Study of Urban Farmers Facing Land Development in Delhi, India

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Keywords: Community Engagement, Informal Spaces, Social Networks, Marginalized Groups

"Community participation is an essential component of sustainable planning and development (UN-HABITAT, 2010). But, the poor and marginalized present a unique challenge: they are difficult to reach, yet their homes and livelihoods are often tied to places development projects target, making them an important population to include in sustainable planning practices (Kabeer, et al., 2012). There is emerging evidence that participation can effectively take place outside formal structures through informal connections (or social networks; SN) (Daniere, et al., 2002). SNs play an important role in community participation, but the process of how interactions among people influence beliefs and behaviors related to participation is not well understood (Brownill & Parker, 2010).

Central to SN theory is the concept that social structures facilitate or constrain opportunities, behaviors, and cognitions (Knoke & Yang, 2008). Using the case of Delhi farmers, the aim of this research was to capture a nuanced understanding of how SNs operate to facilitate or constrain beliefs and behaviors related to land development. By carefully operationalizing the core assumptions of SN theory, we developed a comprehensive model able to capture social and physical dimensions of networks at multiple spatial and temporal scales and with very fine granularity (at the household-level). We then employed a mixed methods approach (GIS mapping, interviews, observations) to measure SNs and land development beliefs/behaviors for 121 farming households facing land development. We carefully considered the different aspects of household-level SNs based on the type of relation, location and frequency of interaction, type of transaction, direction of transaction (give, receive, etc.), degree of influence, and micro-macro dimension. Beliefs/behaviors were summarized as household knowledge, actions, and belief of influence related to land development.

Five SN types emerged based on the pattern of beliefs/behaviors. The SN types are used as a guide to suggest potential points of entry into this hard to reach community. This study revealed nuanced dimensions of social and spatial networks and begins to demonstrate the way marginalized households understand the context of their lives, make decisions, and have confidence in the impact of those decisions (knowledge, action, influence). By modeling how household social networks facilitate or constrain opportunities, behaviors, and cognitions, we gain a better understanding of who is more likely and who is less likely to engage in the planning process."

Analysis of Urban Street Landscape Design Method to Reshape the Urban Culture and Dynamic Sharing Space

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Keywords: Street Space, Old City, Landscape, Sharing Space

With the development of industrial civilization, people's travel mode has changed a lot. The popularity of cars and other means of transport, for the past few decades, has determined the method and direction of city planning and design of transportation. Now in Shanghai, Beijing and other big cities, wide roads have replaced the narrow streets, which have become the lifeblood of the city logistics and transportation, brought efficiency and economic benefits for the city, but also cut the city, resulted in separate blocks on both sides of city roads. The road is more and more wide, as the same time, the traditional street space is disappearing. Street is not only the carrier of traffic, but also a multifunction system. First of all, because of its sense of enclosure, it is a very good outdoor public sharing space, bearing the function of neighborhood communication. Secondly, due to the expansion of the street facade, including everyday lives of citizens, it also inherits the culture of the city and memory. In addition, the street is a human-scale space, associated with bicycle riding system and pedestrian system, is a more livable city living space. This paper discusses the evolution history of the traditional streets of Beijing old city, from which to explore the transformation and lack of street function, analyzes the existing streets of the transformation, and focus on the case of Yang Mei bamboo roud. At the same time, analyze the development of the streets of Japan, Europe and other cities, sum up the development of the change and the constant experience, in order to put forward design suggestions for the present old city of Beijing city street space transformation.

Analysis on Microclimate Perception in Residential Landscape Space in Winter

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Keywords: Microclimate, Landscape space, Human perception, Residential area, Physiological Equivalent Temperature (PET)

Residential landscape space is one of the important places for urban people's daily activities, in which residents' perception of microclimate directly affects the space utilization. This experimental study, which involves field measurements of four landscape spaces (including plaza, waterfront, pavilion & corridor, and garden) in three residential areas is carried out in winter, intends to investigate the microclimate (which includes thermal, windy and humidity factors) effect of landscape environment on human perception by using Physiological Equivalent Temperature (PET) index. The experimental results show that radiant heat is the key factor influencing the human perception in winter, in which the solar radiation is the root causing the change of microclimatic perception, and the effect of relative humidity comes next, while the airflow's effect being the minimal. Among the experimental spaces, the plaza is the best in terms of theoretical somatosensory, and the space of pavilion & corridor follows next. The microclimatic characteristics shared by the two types of space are: sufficient heat, low humidity, gentle and discontinuous breezing. According to the results, the light, air vent, green area and ground cover from the top, elevation and bottom of the residential landscape space respectively, can be used to make a preliminary assessment of the human perception, and can also be used to provide a seasonal theoretical reference for designing the landscape space of microclimatic adaptability.

Applying Participatory Media as a Way to understand People-Environment Relationships in Australian Aged Care Settings

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Keywords: Environmental Gerontology, Individual User Experiences, Aged Care Facilities, Digital Storytelling

"Understanding People-Environment relationships is a key aspect of future improvement in landscape architectural research. Designers need to explore user's experience in order to make sensible design decisions. This paper reports on an environmental gerontology research project which has sought to understand aged care residents' user experiences of their outdoor landscape designed environment. Using Digital Storytelling and Go-Along methods as techniques to engage users, this research was able to draw out the residents lived experiences of the gardens provided within their aged care facilities. This approach was adopted to empower users, especially senior users, to voice their opinions. Fieldwork was conducted over two years across two different aged care facilities in Queensland, Australia. The purpose of this research is twofold: to develop a more comprehensive understanding of individual user experiences by investigating the factors that contribute to user engagement in their outdoor environment; and to explore the role of participatory media in understanding user experience within a landscape design context.

The findings of this research show that these outdoor landscapes contribute not only to a therapeutic experience, but can also actively construct a 'healthful landscape'. User's landscape experiences are deeply connected with personal memories. Individual landscape memories influence user's experiences in positive ways. Plant gifting/exchange is a common and important practice of social interaction among residents. It positively contributes to a healthful landscape experience by connecting to personal memories, as well as to each other. The richness of garden colors and form also plays a more important role in making these spaces a vibrant experience for aging users. Finally, ease of maintenance was shown to be an important enabler for residents' active engagement in their landscapes. These findings could assist in implementing strategies to inform and enable future design solutions in an ageing society."

Building and Sustaining Ecological Connectivity Across International Boundaries: The Case Study of the Strandja - Istranca (Yildiz) Mountains of Bulgaria and Turkey

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Keywords: Ecological Connectivity, Transboundary Conservation, Social-Ecological Systems, Capacity Building

"The Strandja - Istranca (Yıldız) mountain massif on both sides of the Bulgarian-Turkish border located at the far end of the Balkan Green Belt and on the Northeastern region of Trakya (Thrace) has a unique landscape with high diversity of vertebrates and flora. In addition to the coastal zones and alluvial wetlands that are of great importance, the region is also particularly significant because of its geopolitical location connecting the European and Asian continents both socially and ecologically (European Commission, 2006; Schneider-Jacoby et al., 2006 and Zal, n.d.).

There have been several activities in the region in order to increase transboundary cooperation for environmental conservation. One project regarding biodiversity conservation in the region is titled the "Protection and Sustainable Development of Natural Resources and Biodiversity in the Yıldız Mountains" whose objective was to establish the institutional, technical and social framework conditions of transboundary cooperation between Bulgaria and Turkey for the nomination of the Yıldız Mountains (Istranca Mountains) on the Turkish side as a Biosphere Reserve. Transboundary cooperation in this case study involved activities such as data exchange for inventory planning, developing communication and preparing protocols and cooperation programs between two countries, as well as capacity and awareness building through training programs (European Commission, 2006). These initiatives have an important potential for building and sustaining ecological networks across borders.

This study looks at the case study in more detail from the perspective of building social-ecological systems. In the study the Turkish side of the events is of particular interest and understanding how far cooperation has influenced decision-making and conservation are the objectives. Lessons learned are particularly important for future projects in the region and at the other borders of the country."

Can A Public Open Space Have Social, Economic, And Environmental Effects on Future Context of the Site?

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Keywords: Public open space, On-site survey, Observation, Urban core area, Sundance Square

"To create more secure, social, and vital places in the urban core of the U.S. cities in order to keep people and economy generation as well as being a social life center aspects of the urban areas have become one of the essential questions in the existing planning and landscape architecture fields. As a number of studies have proved, creating a place in which people can do leisure activities such as eat, rest, and entertain in a more social ambiance way within the physical environment has a strong impact on both increasing quality of life surrounded neighborhoods and providing economic and social vitality of the place (Jan Gehl, 1987 and Whyte, 1980).

In this research, well designed small public space even how important to contribute social and economic life surrounded places and urban core is investigated. The main objective of the research is to prove previous urban scholars' thoughts regarding public spaces and to move the topic of public spaces forward and to reveal its impacts upon contemporary urban cores by concluding our findings end of the research. To achieve the research objectives, The Sundance Square Forth Worth in Texas was chosen as the research field in the scope of this paper. The methodology of the research was general qualitative data collection methods; field reconnaissance, onsite observation (as Jan Gehl and Francis et al. highlighted), and onsite survey. The first findings obtained from data collection works has revealed that creating even small public spaces within urban core areas has a sphere of influence much farther away from its physical boundaries in social and economic vitality manners. Moreover, the research showed that public spaces with enhanced built environment also served to create a vital public environment inside its sphere of influence."

Characteristics of Country Ecological Parks Planning and Design under the New-type Urbanization Background

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Keywords: New-type Urbanization, Ecological Country Parks, Planning and Design

In the process of new urbanization, which adhere to the people-oriented, new-type industrialization as the driving force, taking overall planning as the principle, the country park has the advantages of close to nature, low cost and strong accessibility, and organic combination of urban park green space system to form a complete " Urban-rural "ecological environment green space system. Country park can protect the urban and rural natural resources, effectively inhibit the spread of urban disorder, so it becomes one of the important carriers of the implementation of national ecological civilization as well as urban-rural coordination development. However, there are still many problems remaining in the country park construction now, such as excessive exploitation and utilization, single functional structure, natural rustic charm and regional characteristics deficiency, simplex botanical colony. This paper takes the design of Longwangchong Ecological Park in Anlu City as an example, on the basis of "low development, low intervention, low consumption and low maintenance" theory, applying the strategies of strengthening ecological protection, enriching biodiversity, building regional characteristics and realizing functional composite, to set an exemplar of country ecological park for promoting harmonious development between man and nature. This will systematically establish and improve the country park construction, and ecologically guide park planning and designing.

China's Countryside: Village Landscapes in Transition

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Keywords: Villages, China, Rural Development, Urbanization

"Deng Xiaoping's ambitious economic reforms since 1978 have been credited for the explosive rates of urbanization and development in China. With over 50% of the population classified as "urban" in 2010, recent landscape research has largely focused on the emerging Chinese urban spaces and its associated environmental challenges. Interdisciplinary scholarship on the village as a land institution has brought attention to its role in China's urban development: from regulatory enclaves of urban villages in the midst of a sprawling metropolis, to in-situ development resulting in desakota regions with village populations denser than some European cities.

However, with China's increased concern for food security and recent restrictions on agricultural land conversion, various levels of governments are now re-investing in rural development for the first time since the end of Maoist rule. Simultaneously, there has been a back-to-the-land movement, with urbanites idealizing the village lifestyle and the rise of rural home-restaurants and inns (nongjia le) catering to new urban pastimes. The planning, management, and design of the village lands are now critical to the economy of these rural communities, and professional planners and designers are now actively shaping the village landscape. On one hand, village tourism projects masquerade as agricultural infrastructure upgrading projects and economic development plans while focusing on the beautification of public spaces. On the other extreme, radical design experiments with alternative views of material culture and sustainability are now being implemented throughout China's countryside.

Panellists consist of practitioners and researchers to address the various actors involved landscape and tourism planning for villages located within a newly declared national scenic area in Nanxijiang, Zhejiang; architectural experiments for insitu village upgrading and social-economic reconstruction for Taiyang Village, Zhejiang; the adaptation of ancient hydrological infrastructure of Panshan Village, Zhejiang, for a new type of villager that relies on both agricultural and factory work for income; the retreat from industrialized cities by urban intellectuals, artists, and elite to reconnect with agricultural landscapes for food and clean air in Xixinan, Anhui; and finally case studies analyzing landscape strategies deployed to reinforce or construct place identities for economic development in Sichuan Province. Each of these case studies critically questions the role of the professional and expert in the design and planning of rural landscapes transformed by urban processes."

Comparing Stationary Eye-Tracking Device and Eye-Tracking Goggle for Measuring the Level of Fear of Nighttime Darkness

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Keywords: Nightscape, Eye Tracking, Fear

"This study compares two eye-movement-tracking methods used in two studies conducted by the author for measuring the fear of nighttime darkness. The first study used a stationary eye-tracking device that precisely tracks movements of eyes to measure levels of fear when viewing series of images. The other used wearable eye-tracking goggles to measure levels of fear. The goggles are similar to regular glasses but with eye-movement detectors attached. During the first study, the author suspected that the subjects were not feeling fear as they would have felt if outside due to the stationary device having to be set in a lab setting, where images of nightscape were shown on a monitor. Thus, in the second study, the goggles were used to bring subjects on-site to the same locations where the original images were taken for the first study.

The scenes for the studies were selected using Fisher and Nasar's study (1992) about refuge, prospect, and escape characteristics. Buildings, landscape structures, vegetation and placements of lighting were some of the variables to select the scenes and later used for analyses.

Unlike the stationary device that needs to be calibrated once for every study subject, the goggles need a calibration at every location for every subject. Time was wasted while using the goggles due to the subjects having to move to the different study locations. The extra calibration procedures and movements to the locations added difficulties and took increased time than the stationary device. In addition, the subjects had to be helped by a researcher who calibrated and directed the subjects to the orientation of the images used in the lab.

The comparison of the studies finds that the results from two separate devices were not significantly different from each other. In both studies, we conclude that 1) humans as elements of nightscape are feared, 2) landscape structures in the background of nightscape are feared more so than a wide-open space or a landscape with a building in the background, and 3) pupil sizes do not have direct correlations with fear levels. These results relate to Fisher and Nasar study. Landscape structures are perceived as a potential refuge for criminals.

Considering the extra effort required for research using eye-tracking goggles, and the results being similar to those of the stationary device, this study finds that for this type of research, a stationary device is sufficient."

Complexity and mismatch: comparing perception of acoustic and visual environments in the high-density city

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"Negative mood, especially mental stress, can lead to a variety of severe health problems, such as cardiovascular diseases, stroke, diabetes, suicide, etc. In high-density cities, citizens often experience a wide variety of juxtaposition of acoustic and visual environments. Compare to low-density urban areas, suburban, and rural areas, high-density cities provide a highly diverse, and often strange combinations of acoustic and visual environments.

Previous studies reported green landscapes and natural sounds can promote positive mood and reduce stress. However, we don't know to what extent different combinations of acoustic and visual environments in the high-density city will have different effects on mood and stress.

In a virtual reality lab, each of 228 participants was randomly assigned to one out of 19 acoustic-visual environments after a 13-min stressful mental task (Trier Social Stress Test). Each condition had six females and six male participants. Each environment was a 10-minute 3D video or audio, which is a combination of one of four types of visual environments (urban street, office plaza, green park, no vision content) and one of five types of acoustic environments (No sound, traffic sound dominated, mechanical sound dominated, natural sound dominated, natural sound). During the experiment, a participant filled out three State-Trait Anxiety Inventory (STAI) questionnaire to report changes of mood status. The participant's Skin Conductance and Blood Volume Pulse, which are physiological indicators of mental stress status, were measured. At last, the participants wrote a narrative to report her or his mental status as they are exposure to the assigned stimulation. All visual and acoustic materials were collected and produced in Hong Kong.

Results suggest that visual and acoustic environments work together on influencing peoples' mood and stress status. The acoustic environment adds significant impacts on mood and stress status. The mismatch of acoustic and visual environment often cause an adverse impact on mood and stress status. The positive impact of green landscapes was largely weakened by traffic noise. Last, the combination of green landscape and natural sound has the greatest positive effect."

Creating mentally restorative landscape for sweatshop workers: a participatory research

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Keywords: Sweatshop, Workers, Mental Health, Participatory Research, Landscape Design

"At least 19 suicides occurred at two Foxconn factories from January 2010 to April 2013 in Shenzhen, China. Foxconn is the world's largest contract electronics manufacturer and a well-known example of sweatshops. Each Foxconn worker averagely works on the assembly line for 10 hours and repeats the same action for thousands of times each day. Recent studies reported that one main reason for suicide is long-term exposure to highly stressful and monotonous factory environment. The outdoor environment in Foxconn was frequently described as monotonous, barren, and lifeless by workers.

Although the significant relationship between landscapes and human's mental health has been found by empirical studies in other environments, no research has examined impacts of outdoor environment in manufacturing factory on workers' mental health. We urgently need know to what extent there are connections between the environment and worker's mental status and identify correct landscape design strategies in order to avert the tragedy and promote mental health.

We used a participatory photograph-survey to examine the relationship between environmental characteristics of the factory and workers' stress and depression status. We asked each of 65 Foxconn workers to take three photos for three places that most likely influenced their stress and depression status in the daily life. Then each worker answered a 7-point Likert-scale questionnaire to evaluate environmental characteristics of the place and her/his stress and depression status associated with that place. The questionnaire was designed based on Ulrich's (1991) theory of supportive design, which including three aspects: perception of control, social support, and positive distraction. Then, the worker was asked to describing their feelings about those places. After that, the worker located those places on a GoogleEarth satellite photograph. Regression analysis, spatial analysis, and text analysis were used to identify the possible associations among environmental characteristics and workers' stress and depression status.

The analysis revealed that several environmental factors are significantly associated with mental stress and depression ($p < 0.05$), including the greenness (+), chaos (-), private activity (+), open vision (+), noise (-), naturalness (+), sunshine (+). Besides, factory layout and time management also contribute to the worker's high mental stress and depression. These findings suggest green, naturalistic, and compatible landscape near each factory building and canteen are crucial in order to let busy workers gain a significant stress recovery in a short break (10 minutes).

Note: (+) implies a positive association and (-) implies a negative association."

Crime, Fear of Crime, and Types of Green Infrastructure: A Literature Review

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Keywords: Crime, Green Infrastructure, Health, Rain Garden, Bioswales, Trees, Literature Review

"Crime and fear of crime are threats to human health (Middleton, 1998). They affect people's stress levels, environmental perception, and social interactions (Lorenc et al., 2012). Four factors contribute to a potential crime, one of which is crime site: the environment in which crime may occur (Bogar, S., & Beyer, K. M., 2016). There are a few environmental factors associated with lower crime rate and fear of crime, including the presence of trees and green spaces (Kuo & Sullivan, 2001a, 2001b). These elements are a part of a connected urban infrastructure known as Green Infrastructure (GI) (Tzoulas et al., 2007).

GI uses plants to manage ecological needs; it consists of several elements, such as rain gardens, bioswales, and green roofs (USEPA, 2015). Thus, cities are encouraged to install these elements to the streets and parks along with trees. However, GI has rich diversity, and we know less about how the types and design characteristics of these elements may be associated with crime. Do forms of GI help reduce crime like urban trees (Kondo, Han, Donovan, & MacDonald, 2017), or would some of its designs provoke fear because they create spaces in which potential criminals might hide? (Branas, Rubin, & Guo, 2012). This gap of knowledge comes with a dilemma: we risk improving urban ecosystem with the cost of the citizens' safety.

To understand how different types of GI correlate with reduced crime, we conducted a systematic literature review from 2011-2016. We selected English peer-reviewed empirical studies which contains keywords related to GI and crime. We are confirmed that trees and well-maintained parks are associated with lower crime rates. The link between higher densities of trees and lower crime rates may be related to tree cover capacity to reduce criminal behaviors and increase social ties (Kuo & Sullivan, 2001a, 2001b; Wolfe & Mennis, 2012). There are no studies, however, on types of GI other than trees and parks. We have learned that the design characteristics of some forms of GI are important to people's sense of safety. GI has to be neat and well-maintained to increase perceptions of safety. Overgrown GI might resemble abandoned places that heighten fear (Bixler & Floyd, 1997; Branas et al., 2012).

This study provides recommendations for designers and planners regarding the use of various forms of GI in cities. Future studies should investigate other types of GI besides trees and parks and their effects toward crime."

Design and Exploration of Rural Public Service Center Driven by Tourism Industry: A Case Study of Gonghe Village, Junlian County, Sichuan Province

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Keywords: Sustainability, Resilience, Kinetic Architecture, Renewable Energy, Pollution, India

With the proposal of "Beautiful Countryside", it has promoted a new round of rural tourism boom, which has become an effective means to promote the transformation of rural industry and improve the living standards of rural residents. The large-scale development and construction boom also led to many problems such as ecological destruction, culture loss, homogeneity and so on. As the main administrative institutions and the center of public service about the service facilities in the rural areas, effectively organizing the internal and external functions, style and activities is a important way to solve the problems above. This paper takes public service center in rural area as the research object under the driving of Sichuan tourism industry, combined with the present situation of the local public service center in countryside, features of the tourism resources and influence of rural tourism activities on public service center. Taking the representative republican village design practice as a case, according to the process of tourism development, for the problem of public service center such as "the conflict between exhibition of tourism image and local scenery ","the definition of external space is not clear"," the interaction between tourists and residents life", it puts out clearly: 1)The overall style is regionalization based on the overall image of the country to create a regional environment with the characteristics of space;2)The spatial type is diverse, and the type and the structure of the internal and external space of the service center are cleared; Through various forms, it can create distinct characterizes of space;3)The development activities are integrated, combined with the existing tourism resources in rural areas to create a comprehensive and coordinated tourism industry structure. We hope it can form an excellent case which has the typical demonstration effect and popularization, so as to promote President the slogan of President Xi "see the mountains, see the water and remember nostalgia" in the construction of the beautiful countryside.

Designing Cities with Children and Young People: Bridging Policy to Project via Process

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Keywords: Children, Young People, Urban Planning and Design, Participation

"The needs of children and young people living in cities are considerable and extend beyond playgrounds and recreation facilities. It is well understood that the quality of urban environments potentially impacts how children can access and thrive in these settings. Increasingly dense neighborhoods, unsafe streetscapes, poor connections between home and school, and shrinking areas of 'everyday' greenspace are examples of the challenges faced. However, these issues rarely get the attention they deserve in the planning stages, or later in the design and implementation of projects that have a direct impact on their lives. Children and young people are still seldom welcomed to participate in planning or design processes, 25 years on from the United Nations Convention on the Rights of the Child which enshrined children's rights to participate in social processes that affect their lives (Driskell 2002).

This paper presents an overview of a book co-edited by the authors that was initiated by asking two key questions: 1) How can policy change achieve more active involvement of children and young people in urban planning and project design processes and, in turn, lead to production of urban environments and facilities that better serve the needs of this age group?; and 2) What are examples of best practice participatory processes that genuinely engage children and young people in the planning processes of local government? An international, interdisciplinary, and cross-sectorial group of contributors drew on their research to develop case studies from contemporary urban planning and design that focus on process, rather than products, and that demonstrate how to effect change in policy, planning and design practice. Their examples range from municipalities in the US, UK, Sweden, and New Zealand, that have embedded 'business as usual' processes to engage children's voices in planning; to Australian local governments that have involved children from two years old to high school age in developing their cities' strategic plans; to a developer who worked with kindergartners to imagine the future character of a new residential development. Reflecting on their case studies, we identify the essential role of champions—individuals or organizations—who understand the interplay of research, policy and practice and can exert their influence to ensure that children and young people are actively and regularly participating in community processes."

Developing with Water: Assessing Residents' Perception of Waterfront Landscapes in Las Colinas Urban Center, Texas, USA

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Keywords: Waterfront, Water, Perception Mixed-Use Development, Landscape Design Characteristics, Accessibility, Residents

"Water is one of the most attractive and important elements of landscape design (Hubbard & Hubbard, 1917; Bachelard, 1983; Pitt, 1989; Kaplan & Kaplan, 1989; Kaltenborn & Bjerke, 2002). In recent years, most urban residents in the United States want to have a better connection with the nature around their living environment (Warrick & Alexander, 1998); water and waterfront landscapes known to provide such opportunities for wildlife and human interaction (Faggie et al., 2011). Past research shows that providing access to natural resources in development projects increases the satisfaction of residents (Platt, 2011), and waterfront development have positive impacts on housing prices (Olivia 2006). However, very little is known about what attributes of designed environment present such desired conditions in urban context.

This research is to assess the residents' perceptions of the waterfront landscapes in man-made/inland conditions by focusing Las Colinas Urban Center (LCUC), a mixed-use urban development surrounding artificially created waterways and watebodies in the center of Irving, Texas. The research identifies and reviews the specific landscape design characteristics of waterfront landscapes that influence people's decisions to live near water. These characteristics are later categorized into: waterfront elements (lake, vegetation, and etc.) and features (street furniture, seating area, and etc.), water characteristics (color, visual quality, and etc.), and accessibility (access from other directions to water).

Qualitative methods are used to assess the waterfront landscapes of the LCUC in Irving, Texas. Residents' perception of the landscape design characteristics is assessed by using in-depth interviews (Taylor & Bogdan, 1998) and passive observation techniques (Francis, 2002). Interview data are analyzed according to the grounded theory approach (Taylor & Bogdan, 1998). Key words from interviews are used to draw themes (Sommer, 1991). The observations of the landscape design characteristics, including the water body, edges, pathways, connections, sitting spaces, and the planting materials, are recorded in photographs. Findings from the research later cross-checked with literature from other waterfront environments.

The research illustrates that certain waterfront landscape design characteristics of LCUC do have a strong impact on people's decisions about living near water. The residents seem to enjoy elements such as the presence of waterbody, its natural environment and peaceful scenery as well as the close proximity and accesibility to waterfront as well as to various retail and activity areas. The residents mention only a few impediments such as the low visual quality of water as a deterrant. In conclusion research suggests that, during the design process, developers and designers should fully consider the resident's perception of man-made waterfront projects as well as specific water and landscape design characteristics highlighted in this research in order to create more compelling environments."

Does Outdoor Environment Matter? Assessing Leisure Styles and Subjective Well-being in China

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Keywords: Leisure, Subjective Well-Being, Outdoor

1. PURPOSE: Leisure activity can be a means for individuals to experience their environment for better health and well-being. Although the link between leisure and subjective well-being (SWB) has been well established, few studies have examined the role of environment in this relationship. This study examined leisure in home-based, and indoor and outdoor environments, especially the positive effect of a natural setting on improved SWB in China.

2. BACKGROUND: Researchers have compared the health outcomes of being in a natural versus a built environment, emphasizing that leisure in nature is significant for well-being (e.g., Chawla et al., 2014; Pasanen et al., 2014). Leisure itself can enhance SWB, but engaging in leisure activities in the natural environment, such as walking outside or cycling, may provide superior benefits to indoor activities (Weng & Chiang, 2014; Rogerson et al., 2016). Nature's role in the positive association between outdoor leisure and SWB may be another reason that individuals perceive novel and stimulating outdoor experiences as beneficial (Schwartz & Campagna, 2008).

3. METHODS: Using data from the Chinese National Leisure Survey (CLS) in 2013 and structural equation modeling analyses, we examined the link between home-based, and indoor and outdoor leisure environments, related to the SWB of 4,627 Chinese who were 15 years old or older. We found two types of home-based leisure (relaxation [e.g., listening to the radio] and skilled [e.g., playing a musical instrument]; three types of indoor leisure (entertainment, self-growth, body care), and four types of outdoor leisure (recreation, community, sports, fitness) based on previous literature and our exploratory factor analytic results.

4. FINDINGS: The results indicated that SWB was positively affected by outdoor leisure, such as attending community activities in parks, while negatively affected by all types of indoor leisure, such as going to a gym. However, outdoor recreational leisure, such as a day trip to a forest park contributed the most to SWB. The effect of home leisure activities on SWB was not significant.

5. IMPORTANCE: This study emphasized the psychological benefit of outdoor activity involvement in natural settings, such as travel to a national park. Interacting with the natural environment allowed people to escape from their daily struggles and chronic life problems. Future landscape education should underscore the advantages of green leisure when designing activity programs or services in natural environments (e.g., parks or public green spaces) for increasing individuals' subjective well-being."

Emotional Experience and Brain Activation Responses to Landscape Types

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Keywords: Pleasure, Arousal, Urban, FMRI, Landscape Type

"Studies have demonstrated the natural environment can soothe people's emotions rather than urban, and bring people healthy benefits (Ulrich et al., 1991). Studies compared different types of environment and landscape characteristics also conclude that different emotional experiences are provided in different landscapes (Van den Berg et al., 2014). Russell and Pratt (1980) consider there are two dimensions of emotion induced by the environment, arousal and pleasure. Therefore, the purpose in this study is to understand the influence of different landscape types on the reaction of people. In addition to exploring the psychological level of emotional experience, this study adopts the functional magnetic resonance imaging (fMRI) techniques to depict the relationship of brain activation within different landscapes.

We collect psychological emotions and brain reactions when viewing landscape images. There are three environment types in this study – urban landscape, natural green landscape, and natural water landscape. And each comprises two their own characteristics. Urban landscapes are separated by trees. Natural green landscapes are separated by open or closed view. Natural water landscapes are separated by water surface whether dynamic or static. The whole experiment was conducted in the fMRI machine. And the test includes 30 trials, and we divided into 5 runs. Every run contains six type landscape images. Each trial, the subjects watch three consecutive same type landscape images before scoring the emotions by Affect Grid (Russell, 1989).

The result of the Affect Grid, natural environment does induce pleasure emotions than urban environment. But arousal emotion is difference from landscape characteristics of each type. There are significant different emotional responses when viewing open or closed green landscapes. Arousal responses are also significant different when viewing dynamic or static water landscapes. However, emotional differences were not found in urban scenery with or without trees. The main difference of brain activity between landscape types is found in occipital lobe, which is associated with visual information processing. Compared with watching the natural green landscape images, posterior cingulate is more active when watching urban images. In general, the findings suggest that emotional experience depends on landscape types and their characteristics. And the difference in brain activities are more pronounced when viewing different landscape types."

Exploring Beijing Residents' Walking Patterns with Environmental Factors

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Keywords: Urban Environment, GPS, GIS, Social Media Data, Walking Trajectory

This research explores the possible influences of physical environment factors on pedestrian walking trajectories. Walking trajectories are collected as Global Positioning System (GPS) trajectory data from Microsoft Asian's publicly available dataset (Zheng, Xie, and Ma 2010, Zheng et al. 2009, Zheng et al. 2008), Run.GPS, WIkiloc and EveryTrail. A GPS trajectory consists of geo-location points with their time and date stamps. Time stamps provide information about speed which helps to identify possible stopping locations, while geo-location points can retrace the movement patterns and place it into the context. Specifically, this research investigated "tortuosity" and "trajectory length,"" two factors to describe walking patters. Due to the availability of data, this research selects Beijing's downtown area as the study area. This research investigates 66 different people's 172 walking trajectories. These residents are likely to be commuters since their trajectories include only one origins-destination pair each and some small pauses (<1 min).

Extending the work of urbanists such as Guy Debord (1965) and Kevin Lynch (1960), this research uses geo-location-based social media (e.g. Flickr) data to create base maps so that crowded and popular places (anchors in people's cognition) can be easily mapped. Then, using Geographic Information System (GIS) to place surrounding environmental data into GPS points so that spatial statistics with GIS and statistical tests can be run to 1) identify the characteristics of the stopping locations within Beijing residents' walking trajectories and, 2) compare the environmental characteristics (e.g. land use diversity) of actual walking trajectories and simulated shortest walking paths to discover the possible influences of environmental factors on Beijing pedestrians' path selections.

This research preliminarily reveals,
1) When walking, Beijing residents often avoid crowded areas, such as those close to entertainment venues or those have highly land use mix;
2) The legibility of space benefits people's wayfinding as Beijing residents prefer to walk along gridded major streets instead of zigzag alleys;
3) Walking trajectories' tortuosity and pause amounts are positively correlated with the closeness of entertainment and recreational venues.

Based on these findings, this paper suggests that Beijing pedestrians often avoid crowded places when commuting while most of activity check-in points on social media are located inside blocks. The unique urban character of Beijing (with social activities inside blocks rather than along streets) accommodates this kind of movement pattern and should be preserved. In addition, the spaces within blocks should be more diverse for exploratory activities by replacing geometrical or axial spatial organizations with ones that ramble and meander."

Exploring the Optimization of the Landscape Design for the Safe Recreational Demands in the Space under the Urban Viaduct

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Keywords: Urban viaduct; Space under the bridge; Public green space; Environmental behavior; Safety of landscape

The ever-shrinking public space, the green areas in particular, due to the construction of numerous urban viaducts can now hardly meet the residents' space demands for safe, free and harmonious recreational activities. To address this problem, this paper is endeavoring to explore the optimal landscape design in light of the environment-behavior studies, kidology and the leisure activity theories and through filed researches of Qintai Viaduct Green Square, Simei Tang Bridge Park and the Heyeshan Community along the third annular urban road of Wuhan. Data collection is through observations, interviews, questionnaires, tracking surveys and space syntax. The research illustrates the features of the architectural space under the viaduct and typical types of human behaviors in the place. It sheds light on people's diversifying spatial perceptions and recreational needs as varied with the environment under the viaduct; demonstrates the conditions fundamental to safe construction-related activities; and provides a deep insight into the nature of the surrounding land, user structure, behavioral motivations as well as features of their behaviors relevant to time. In view of this investigation and with reference to some classic viaduct landscape case studies both in China and abroad, an attempt is made to discuss the interaction of space, landscape and behaviors under the urban viaduct and proposals are made to optimize its designs for effective utilization of urban public space.

Greenness Benefits on Attention Restoration—But Does It Affect Equally Across Landscape Types?

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Keywords: Greenness, Landscape Type, Attentional Test, Attention Restoration, Sdmt, Reasonable Person Model

Attention restoration theory (ART) has demonstrated that exposure to nature can improve fatigued attention (Kaplan & Kaplan, 1989) and there is now robust evidence supporting this theoretical mechanism. In studies comparing participants who viewed natural scenery with those who did not, participants exposed to natural scenes performed significantly better on attentional tests (Berman, Jonides, & Kaplan, 2008; Berto, 2005; Cimprich, & Ronis, 2003; Kaplan, & Berman, 2010; Lin, Tsai, Sullivan, Chang, & Chang, 2014; Pilotti, Klein, Golem, Piepenbrink, & Kaplan, 2014). However, guided by the reasonable person model, which suggests that effectiveness of human mental functioning would be fostered by the environmental context (Kaplan & Kaplan, 2009; Sullivan, 2015), we expected that the positive effect of greenness would be moderated by environmental information provided in the background. In other words, the beneficial effect of street trees on attention restoration would be moderated by the land-use type. In this research, using the symbol digit modalities test (SDMT) (Drake et al., 2010), we evaluated the attentional performance of participants before and after having viewed streets with or without trees in both commercial or residential landscapes. A total sample of 121 college students and staff participated in this laboratory experiment. Each participant was randomly assigned to one of the four experiment groups. Our results revealed a significant main effect of street trees which was moderated by landscape-use type. We found that the positive relation between street trees and attention restoration was only significant on commercial (or busy), but not residential (or quiet), streets. Hence, our research has extended past literature and demonstrated that the presence of trees is especially beneficial when the environment is full of overwhelming information. Viewing trees could be helpful for us when managing complex information in a busy area. Our work also highlighted the importance of greening strategy in public spaces. Further details and discussion will be provided in the presentation.

Heaven, Earth, And Humanity: Appealing Long-Term Care Facility Features for Elderly Chinese Immigrants in The United States

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Keywords: Chinese Elderly Immigrants, Long Term Care Facilities, Design Perferences

"Current research suggests that living environments are a major long-term care issue influencing the well-being of seniors (Kohn, 2005; Sugiyama & Thompson, 2008; Chow, 2010); and that elders, especially immigrants, prefer to live in familiar environments consistent with their original cultural background (MacLean & Bonar, 1986; Carstensen, 1992). Because Chinese immigrants represent the largest sub-group of aging Asian populations in the United States over the past several decades (U.S. Census Bureau, 2012); and due to the increasing number living in long term care facilities rather than with their children (Lin et.al., 2015), their preferences for long-term care facility environments merits further research to better understand their long-term care needs.

The research examines designed features consistent with traditional cultural backgrounds that are capable of improving the appeal of long-term care facilities to Chinese elderly immigrants based on aspects of traditional Chinese philosophy. According to this philosophy, Heaven (the natural environment), Earth (the built environment), and Humanity (the social relationship) are three principal aspects of a harmonious life (Chen, 1996; Chen, 2001; Kohn, 2005). The primary research inquiry is whether these three environmental and social aspects of traditional Chinese philosophy, have shaped the lifestyles and preferences of Chinese elderly immigrants and their families related to long-term care facilities.

The research used qualitative methods, including photo elicitation and interviews, to gather data from elderly Chinese immigrants aged 55 to 80 years. The age restriction was defined by the retirement age in China (55 years old), and average residents' age in long-term care facilities (80 years). 20 Chinese elderly immigrants were recruited from a church in upstate South Carolina, and were interviewed in 2016. The photo elicitation included questions asking Chinese elders' preference for designed facility features from the three Chinese traditional aspects: Heaven, Earth, and Humanity. The open-ended interviews focused on interpretation of these three philosophical aspects and their influence on Chinese elders' preferences.

Research findings suggest that for elderly Chinese immigrants: a) Chinese classical landscape (Heaven), Chinese traditional indoor decorations (Earth), and culturally sensitive social activities (Humanity) are significant considerations in preferences for long-term care facilities; b) culturally sensitive social activities (Humanity) ranks as the more preferred of the three; and c) traditional Chinese designed landscapes (Heaven) and traditional Chinese designed indoor space (Earth) are equally preferred by Chinese elderly immigrants. The results suggest value in further research concerning traditional cultural settings related to long-term care, especially those associated with immigrant populations."

How Design Influences Older Adults' Outdoor Space Usage and Satisfaction: A Case Study of Outdoor Environments in Chinese Facilities for the Older Adults

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Keywords: Landscape Spatial Patterns, Human Behavior, Therapeutic Landscape, Aging, Senior Living

"The demand for an evidence-based design that improves the health and well-being of older adults in Chinese long-term care facilities is growing in parallel with the rapidly increasing Chinese elderly population. The design of outdoor space at facilities for the elderly is an important factor in older adults' usage of outdoor space and their resultant satisfaction levels (Cooper Marcus & Sachs, 2014; McBride, 1999). Recent research suggests that the physical environment should support users' needs within five primary domains: 1) accessing nature, 2) outdoor comfort and safety, 3) walking and outdoor activities, 4) indoor-outdoor connections, and 5) connection to the world (Rodiek et al., 2014). Because most published studies were conducted in western countries, there is an identified lack of published research examining whether this theory is universally applicable in a different cultural context such as China.
This study aims to examine whether environmental features in the five domains influence senior adults' outdoor usage and satisfaction in Chinese contexts. A case study approach was applied in two Chinese continuing care facilities which located in Wuxi, China. Three outdoor spaces in each facility were studied using the Seniors' Outdoor Survey (SOS) environmental audit tool (Rodiek, et al., 2014). Additionally, this study graphically identified where use was taking place by applying behavior mapping. Results from environmental audits and behavior mapping were compared with resident surveys (n = 117), staff surveys (n = 57), resident focus groups (n = 2), and staff focus groups (n=2). The results of these methods were compared and triangulated to provide evidence on planning and design appropriate outdoor space for older adults in China.

Preliminary analysis shows that outdoor spaces with higher SOS scores are more likely to gain residents' satisfaction. It suggests that a few specific design elements are especially important for Chinese residents' outdoor usage and satisfaction, including available seating with shade, a variety of spaces for individuals and groups, comfortable transition zones, and an entry garden connecting to the world beyond the facility. The preliminary results suggest that the theory of five primary domains is applicable to Chinese long-term care facilities. However, a few specific design elements related to Chinese culture, like spaces for Taiji, have to be considered in a more precise rating system for evaluating Chinese long-term care facilities."

How Differently Exposure to Nature Affects Components of Attention?

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Keywords: Attention Restoration Theory, Attention Components, Nature Exposure

"It has been shown that exposure to natural environment influences human's capacity to pay attention, and helps to recover from attentional fatigue. With the rapid growth of urbanization across the world and the growing demands on people's attention, the need for more green spaces has become increasingly important. Everything that is important to accomplish in life depends on our capacity to pay attention. Attention underlies our ability to learn, plan, evaluate, solve problems, initiate and carry out tasks. It also helps us monitor and regulate ourselves, and have effective social functioning. The problem is that we live in a world that regularly fatigues our attentional capacity, leaving us error prone, irritable, and impulsive.

Attention Restoration Theory (ART) (Kaplan,1995) posits that exposure to nature will help people recover from attentional fatigue. While a growing body of research has demonstrated the role of exposure to nature in attention restoration, it is still unclear which aspects of attention may be affected by exposure to natural environments. The attention system includes three main networks that interact with each other. These networks include alertness, orientation, and the executive system (Fan, 2002; Raz, 2004).

We examine the impact of exposure to nature on each component of the attention system through two experiments. In the first experiment, participants are exposed to urban scenes with and without nature using attentional measures. Then they are tested for the three subsystems of attention.

In the second experiment, we use the same set of images, but explore their impact on brain functioning using high-definition functional magnetic resonance imaging (fMRI). With fMRI, we track neural activity associated with each component of attention. In this paper, we report only on the first set of findings and conclude by proposing recommendations for future work, including an inquiry into which specific elements of the natural environments impact human brains and mental health."

How Were Mountain Landscapes Envisioned in The Planning of Modern Beijing? A Qualitative Geographical Information Systems Approach

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Keywords: Mountain Landscape, City Planning, Modern, Qualitative, GIS

"Ever since the Man and the Biosphere (MAB) Programme was launched in the early 1970s, a growing body of literature has explored the importance of mountains to global sustainable development, emphasizing how such landscapes provide ecosystem services ranging from provisioning through regulating and supporting to cultural (Price et al 2013). Spatially, most existing studies focus on remote rural highlands rather than foothills and low mountains adjacent to major urban centers, despite the fact that 7% of global urban population live on or near mountains at the beginning of the 21st century (Huddleston 2003). From a Landscape Architectural perspective, such gap is problematic given the sheer number of urban parks, protected areas and private resorts on rugged terrains that closely pertain to urban populations (Arpin 2014). In China where mountains cover 69 percent of the national land area, the need to better understand the city-mountain relationship is even more imperative.

What is the condition of contemporary city-mountain relationship and how has it come into existence? What lessons can be learned from such condition and be used to guide the future? This paper attempted to answer these questions by examining a set of Beijing's city planning documents created after the collapse of absolute monarchy in 1912. Beijing was selected for case study because it is a metropolis of global importance where transnational ideas and practices have converged. The study is based on the assumption that city planning documents provide most direct information about urban visions.

A qualitative geographical information systems (QGIS) approach was taken to facilitate the understanding of eleven city planning documents, integrating content analysis and mapping techniques (Gregory et al 2015). Images of printed texts were converted to machine-encoded ones and then coded in NVivo, with place names labelled as case nodes and then mapped in ArcGIS. Representational plans were geo-referenced, and their thematic information were extracted into separate layers that were later cross-referenced with DEM data. The study was supplemented by archives concerning administrative boundary disputes and photos taken during field trips. The findings, such as a hierarchical land use classification of mountains, will be presented in words, diagrams and maps, followed by discussions of existing paradigms and recommendations for future actions."

Impacts of Daily Nature Experience on Mental Health: An Evaluation with Google Street View Images

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Keywords: Nature Concentration, Mental Health, Google Street View Images

"Exposure to nature contributes to human health. As access to nature is often limited in urban settings, it is important to understand the dose of nature necessary to produce health outcomes. Previous studies have used various measurements of nature concentration to verify the health-promoting potential of vegetation (Berman, Jonides, & Kaplan, 2008; Groenewegen, Van den Berg, De Vries, & Verheij, 2006; Hartig, Evans, Jamner, Davis, & Gärling, 2003). LiDAR and satellite images are sometimes used to quantify vegetation density (Jiang, Chang, & Sullivan, 2014; Li et al., 2015; Ulmer et al., 2016). People, however, do not experience their environment in a static fashion, the vegetation density they experience changes when they move for daily activities. Moreover, the overall density of vegetation in an area often does not represent the density of vegetation to which people are exposed. Using average vegetation density within some arbitrary area reduces the accuracy of ability to assess the impact of exposure to nature on the health and wellbeing of individuals.

The purpose of this study is to enhance the accuracy in estimating nature concentration of people' daily environments, and understand the impacts varying degrees of exposure to vegetation on human health. We have conducted an online survey targeting healthy adults (18 to 60 years old) in the Midwestern US. The questionnaire contains four sections. The first requests demographic information and duration of living at current location. The second allows people locate themselves geographically and verify their daily routes and travel modes using Google Map. We will retrieve Google street view images along people's daily routes and classify pixels in the images as vegetation or non-vegetation based on a dataset which is manually classified using Adobe Photoshop. Then we can estimate the vegetation index of the environment that people have access to in their routines. The final two sections are questions about health and wellbeing. We will use standard questionnaires (e.g., Attentional Functioning Test, Perceived Stress Level Test and Short form of the General Health survey) and an objected attentional test to evaluate health. We are currently in the process of connect Vegetation Index data with people's health data.

Our hypothesis is that there is a strong connection between people's exposure to vegetation and their health. The outcomes of this study are likely to provide a scientific-basis upon which for designers, planners and administrators and make decisions that will promote the health and wellbeing of people."

Impacts of Residential Neighborhood Environment Factors on Senior Citizens' Physical Activity in Wuhan, China

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Keywords: Neighborhood environment, Physical activity, Senior citizens

"In the context of rapidly aging Chinese cities, well-being of senior citizens has been receiving increasing research interest in recent years. Widely considered as a vital part of daily exercise, physical activity takes an active role in improving physical and mental health, as well as enhancing social interaction. Neighborhood built environment has been long linked to people's well-being and its role in affecting people's physical activity has been continually investigated. Many studies suggested that neighborhood environment improvement may be a viable approach to encourage physical activities, especially for senior citizens whose physical activity opportunities highly replied on the open spaces and facilities within their residential neighborhoods.

This study aims to examine associations between the neighborhood environment factors and physical activity level of senior citizens in the context of large metropolitan of China. This study identified 16 residential neighborhoods with clear boundaries and identical socio-economic condition as study areas in the city of Wuhan, China. A total of 665 senior citizens were reached and their physical activity durations within a week were collected through questionnaire survey. Measures of neighborhood environment characteristics were classified in four categories, including physical activity facilities, neighborhood open space characteristics, residential density, and surrounding built environment characteristics. A multivariable linear regression model was developed to examine the association. The results of analysis indicated that visual quality of neighborhood open space and hard-surface exercise ground percentage showed positively strong association with senior citizens' physical activity level. And the density of street lights in open space was also positively association with female senior citizens' physical activities, but has no statistically significant impact on males'. This research could contribute to the existing studies of the impacts of neighborhood built environment on physical activity. The conclusions of the research could assist urban planner and landscape architect in future residential neighborhood design"

Influence of Urban Park Size, Distance, And Features On Physical Activity and Health

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Keywords: Park Proximity, Neighborhood Attributes, Recreation Facilities, Green Space

Physical inactivity has consistently been linked to greater psychological health and numerous related chronic diseases. Physical activity promotion emphasizes how the built environment facilitates or restricts opportunities for exercise. Some recent of studies found that park proximity and physical activity have significant positive associations. In addition, park size and park features may also be correlates of park-related physical activity. However, park proximity, size, and features have been minimally investigated in relation to physical activity, and little research has examined these factors concurrently. The purpose of this study is to explore the influence that urban parks size, distance, and features have on people's physical activity and health status. This study is conducted in 30 urban parks in Chaiyi City, Taiwan using geographic information system overlays, site investigations, and questionnaire survey. We collected data of the areas and distances of parks, Environmental Assessment of Public Recreation Spaces (EAPRS), physical activity, and perceived health status (SF-36). We had 870 valid participants in this study. The results showed that as park distance decreased, residents' physical activity increased. As planting and greening increased, residents' physical activity increased. More facilities and more amenities in parks where related to increased physical activity. Furthermore, higher physical activity as related to better health condition. We hope the results of this study can provide urban park planners and designers with references regarding location establishment, and facility design, to increase people's use frequency, and improve their physical activity and health.

Informal Connectivity: Understanding and Integrating Homeless Perspectives of Nature into Urban Planning and Design

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Keywords: Homelessness, Design, Nature, Geography, Perception, Values, Social Networks, Surveys, Discourse, Mapping

"While an extensive body of design-related research exists on nature's benefits to human health, including restorative environments, stress reduction, and therapeutic benefits (Kaplan, 1995; Ulrich, 1992; Marcus, 2015), and also on homeless attitudes toward urban environments, shelters, and services (Hester, 1989; Davis, 2004; Thanem, 2012), less has been written at the intersection of these topics, i.e. homeless attitudes toward nature, and specifically within this, roles nature plays in supporting homeless well-being, mobility, and social networks (Niklasson, 2007; Marr et al., 2009; Rowe & Wolch, 1990) This lapse is critical, not only because homeless access to and use of public landscapes continues to be restricted, but also because providers and designers of homeless services continue to debate the importance and use of nature to homeless and thus the context in which policy and design for homeless originates.

This paper describes the process, findings, and significance of a study undertaken in a medium-sized, compact but hilly American college town with high levels of poverty and inequity, to better inform designers and the approaches used to design homeless spaces and services. The study builds on previous research that mapped potential homeless mobility and physical social networks. These mappings were shown to a working group of six currently and formerly homeless liaisons, who were asked to mark routes they used or knew about, strike out routes that were inaccurate, and add routes that were missing. For each of these route types, information about route character was recorded. Those participating were also asked to review an image inventory of diverse space types (open, wooded, park, garden, infrastructure, etc.) collected from the mappings, select images they considered to represent 'nature,' and for their selected images, describe their relationships with the image subjects.

The responses indicate that the mapping methodology has strengths and limitations, including, at coarse scales, the ability to anticipate and describe informal connectivity, and, at finer scales, the inability to account for important variables such as barriers and degree of privacy. The image results, categorized and scored on a graduated index of positive and negative values for natural spaces, indicate that chronic homeless have an intimate knowledge of their landscapes that is shared by non-homeless. More broadly, the findings challenge design approaches that posit homeless experiences in opposition to nature, suggesting that many chronic homeless feel at home within natural spaces and seek them out for many of the same positive reasons non-homeless do. This suggests responsibilities for designed landscapes to maintain homeless access to natural spaces, even as they offer pathways out of homelessness, and presents opportunities for leveraging access and exchange through broader goals such as conservation and recreation."

Inspiration of Lake West Region Landscape Planning of Hangzhou West Lake Project Based on The Vernacular Landscape Evolution of Hang Jia Hu Plain

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Keywords: Hang Jia Hu Plain, Vernacular landscape, Land use experience

"Chinese agricultural civilization which has long history shapes the various vernacular landscapes in different areas. These vernacular landscapes are physical projections of traditional relationship between local people and the land. They all represent the coordination between natural and cultural quality. Hang Jia Hu Plain (7607 km2) contains Hangzhou, Jiaxing and Huzhou cities, which is located in the eastern costal area of the lower reaches of Yangtze River. This plain has been the most prosperous area in China since antiquity. Under the long-term intervention of traditional irrigation and water conservancy, its vernacular landscape is easy to recognize in form and very practical in production and ecology. It also bears the weight of Chinese ancient talents' aesthetic interests, which means the vernacular landscape of Hang Jia Hu Plain presents the highest standard of Chinese traditional living settlement practice.

This paper takes the lake west region landscape planning of Hangzhou West Lake project as the point of contact to explore the landscape connection from the west lake to the Hangzhou city and, finally to the whole Hang Jia Hu Plain. It focuses on the water management and reorganize the evolvement and character in three periods: Ancient China (from Qin to Qing dynasty, about 2nd b.c. to18tha.d.) , China was a relatively stable agricultural society), Modern China (18tha.d. -19tha.d., war and turbulent time) and Contemporary (19tha.d. to today) and clarify the main driving forces and the turning events of each period. This paper not only reveal the development process of this area's vernacular landscape which nearly buried by rapid urbanization, the more important thing is this paper reconfirm the simple and viable experience of land use contained in the traditional landscape form in order to provide the foundation for maintain and develop the regional feature and explore the method of local landscape architecture design during the China urbanization."

Integrating Therapeutic Landscape Theory and Guidelines with Senior Community Development: A Demonstration Project in Ghana

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Keywords: Therapeutic Landscape, Aged, Healing Garden, Senior Community

According to the estimation of US Census Bureau 2015, 617.1 million among the world's 7.3 billion population are aged 65 and older (He, Goodkind, & Kowal, 2016). The older population is projected to increase by 60% and reaches one billion by 2030. The growth of older population has been increasing the demand for long term living and care facilities.

Abundant research indicates that access to nature visually and physically benefits people in a variety of ways. Examples of these benefits include reducing people's pressure and improving their mood (Gesler, 2003), accelerating patients' recovery (Ulrich R. S., 1984), reducing patient pain and stress (Ulrich, et al., 2008), and boosting stress resistance and stimulating immune system (Li, et al., 2007). The therapeutic aspects of landscape provide an opportunity to improve the well-being, social connectedness, and quality of life of the aged. The purpose of this study is to synthesize the existing research on therapeutic landscape and provide recommendations on how to create outdoor spaces for the growing older population.

The method used in this research is literature review. The selection of research is based on the following criteria: 1) the publication studies physical and psychological characteristics and issues of the elderly; 2) the publication studies the benefits and design settings (e.g. pavement, signs, colors, plant selection, etc.) of open space, parks, therapeutic landscape and healing garden; 3) the publication is in English and are peer-reviewed article, book, report, and design guidelines.

The result is expected to deepen one's understanding of the elderly population, in terms of their physical and psychological demands, behavioral characteristics, and common issues and disease. Additionally, the study will adapt therapeutic landscape theories and principles and create a set of guidelines that are specifically relevant to the planning and design of the outdoor living and care facilities for elderly people. Moreover, these guidelines will be applied to a schematic design of an elderly community to justify its implementation in design practices, and the potential performance of this community design will be evaluated using Landscape Architecture Foundations' benefits toolkit.

Integration of AR and Built Environment: Can Pokémon GO Promote the Use of Urban Green Space?

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Keywords: Green Space, GIS, Augmented Reality(AR), Physical Activity

"With the global ‘Pokémon GO (a location based AR game) Craze’ broking out in July 2016, nearly 1/10 of the global population has experienced the fun of what AR can bring to our daily life. It is an undoubted fact that AR technologies will deeply integrate with physical environment and our daily life in the near future. To have a better understanding and insight of the impacts generated by the integration of AR and real world on modern life, it is very important to conduct timely researches in this area. In this research, specifically, the relationship between urban green space and AR technologies has been studied, in order to provide answers to the question: Can AR technologies promote the use of urban green space?

AR technologies can be applied in various aspects, but this study is interested in geographical and environmental applications. So the study selects a mobile location based AR game - “Pokémon GO” as the studied platform of AR technologies. In August 2016, the research teams conducted a mixed methods research in 5 study sites in Hong Kong, traffic maps (n=186) and behavior maps (n=186) of Pokémon GO players and non- Pokémon GO players, and 1098 surveys on the behavioral profile of AR users were collected. By conduction a spatial analysis through a GIS database of the study sites, the result shows that the use of urban green space has been significantly increased by the AR technologies, and the impact of AR technologies on urban green space varied through different land use and population.

This research represents the first attempt to investigate the integration of AR technologies and the use of urban green space on human behavior from a landscape perspective. Not only the study may advance our understanding about the impacts of future technologies on modern life, specifically in terms of behavior, use of space and quality of life, generated by integrating AR technologies and built environment, but also the results and findings can provide reference for future design and planning of built environment. Furthermore, this study may inspire future studies that bring benefits to society by bringing virtual world and physical world closer together."

Intimate Encounters with Landscape: Georgia O'Keeffe and Spirituality of the Sexually Charged Landscape

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Keywords: Sexually Charged Landscape, Spirituality, Georgia O'Keeffe, Mind, Divinity

"Among a spectrum of spiritual traditions, landscapes endowed with sexuality are among the most honoured of pilgrimage destinations. Uniquely appearing as a distinct form in space, or distinct space surrounded by form, the sexually charged landscape offers potential for unencumbered highly charged transactions with spirituality. Physical features and natural processes marking their spiritual significance also represent features of excellent landscape design – linking art, psychology, ecology, landscape architecture and spirituality.

Flights more than fancy, the sexually charged landscape invites interaction with erotic shapes and spaces remarkably similar to human sexual organs: caves like open vaginas, mountains spread to reveal shrub-like pubic hair or prominent breasts, and rock obelisks like enlarged penises – landscapes of raw sexual power, the play of male and female consorts of cosmic consciousness and the natural process. Throughout history, these landscapes have charged spiritual practitioners and affected where people live.

This research is an inquiry into the grounding and depth of the multi-layered relationship between humans and the sexually charged landscape; a trajectory of provocative exoteric, exotic and esoteric questions – How are landforms and terranes consecrated as sacred landscape and endowed with sexuality? How are landscapes' sexual orientation identified? How can practitioners use these landscapes?

Linking geomorphology with psychology, human psyche with landscape's psyche, landscape with divinity, and divinity with mind, Georgia O'Keeffe's paintings provide a platform for aesthetic and scholastic departure. The paper moves from Edmund Burke's sexual aesthetics to Paul Shepard's 'Cross Valley Syndrome'; Carl Jung's finding of libido as landscape to James Hillman's eco-psychology breaking borders between psyche and landscape. Through signs that the sexually charged landscape is home to divinity in indigenous, Taoist, Tantric Hindu and Vajrayana Buddhist landscapes, such as Pretapuri in Western Tibet, people can harness the sexually charged landscape in most creative ways. Mind as Sex as Landscape as Divinity, highly charged transactions with spirituality."

Landscape Architecture for Health: Toward an Interdisciplinary Initiative

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Keywords: Public Health, Active Living, Walking, Walkability, Healthy Community

"Introduction: Landscape Architecture (LA) has a long history and tradition in designing and studying outdoor environments for health [1]. The strong root of LA in public health has become weaker during the past century. Recent years have witnessed a growth in the interdisciplinary efforts toward promoting a physically active, outdoor lifestyle as a key to maintain and improve health [2].

Objectives: This interdisciplinary panel brings experts from urban planning (Ann Forsyth), architecture (Xuemei Zhu), and landscape architecture (Robert Brown – microclimatic design, Naomi Sachs – healing landscape, and Chanam Lee – active living) to address: (1) the scope of public health in LA research within the larger interdisciplinary context, (2) frontier issues in "LA for Health" research, and (3) funding opportunities for and other strategies to promote LA for Health research.

Structure: The discussion will begin with each panel member's proposal to define the scope of public health in LA research reflecting diverse disciplinary perspectives. In the second part, each will present examples of traditional and frontier issues in LA for Health research drawing from the literature and his/her own experiences [3-7]. Such issues may include active living/walkability, microclimatic design, therapeutic landscape, equity/disparity, research translation, measurements, and dissemination and implementation (D&I) research. The third part will focus on funding opportunities and resources available for LA for Health research. Strategies to promoting LA for Health as both disciplinary and interdisciplinary areas of scholarship within CELA and beyond will also be discussed, which may include establishing a CELA track, interest group, and research consortium; and publishing journal special issues and books.

Each of the three parts will start with a short presentation followed by interactive dialogues among the panel members and with the audience, facilitated by the moderator(s)

Learning Outcomes: Attendees to this panel discussion will be able to gain and share insights related to the three goals outlined above. In particular, they will be able to understand a wide range of traditional and frontier issues in LA for Health research, and learn relevant initiatives and funding opportunities from multiple fields including LA, public health, urban/transportation planning, and architecture. Attendees will also be provided with the opportunities to join the top-priority activities/strategies to promote LA for Health research and to facilitate the development of the action plan with short and long-term goals."

Landscape as Loom: Weaving Pathways of/to Enriched Relationship, Banks Peninsula, Aotearoa New Zealand

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Keywords: Design Research, Walking; Observation, Materiality, Interaction, Connection

"This article follows a simple line of enquiry: When faced with a complex, interwoven landscape what do we see? How do we move beyond the limits of our seeing? Walking is presented here as a way of exploring complex places, bridging the gaps between what is seen and known.

Following the footsteps of Wylie, walking is undertaken with a particular agenda, to "activate a space and time within which to engage with and explore landscape" (Wylie, 2005). This walking seeks to situate theoretical constructs of landscape literacy (Spirn, 1998) and experience, subjectivity and corporeality; taking ideas of cultural geography and social anthropology and grounding these in landscape through the context of a walk.

Banks Peninsula provides the setting for each walk. Easily recognisable by its distinctive forms and prominent position at the edge of the Canterbury Plains, the peninsula is a complex place full of overlapping histories, where "space and place are crisscrossed and inhabited by lines of various kinds" (Ingold, 2007). Many lines materialise in a non-linear matrix, forming an overlapping weave, a place of threads (Carter, 2004). Patterns are made as people and things weave in and out, pulling and erasing strands.

Walking connects the walker with this landscape loom. Each walk follows a relational narrative and provides clarity and depth in observation. The walk is an intermediary act which inventively and imaginatively interrogates relationships and negotiates connections. Walking traces and visualises particular threads, allowing the walker to become immersed in a world of rich diversity and contextualised knowing. An explorative tool, and a habitual, embedded practice; walking penetrates and engages in acts of active reading, allowing the storied threads of landscape to be made known and a fluency (Hutton, 2013) of materials and place to develop.

Walking exercises decipher and connect relational spaces, map hidden networks and bridge between strands."

Landscape Characteristics of Supportive Environment from The Perspectives of Mind-Body Exercise

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Keywords: Mind-body exercise, Landscape characteristics, Landscape perceptions, Supportive environment

"Eastern and Western cultures hold different perspectives about the relationship between man and nature. Eastern ideas are based on monism which believes man and nature should be regarded as one entity and admire the unity between environment and humanity. In contrast, Western ideas in general are based on the dualism of man and nature which are seen as inherently discrete and against each other. The distinct environmental thoughts in Eastern and Western cultures may cause the difference in environmental perceptions and leisure exercises that benefit health. Unlike the Western recreational sports focus on physical skills and environmental challenges, mind-body exercises, derived from traditional Eastern thoughts, emphasize on the interaction between mind and body as well as the harmony between human and environment that will contribute to physical functions and mental health.
Mind-body exercises have become popular for de-stress and relax in recent years. According to the National Health Interview Survey (NHIS) in 2007, more than 5 million adults in the United States practiced mind-body exercises to promote their own health or as complementary therapies. As a way to reduce stress and pain, mind-body exercises have often been applied to chronic, terminally ill or long-term hospitalizations in hospital settings to reduce patient stress. Therefore, in a limited space or exercise time, to create a supportive environment for mind-body exercises, in order to achieve the best effect, will be a concerned issue.

The study examines the environmental requirements and landscape characteristics for mind-body exercises by landscape structure analysis approaches. Two groups of participants involve in the on-site experiment. Participants in group 1 are people who regularly practice mind-body exercises (qigong and tai chi chun), and those in group 2 are not. We investigate the relationships between participants' environmental experiences and landscape structure metrics derived from 4 different land cover types. Overall, the results reveal that mind-body exercisers may have higher requirements for their exercise environments. Their environmental experiences have significantly correlations with area of artificial structure and water patches, fragmentation of grass and tree patches, as well as the shape of grass, trees and water patches. Landscapes with fragmented grass and tree patches and large continued water patches can support mind-body practitioners getting better flow experience and restorativeness.
The quantitative analysis of the landscape characteristics of supportive environment for mind-body exercises may help this growing population of mind-body exercisers to choose and design their practice environments. Additionally, how Eastern traditional thoughts relate to the environmental perception of mind-body exercisers is also discussed."

Microclimate Effects Measured Research and Improvement Strategy of The Urban Street Tree-shaded Space in Xi'an

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Keywords: Urban Microclimate, Tree-shaded Space, Ecological Environment, Landscape Architecture, Urban Public Open Space

With the urbanization developed rapidly, urban microclimate constantly received influence, people activity space and activity time become less and less. Meanwhile, in the present design of landscape architecture, only to emphasis the effect of the visual scene, place spirit, and site function, and so on, neglect the climate adaptation design, especially in small scale space design, lack of relevant the guidance of the theory and practice. The article chose Xi'an which belongs to cold and drought region in China as the research object. During July to August, the research team chose the typical tree-shaded space of Xi'an, to observed, measured and analyzed the space type, composition, and the climate elements. The research content covered:(1) Measured the microclimate element, include temperature, humidity, wind speed, wind direction, and solar radiation of the typical tree-shaded space, to describe dynamic variation rule and analysis the microclimate formation mechanism and the accommodation, contrasted the microclimate effects variation of different street tree-shaded space and explain the reason; (2) Observe and annotation the human activities in tree-shaded space. Analyzed the relationship between human behavioral preference and the microclimate variation. (3) Coupling analyzed the test data of microclimate and the investigation of human behavior. Through measurement and analysis, the article tries to summarize the relevance between the tree-shaded space form and the variation of microclimate elements, and propose some suggestion for microclimate improvement of Xi'an tree-shaded space.

Mitigating the Thermal Environment of Residential Areas by Optimizing the Green Space Structure ——A Case Study in Shanghai, China

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Keywords: Urban Heat Island, Green Space, Landscape Pattern, Residential Area

Under the background of rapid urbanization and deterioration of urban thermal environment, the problem of heat island has become an urgent problem to be solved. Previous research has established a clear relationship between land surface temperature and green space, but little research has specifically examined the cooling effects of green space patterns in residential areas. In this study, to analyze the relationship between green space structure and thermal environment of residential areas, about 68 residential areas in 4 communities in Shanghai were selected as study areas according to their locations and building times. All the residential areas have similar surrounding environments to avoid their effects on the experimental data. The 4 communities included Ruijin community in Huangpu district (center of the city, 20+ years), Longhua community in Xuhui district (deputy city center, 15+ years), Xincheng community in Minhang district (suburban area, 10-20 years) and Fangsong community in Songjiang district (suburban town, 5-10 years). Remote sensing technology were used to extract and analyze the relations between land cover and surface temperatures of these residential areas. The results showed that the primary factors which affected the thermal environment of these residential areas were quite different. It was further found that the thermal environment of residential areas was greatly related to the green space ratio and arbor proportion. By increasing 10% of the green space ratio of residential areas in these 4 communities, land surface temperature would be reduced by 0.30℃, 0.25℃, 0.42℃ and 0.16℃, respectively; and the land surface temperature would be reduced by 0.37℃, 0.39℃, 0.41℃ and 0.16℃ when arbor proportion was increased by 10%. In addition, green space pattern which would affect the thermal environment in these residential areas was quite different as well. For residential areas in Ruijin and Longhua communities, where green space ratios were relatively small (15.36%~30.56%), the fragmentation, connectivity and dispersion degree of the green patches were main factors affecting the thermal environment. While for the residential areas in Fangsong and Xincheng communities which have large green space ratios (45.72%~52.61%), the thermal environment was less affected by green space pattern. There was a significant positive correlation between building density and the thermal environment in these residential areas. The findings in this study could help generate some suggestions for optimizing the green space structure in residential areas which would improve the cooling effects by green spaces.

More Fences, More Freedom? Exploring the impact of environmental features on parents and other caretakers' strategies for supervising children in public play environments

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Keywords: Risky Play, Supervision, Playground, Playscape, Fence, Autonomy

In the 1960s, M. Paul Friedberg, famously bemoaned the "forbidding fences" that surrounded children's playgrounds, questioning if they were "to keep people out or in?" (Friedberg, 1970, p. 36). Sandseter (2009) has suggested that enclosing play areas restricts children's affordances for beneficial risk taking. Alternately, Floyd et al (2011) hypothesized that there may be value in enclosing children's play areas, as "such design strategies could encourage parents to allow their children to freely explore their surroundings, providing more opportunities for physical activity" (p. 263), however they provide no evidence this is the case. The purpose of this exploratory, sequential mixed methods study was to identify how environmental features in play areas at two destination parks in the metropolitan area of Raleigh, NC, may affect the monitoring behavior of caretakers of children 2-12 years old and consequently the amount of freedom of movement and autonomy the children experienced. Researchers have theorized that children's ability to "disappear from the supervision of adults" and "get lost" may benefit their physical and mental health (Brussoni et al, 2015). Children in the presence of adults in public parks are significantly less physically active than children who are not (Floyd et al, 2011). And children also take fewer physical and social risks when adults are watching (Kemp, 2015). Gray (2011) reasons that learning to negotiate such situations without adults teaches self-control. Both parks in this pilot study were physically enclosed—but in different ways. In park 1, the play area had a single uncontrolled entrance to its fenced areas while the park 2 play area had two entrances and lacked visibility between them. Twenty focused interviews were conducted with a representative sample of caretakers in park 1 in an attempt to identify other factors that may affect caretakers monitoring behaviors including age, gender, caretakers' concerns, and other environmental features. The approaches to monitoring used were also discussed. These interviews informed a survey in both parks (n=87, n=48, time-based cluster sample). Eighty-five percent of park 1 caretakers and 76% of park 2 caretakers reported that the way the site was fenced/bounded encouraged them to give their child more freedom of movement. Only 37% said it encouraged them to watch them (literally) less closely. While this study was just a small pilot, it seems to suggest that fencing or otherwise bounding public play areas may be a design strategy for encouraging physical activity. Further observational study is needed.

Natural System Outside and Inside the City

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Keywords: Nature System, Landscape Preservation, Landscape Restoration, Landscape Transformation, Landscape Integration

"The purpose of the study is to clarify the harmonious relationship between the ideal city and its natural system in ancient China, to analyze the causes of the decline and fragmentation of natural system under the background of China's rapid urbanization, and to propose 4 strategies for building a sound natural system inside and outside the city, which are exemplified by 8 Chinese landscape projects presided by the author himself.

In agricultural society, all natural elements inside and outside the city in China form a complete system, artificial and natural elements have a balanced and harmonious relationship. However, such a harmonious relationship between city and natural systems is changing in China's modernization process. The original interconnected, complete, network-like natural systems are gradually being replaced by artificial systems and becoming fragmented.

The paper summarizes four causes of this change from two levels, regional scale and urban scale, and puts forward four strategies to restore and construct the natural systems inside and outside the city with the methods of literature analysis and innovative practical projects.

The four strategies are:
1) Landscape Preservation. Ecologically sensitive and fragile areas, including all water sources, natural wetlands, grasslands, coasts, species habitats, etc, must be preserved.
Cases: Ecological Plan in Lanzhou City and Weifang City

2) Landscape Restoration. Through landscape restoration of the land destroyed by human activities, we can achieve the goal of ecological security of urban natural systems.
Cases: Ecological Restoration of the West Lake ； Quarries Gardens in Nanning Garden Expo; Landscape Regeneration of Xianghu Lake

3) Landscape Transformation. Landscape transformation can establish the continuity between the future and the past of landscape, and retain a record of natural and cultural evolution of urban natural system.
Cases: Wetland Park in Shaoxing Jinghu New District; Garden Expo in Xiamen

4) Landscape Integration. By means of landscape integration, all the elements outside and inside the city could be integrated as a whole and form a complete natural system.
Case: Jinan Da Ming Lake

These landscape strategies can be used appropriately to establish a continuous and complete green infrastructure for the city, develop the service function of the natural ecosystem, retain the regional characteristics, shape the good urban form and landscape structure, and ultimately realize the city's sustainable development."

Neural Correlates of Natural Scenes: Effects of Scene Category and Spatial Frequency on Brain Activation Responses

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Keywords: Scene Category, Spatial Frequency, Low-Level Visual Properties, Natural Stimuli, Fmri

"Previous researches have shown that human have a preference for images of natural scenes over built environments, and being in or viewing natural scenes can improve attention and psychological benefits (Ulrich et al., 1991; Tennessen & Cimprich, 1995; Lohr & Pearson-Mims, 2006; Velarde et al., 2007; Van den Berg et al., 2014). However, what are the features in the landscapes that produce these benefits? On the another hand, these benefits whether affect by the visual property of landscape images?

With the development of functional magnetic resonance imaging (fMRI), it provides different perspectives for landscape studies, and we can get understanding of environmental stimuli and the human brain activation. Therefore, the purpose of this study is to explore the responses of brain activation and psychology to natural scenes. We focused on the relationship between individuals' perceptions and the environmental features. According to prior studies, the landscape type of natural and urban were mainly be discussed, besides the preference and positive inference of water scenes have been proved (Ulrich et al., 1991; White et al., 2010). In addition, the studies showed that the spatial frequency of landscape images may be the factors influencing viewer preference and attention (Berman et al., 2014; Graham et al., 2016; Ho et al., 2014; Kardan et al., 2015; Kihara & Takeda,2012; Valtchanov & Ellard, 2015). The results of this study are based on three types of landscape: natural forest, urban and water landscape, while analysis the spatial frequency of landscape images to separate low and high frequency categories.

In this study, we used fMRI to monitor brain activity responses. Participants were asked to perform the Sustained Attention to Response Test (SART), answer the preference question scales, while viewing a mixture of photographs of scene category (coast, forest, and urban) and different spatial frequency (low and high frequency). The result shows that there were different patterns of brain activation associated with different landscapes, activation responses were common found in lingual gyrus and cuneus. In viewing urban minus coast images condition, the parahippocampal gyrus were found activated. The functions of lingual gyrus and cuneus are visual information processing, regulating visual stimulation and semantic processing. The parahippocampal gyrus is involved with environmental scene recognition and visual scene memory coding. The findings of this study provide a viewpoint to the influence of landscape features on human perceptions, and how individuals interact with nature and environment."

Palimpsest and Experience in Post Industrial Urban Ruins

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Keywords: Uncanny, Post-Industrial Ruins, Site Palimpsest

"Industrial remains are commonplace throughout the United States. While many of these sites are the targets of remediation, restoration, or renovation projects, many others slowly age into ruin and obscurity as a result of economic, social, and developmental trends. This project looks at the ruins of the Western Rails of Alabama Railyard in Montgomery, Alabama. Though only four blocks from many of Montgomery's downtown revitalization efforts, including its minor-league baseball stadium, this site is virtually unknown to many lifelong city residents and its history is hard to find and not widely known. As it has aged, the site has developed into a rich palimpsest of historical information, structural forms, and ecological succession, and has the potential to connect residents with unique feelings of exploration, the post-abandonment uncanny, and access to historical post-industrial spaces.

The purpose of this research is to inform the design practice, develop a set of design strategies, and to portray possible design attitudes. I focus on potential low-impact uses for the site that are cohesive with the regrowth of Montgomery's urban core and allow for the 'rediscovery' of the site and its history by the residents of the city. I examine methods of making the site accessible without removing the essential layers of this post-use palimpsest. While many methods for restoration exist such as conversion to museums, redevelopment or renovation, deconstruction and abstraction, and conversion to parks or ecological remediation spaces, to name a few, they are many times prohibitively expensive and often detract from the powerful palimpsest that a ruin develops.

My methods include historical research, ecological system identification, spacial analysis, and photographic documentation to catalogue the site elements. Specifically, I use past aerial photography, old photos from the Alabama Historical Society archives, old USDA Soil Surveys, sketches and tracings to catalog the site. I digitally overlap and layer these elements to bring depth and meaning to buildings, objects, the landscape and to communicate my design ideas. The control and protection of spontaneous plant communities, retention of architectural remains, and public accessibility are essential to this method.

The importance of this project lies in its ability to make the experiences of the uncanny and explorative, often rarely experienced by urban and suburban residents, available and accessible within the urban fabric. Furthermore, it preserves and showcases the important aspects of post-use palimpsest, which are often cleaned from a site in restorative efforts. Lastly, the low-disturbance techniques required by this method make it available to cities with limited funding for public spaces."

People's Use of Urban Small Park: A Case Study of Haidian, Beijing, China

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Keywords: Small Urban Green Space, Location Based Service, Non-Participant Observation, Green Space Use, Social Structure

"Green spaces are one important indicator of the quality of urban life. In dense cities, large new urban park projects are gradually reducing, and small green spaces such as pocket parks are likely to become more important. However, previous studies on small urban green spaces were often carried out in industrialized nations (Whyte, 1980, Karin K. Peschardt, 2012, Nordh and Østby, 2013, Nordh et al., 2011). There's relatively little known about research on the use and preference of small green spaces in rapidly urbanizing cities in developing countries. Due to the different cultural background, population structure and social structure, the analysis of previous studies on small urban green spaces (Whyte, 1980, Chiesura, 2004, Nordh et al., 2009, Nordh and Østby, 2013, Schipperijn et al., 2010) does not necessarily apply to China. Landscape architects, city planners, and green space managers are becoming more curious about when a small urban green space is used, how it is used, and the factors that influence its use. In addition, policy makers are increasingly recognizing the shortage of the current classification system of urban green spaces in China.

The aim of this paper is to show the potential value of urban small green spaces from the user's perspective. The case study region was in Haidian District, Beijing. Non-participant observation (Robson, 1993) of local visitors was used to collect qualitative and quantitative data of the visitors in 9 small urban green spaces. These green spaces in the study area have been classified into three different categories based on the Location Based Service (LBS) data from smartphone users (Baidu, 2015).
The results of this study demonstrate that people's use of small urban green spaces may relate to the categories based on the LBS data above. Also, the visitor's gender and age could be the factors that influence the use of small urban green spaces. The paper's findings may provide design guidance for small urban green spaces, which may have a positive influence on the future design of small urban green spaces in dense Chinese city areas."

Physiological and Psychological Benefits of Natural Recreation

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Keywords: Natural Recreation, Outdoor recreation, Physiological Benefit, Psychological Benefits

"Natural landscapes carry potential resources for physical, mental and social well-being. Lots of studies show that when people do recreation activities in nature settings, they are easy to achieve physiological and psychological benefits, such as attention restoration, stress level, lower blood pressure, well-being and increase levels of preferences (Kaplan and Kaplan 1989; Hartig, 1991; Terrant, 1994; Chang, 2000; 2005; 2008).

Park and recreation managers start to develop natural therapy programs with forest recreation as forest medicine, and tried to measure the natural benefits by scientific evidence.

In Taiwan, there are 58% of land coved by forest, where a great recourse to develop forest therapy. Furthermore, the scientifically evidences were reported in studies (Chang, 2005; 2008; Chiang, 2007) to establishing the evidence base of the healthy benefits of forest recreation activities.

The purpose of this study is to scientifically compare various kinds of health benefits that participants can get from natural recreation. This study is take place in the Highland Experimental Farm of National Taiwan University, which is located in Taiwan, Nantou. Participants' psychological data are collected by the questionnaire interviews. The travel route in the natural landscape, their physiological responses (blood pressure, brainwave, HRV, stress) are recorded and compared before and after their activities."

Playground as a Diagnostic Indicator of a Child's Well Being

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Keywords: Children, Poverty, Community Capacity, Mental Disorders, Playgrounds

"Children in abject poverty live in an environment of heightened emotional stress with issues of insecurity, hopelessness, and risk for mental disorders (1). These children have greater risk for injury from accidents or neglect, suffer lower developmental scores in a range of areas, and various forms of malnutrition (2). Poor education associated with poverty is a consistent risk factor for the onset of common mental disorders, primarily exhibited in conduct disorders (1). The lack of education represents a diminished opportunity for children to access necessary resources to adapt and cope with these challenges. This exemplifies a diminished level of community capacity that if strengthened could provide enhanced resilience for children to the physical and mental development restraints inherent to their daily lives.

Resilience can have numerous meanings in the context of community capacity but here it will refer to the personal competence of any child in their capacity to learn from and seek out the positive elements of their environment (3). Children's personal capacity for coping with adversity can also be under-stood as the interface between their ability to create effective relationships and their sense of autonomy versus their incapacity to regulate their emotional reactions (3). Physical resources are tangible tools to build and strengthen community capacity associated with a group of individuals. Playgrounds are a key contributor to facilitating resilience in children as they create opportunity for positive development of competence and perceived efficacy valued by self or society (4). It is also an environment that permits unstructured peer interaction that fosters cognitive reasoning, and education of societal values (3). Watching children's play behaviors can provide insight to community members into their mental health and communicate if the child is facing a crisis at home (5).

The paper will present a literature review of studies addressing the conditions of physical and mental stress children face living in abject poverty. It will also explore the relationship of playgrounds to children and neighborhoods in these conditions utilizing the Ratang Bana AIDS Orphanage in Alexandra Township, South Africa as a case study. The case study highlights the impact of landscape architecture through playground design on an impoverished community. The review will communicate the current state of research, identify evident themes, and highlight areas for future research efforts."

Preference to Imagery Artwork as a Positive Distraction for the Rural Clinical Environments

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Keywords: Positive Distraction, Nature, Art, Quality of Care, Patient Preference, Rural Clinic

"Among the U.S. States, West Virginia frequently ranks near the bottom on most measures of health and well-being (Mills, 2015; Gallup-Healthways, 2016). Residents of West Virginia face multiple barriers when accessing healthcare services because of the state's rural nature (National Center for the Analysis of Healthcare Data, 2015). Research on patient-centered care verifies that both patient perceptions of quality and satisfaction with healthcare services is strongly linked to the physical environment of the healthcare facility (Arneill & Devlin, 2002; Pruyn, & Smidts, 1993). The incorporation of a positive distraction into healthcare facilities, which has been defined as “an environmental feature that elicits positive feelings and holds attention without taxing or stressing the individual,” has been shown to help patients cope with various negative outcomes associated with illness (Shepley, 2006; Ulrich, 1991).

To provide optimum positive distractions in the clinical environments in West Virginia and encourage people's healthcare participation, the current study explores patients' preference to different types of imagery artwork in the rural healthcare environments. In collaboration with MedExpress care centers, three types of photographic images will be demonstrated via TV screens in the waiting rooms at two outpatient clinics in Beckley, WV including: (1) exotic sceneries, (2) urban sceneries, and (3) vernacular natural sceneries from the Appalachian region. Patients will view the photographs during their wait time and will complete a web-based survey after being discharged. Patients will indicate their preference for each photograph using a 5-point Likert Scale. Follow-up focus group sessions will gather more detailed information about patients’ preference, attitudes, and satisfaction on the images. Using both quantitative and qualitative methods, we expect to understand which types of imagery, the everyday natural sceneries (i.e., a sense of familiarity) or exotic sceneries (i.e.,a sense of freshness), provide the higher level of distractions. We also expect to discover the specific features afforded by the imagery artwork that are more favored by West Virginians, specifically for rural residences in the area. The potential links between imagery and patient willingness to visit the clinics will also be explored upon completion of the study."

Public Awareness Analysis on the Damaged Urban Forest land (UFL) and its Restoration policy through Citizens Awareness

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Keywords: Confirmatory Factor Analysis (CFA), Forest Welfare, Perception Through Experience, Policy Priorities

In South Korean cities, urban forest lands (UFLs) have served as historical and cultural landmarks so far and spaces for outdoor recreation and urban aesthetic appeal of the cities recently. However, land degradation, soil contamination, and deforestation have damaged such UFLs. Previous studies have not investigated the awareness of citizens who observed and suffered directly from this disaster, nor have studies considered discussions as to what next steps are needed in order to pressure local governments to implement useful policies in stopping UFL destruction.

The purpose was to find UFLs degrading activities and develop measures to stop their damage by increasing citizens' recognition, thus to suggest that a local government would follow its constituents' opinion and move to pass urgent measures to restore its UFLs. The study site was Mt. Bibongsan (Mt. B) belonging to Jinju City in South Korea, which has seen illegal farming, soil contamination, logging, and residence in aged facilities. The questionnaire was comprised of the socioeconomic background (nominal scale) and structured questions (5 point Likert scale) for damages and measures on Mt. B and surveyed among 302 respondents. The responses were then evaluated by factor analysis and regression analysis.

The survey found that 86.7% were over 40 years old and 65.3% visited Mt. B more than two times a month. Thirty variables were classified into five categories (F1 ~ F5). These categories' average values ranged from 3.54 to 3.89. Using these factors as dependent variables, five regression models were established. The results showed that 'Problem of Mt. B (F1a)' identified the construction of illegal facilities and soil erosion from farming to Mt. B and 'Solutions of Mt. B (F1b)' identified restoration of Mt. B and the destruction of aged houses as priorities. 'Historical Resources Restoration (F2),' identified historical resources driving the need for restoration. 'Mt. B's Cultural Value (F3)' considered citizens' emotional links to Mt. B. 'Main Body to Drive Policies (F4)' citizens' active participation was identified as a more effective means to policy enforcement. 'Maintenance Policy Projects (F5)' identified reclamation of the forest from farmland and the visual improvement from the city. So, citizens would consider policy measures to restore and preserve Mt. B through their awareness of the threats to the forest faced at and their usage of the land. Conclusively, local governments development and identification of management policies for damaged UFLs resulted from citizens' awareness of damage and the causes thereof.

Public Perception of Ecosystem Service Values of Beitang Landscape in The Mountainous City

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Keywords: Public Perception, Beitang Landscape, Ecosystem Service Value

"Beitang landscape is a production system and land use pattern which was created by ancient people in order to adapt to droughts and floods during a long traditional farming culture. Local people's perception on Beitang landscape can reflect their demands and the ecological, social and cultural value of Beitang landscape. Taking Liangjiang New Area in Chongqing as an example, this article studies local people's perception of ecosystem service values of Beitang landscape in different villages. It tries to find the trend of landscape ecosystem service function change with different social and economic dimensions and explain its reasons and influencing factors. It also explores the impacts caused by landscape function changes of Beitang landscape on water issues in different villages and proposes suggestions on the protection and utilization of Beitang Landscape during the urbanization construction in the future. Research methods including geographic information systems analysis, questionnaires, interviews and participatory GIS are employed in this research.

It is found that the discard and disappearance of Beitang will exacerbate droughts in undeveloped villages in remote areas as well as in the villages at the edge of development areas. It will further exacerbate floods in the villages in the rural-urban fringe zones and cause substantial reduction of aquatic habitats. This should be taken into consideration in further research on how to utilize the existing Beitang system and increase the potential Ecosystem Services for a more holistic approach to landscape-scale ecosystem service management."

Re-envisioning Community Outreach Methods

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Keywords: Community Engagement, Outreach, Open Space, Feedback, Underrepresented

"Productive community engagement is integral to the success of a future open space. Planning and design professionals outreach to community members to ensure that planning and design decisions reflect the community's advice, aspirations, and concerns for their open spaces; resulting in informed and engaged residents that feel better connected to their communities.

Traditional outreach involves formal advisory committees and meetings that (because of their format, timing, and reliance on fluent spoken and written language) are typically accessible to members of the dominant culture. But the evolution of outreach is moving away from design decisions made by committee toward community self-determination in making decisions about their open spaces. This presentation uses two case studies to demonstrate re-envisioned community outreach methods and their impact on open space design.

In the public sector, agencies use engagement to help build a sense of community and improve the quality of life for their constituents. Outreach is becoming more broad-reaching, authentic, and equitable. It invites historically underrepresented populations (communities of color, youth, seniors, those with mobility issues; and non-native language-speaking, recent immigrant and refugee, and low-income populations) to contribute to their communities' place-making processes. Portland Parks & Recreation is a leader in creative, progressive outreach methods that strive to ensure that all community members have a voice in a democratic public planning and design process, with the objective to help develop constituencies that will sustain their open space systems into the future.

The users of private open spaces can also benefit from a similar approach. After Oklahoma State University landscape architecture faculty and students presented multiple design concepts for a retirement community's memorial garden, community members voted for their preferred design for implementation. As a result, final design decisions were made through the process of voting by residents in the community rather than being dictated based on designers' favorites. The voting results showed that the design schemes that got the most votes from residents were not created by the students who got the highest grade for that project.

Findings/Conclusions: Designers create spaces for people. Designers of open spaces should engage the people who will use the space to determine their goals and preferences, rather than imposing features and programming onto the space without community input. The result is a space that will better serve its intended users, and a sense of ownership among those who participated in the planning and design process."

Renegotiating the Identity Under Cosmopolitan Ambitions: The Regeneration of Modern Parks at Previous Foreign Concessions in Tianjin, China

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Keywords: Park Regeneration, Trans-Cultural Identity, Multiple Stakeholders, Landscape Perception

"With the East-West political, economic and cultural encounters since middle 19th century, a number of foreign concessions had been built up in Chinese treaty ports like Tianjin. Neighborhoods and parks had been created in the image of their European homes. The foreign enclaves made a crucial and long-term influence on Tianjin's cityscape and identity. From early 2000s onwards, in line with China's new civilizing discourse under cosmopolitan ambitions, Tianjin has been trying to re-package "negative" colonial past and sell them as the beginning of their launch on the internationalization scene. As extremely scarce neighborhood green space within the highly-developed urban center, the historical colonial parks have been deliberately re-designed to promote the urban landscape as a showcase of global identity. The renovations have re-interpreted the site history, improved the recreational conditions, and brought certain amount of tourists to the traditional neighborhoods. They have also influenced the park-going activities of nearby residents, and changed local community's sense of place attachment and expressions of neighborhood identity.

Accordingly, the paper takes the survived modern parks at former foreign concessions in Tianjin as cases. It investigates the regeneration process, and intends to uncover the rationale behind the renovation strategies. Through document research and in-deep interviews, it attempts to identify the diversified roles by multiple stakeholders such as responsible district and sub-district offices, state-owned enterprises, private developers, etc. Besides, the research also takes into consideration the perceptions of everyday park-goers, including both local residents and tourists. Via quantitative analyses of popular web reviews and on-site questionnaires, the paper uncovers their opinions about colonial past, historical memories and cultural identities before and after the park regeneration projects. The research will reveal the differences among multiple stakeholders, and also the differences between plan visions and regeneration results. It intends bring forward some suggestions for the future maintenance of "negative" cultural heritage and diversified community life."

Renewal Strategy of Historic District Based on Functional Requirements and Cultural Identity——Taking Beijing Naoshikou South Historic District as an Example

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Keywords: Public Space, Renewal Strategy, Historic District, Functional Requirements, Cultural Identity

The fading of historical district is often caused by the decline of physical space and the loss of cultural identity. In the process of urban renewal, a respect of residents for the functional demands and cultural identity of public space is an important premise to ensure sustainable planning and implementation. Taking Beijing Naoshikou South Historic District as an example, analysising main street and hutong space through content analysis, cognitive map method and questionnaire survey. The study found that the proportion of the main street road in different paragraphs have changed, basically maintained between 1.8 to 3.5. Because of the larger scale of the new buildings block on both sides of the entrance, the street is to show the overall effect. After going deep into the block, the street is gradually close to the human scale and shows more details to pedestrians. This subtle change provides a more natural psychological transition for those who pass through the block. Hutong's original function is connecting people from main road to home, but the layout does not fit the traditional checkerboard pattern, and the hutong space changes with the emergence of new forms of architecture, enriched the plane shape of block alley. There is a relationship between the proportion of the cross section and the way of utilization, that is, the wider the alley, the more diverse the way it is used, the narrower it is more conducive to maintaining the shape of channel. The main road needs more concentrated green space to meet the occurrence of collective activities, and the need for more flexible forms of landscape in the hutongs, enhance the living environment.

Research of the Public Intention in Both of the New Campus and the Old One Based on Cognitive Map

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Keywords: Cognitive Map, the New and Old Campus, Public Intention, Evaluation of the Environment

In recent years, with the continuous expansion of the school, colleges and universities all over the country have begun to develop and build a new campus. Because of the site status, the construction conditions and the historical factors, old and new campus show significant differences in the planning, design and construction. But without exception, they are all aiming at creating a beautiful campus environment and meeting the diverse needs of users. Therefore, understanding the user's public intention is of great significance to the planning, design, construction and reconstruction of the campus environment. Taking Chongqing Jiaotong University as an example, this paper studied the public intention of the new and old campus through a variety of ways. The objects of investigation were divided into categories of students, teachers, staff and passers-by. We invited respondents to draw a cognitive map without the aid of auxiliary tools and reference images, information that cannot be represented in a cognitive map can be accessed through interviews. Questionnaire survey was also effective, which distributed to obtain answers to specific questions. Based on the survey data, the campus environment of new and old campus was analyzed from space structure of image (direction, core and spatial structure), general image elements (roads, boundaries, regions, nodes, landmarks) and recognizability. We could get the public intention map and the overall evaluation of the campus environment, and could also draw conclusions that the function of the old campus was chaotic, the style was not uniform, the new campus was too homogeneous to show its features. At the end of the paper, the author tried to put forward the pertinent suggestions from the aspects of architectural design, landscape system, road system and culture shaping of new and old campus.

Review of Urban Wildscape in the Context of Urbanization

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Keywords: City, Wildscape, Wilderness, Urbanization, Urban Environment

"Scientific development and technological innovation have brought a large number of cities and towns worldwide into a process of rapidly expanding urbanization. As cities are ceaselessly spreading to the periphery, larger population are living inside the cities, the relationship between the development of urban civilization and the environment of urban human settlements will face conflict that hard to reconcile. With outstanding characteristics as low consumption, low maintenance and high efficiency of ecosystem service in urban settings, the wildscape also have special significance in human health, ecological environment, aesthetics and cultural expression. Nevertheless, wilderness is easily affected in the process of urban construction and intervention before effective protect and usage. Till now in China, not any investigations and regulations direct at urban wilderness is carried out. Therefore, exploring the value and utilization of wilderness resources and creating efficient and effective wildscape in the sustainable development of cities is a core subject that Landscape Architecture should solve urgently. The study firstly explored the origin and evolution of urban Wildscape in different period of history, from which the transition sequence of human beings perceiving and regarding the wilderness (Danger-Disorder-Freedom-Nature) can be discovered, providing a conceptual base for the later study. Secondly, the evolve process of wilderness perception in human civilization and urbanization is presented, indicating the course of human beings exploring and transforming the wilderness in the course of exploring the unknown, building human habitat and cities in different cultural backgrounds. Additionally, three typical categories of urban wilderness we are facing with in China is put forward (Conservational primary wildscape, Restorative secondary wildscape and creational pseudo wildscape), accordingly, typical cases of urban wildscape protective utilization and creation is analyzed respectively in city scale, regional scale and community scale. Conclusively, 10 strategies (Land remediation, community involvement, landscape narrative, etc.) aiming at the three categories of urban wildscape is proposed, forming the strategy pattern for future direction of how wildscape serves for urban sustainable development.

The prosperity of urban civilization and industrial civilization pales the value of natural resource, which turns into the main cause of the disappearance of native wilderness in urban construction and human intervention. The significant role that wildscape can play must be urgently figured out in China to ensure the limited resource is well-utilized and protected in urban sprawl, its notable potential to become an efficient strategy for urban sustainable development should be widely aware in the field of Landscape Architecture."

Settlements' Landscape as a Historical Result between Environment and Human: A Case of Tunpu

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Keywords: Tunpu; Settlements' landscape; Karst; Guizhou

Tunpu settlements (屯堡) could be traced back to a unique military system in Ming Dynasty, that the Ming Emperor maneuvered an army of Han immigrants from the east to scotch the rebels of Yunnan and Guizhou region in order to consolidate frontier. It's a unique human settlement system which is formed by six hundred years of mutual confliction between the Han culture and the natural as well as culture environment in Guizhou. Nowadays, there are still many well-preserved Tunpu settlements in central Guizhou region. The settlements' landscape represents the evolution of the relationship between human and environment in history.

By studying the characteristic landscape of Tunpu settlements and its historical information, we can explore the interaction between human and environment under certain historical conditions. In this paper, ethnological and morphology approach are applied. Through field investigation and historical record study, typical landscape characteristics of Tunpu settlement are abstracted.

Research shows that the key factor produced the landscape characteristics of Tunpu settlements is how to survive，the logics behind include occupying important military strategic position, approaching natural resources as well as constructing sustainable lifestyle and production patterns. Tunpu landscape features are as follow. In order to meet the needs of military control and post road system construction, Tunpu settlement is mainly located in the flat area near Historical Yunnan-Guizhou road, forming a landscape with karst peaks as a barrier and river fields as a base. Out of cultivation needs, Tunpu people around the village created an agriculture landscape with the characteristics of Jiangnan water village. For the needs of military defense, Tunpu people built a military settlement system with stone wall, stone house, bunkers and "tun".

In conclusion, the characteristics of Tunpu settlements' landscape reflects how people adapt to as well as reform the environment under specific historical conditions. This provides new ideas on sustainable development of human and nature.

Shared Zone Pedestrian Environments in Chongqing: Performance and Design Issues

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Keywords: Shared Zones, Pedestrian environments, Chongqing

Pedestrianized commercial districts are increasingly an integral part of the construction impetus in high population density cities of China like Chongqing. The last 10 years of urbanisation processes in China have witnessed a fascination in these places and a desire to include them in new urban landscapes, and also to retrofit them into old city centres including historic districts. The shortcomings in this process, in terms of the successful use and incorporation of shared zones into the landscape and cultural fabric of Chinese cities, appears to be linked to the scale of pedestrian environments in commercial areas and the resulting logistical servicing and inconvenience issues in the city's transportation systems that physically and psychologically affects inaccessibility for private and commercial drivers seeking to access these areas. Share zone design, planning and construction seeks a balanced mediation to commercial viability pedestrianization and transportation. The authors reviewed the concept of shared zones internationally, and then evaluated the implemented concept in Chongqing. Included in this discussion is shared zones ('shared space', 'traffic calming' measures) examples in Australia (Melbourne and Geelong), New Zealand, England, The Netherlands and Germany), together with key patterns and conclusions. The core part of the paper considers the shared zone concept in 5 commercial areas of the Chinese city of Chongqing. Qualitative research undertaken in the field reviewed and examined the experiences of pedestrians to urban landscape elements including sections, pavements, plants, furniture, interface design, etc. A primary conclusion from this investigation identified the insufficient prioritisation of pedestrian primacy as being a concern in urban landscape design practice.

Social Network Characteristics that Influence Individuals with Disabilities' Transportation Choices

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Keywords: Transportation, Social Networks, Individuals with Disabilities, Accessibility

"Individuals with disabilities have less access to transportation options and are often marginalized in the social environment of the community. Understanding the role of transportation access in the social exclusion of individuals with disabilities is necessary to best assure their full participation.
The purpose of this study is to explore individuals with disabilities' access to transportation in relation to individuals with disabilities' opportunities for social participation in their community. To do so, three primary research questions were examined as follows:

(1) How are individuals with disabilities meeting their transportation needs?
(2) Are the modes by which individuals with disabilities meet their transportation needs associated with various demographic factors?
(3) Are the modes by which individuals with disabilities meet their transportation needs associated with the strength or diversity of their social network?

To address the research questions, 114 individuals, 18 years of age or older, possessing a physical disability who resided in Cache County, Utah for over 12 months participated in a written survey. The survey, developed and administered in partnership with the Utah Transportation Center and the Center for Persons with Disabilities at Utah State University, was comprised of 9 questions regarding their transportation needs and social networks, 14 questions regarding their demographic information, and 6 questions regarding their transportation use patterns.

The results show a much higher reliance on public transportation, and much lower reliance on private transportation among individuals with disabilities. Individuals with disabilities with stronger and more diverse social networks are more likely to rideshare and have access to other forms of transportation assistance. In addition, individuals with disabilities with stronger family social ties are more likely to receive adequate help meeting their transportation needs. Individuals with disabilities with weaker social networks are more likely to rely on public transportation options."

Student's use pattern of university campus green spaces and their relationship with students' social well-being

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Keywords: University students, university campus, green spaces, social well-being, use pattern

University students as a special group while its health and well-being problems need to be concerned. Green spaces are an integral component of university campuses and as an everyday physical environment may provide students with a variety of mental, physical and social benefits. The function of campus green spaces for social dimensions are less well understood. This study investigates the association between the use patterns of campus green spaces of university students and their social well-being. A total of 363 students from Fujian Agriculture and Forestry University (FAFU), China responded the questionnaire by an online survey or random selection in campus. Respondents were asked about their use pattern of campus green spaces and questionnaires of Social well-being Scale. The results of multiple logistic regression indicated that the frequency of green space use had a positive contribution to students' social well-being. The collection data showed that 33.9% of respondents visit green spaces every day and 95.9% visit green space at least once a week. The majority of the students in this study have access to green space within 100-1000m, distance is not the strongest factor for campus green space use. To relax and to do some excises are the reasons for every day visit. The purpose of use is the main reason to drive students to use green space and the function that the campus green spaces offered is the key factor that influence students' choice and use. This research suggest that base on the needs of diversity student users, combine with the private space and open space, the style of campus green spaces design need to consider multiple forms to satisfy different extracurricular activities mingle and to undertake targeted action to increase the use of green space of university students.

Study on the Landscape Space Design of Residential Area based on the Perspective of Neighborhood Harmony

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Keywords: Neighborhood Harmony, Communication Behavior, Residential Landscape Space, Design Method

Neighborhood harmony refers to a kind of neighborhood atmosphere which is full of the affinity, sense of belonging, harmony and vitality. Design of residential landscape space based on neighborhood harmonious view can fundamentally improve the vitality of communication of landscape space in residential area and improve the sense of belonging of residents. Through questionnaire survey and behavior observation method, we investigated the social intercourse of outdoor space of 240 residents in 6 residential districts of Fuzhou with more than 5 years living. The questionnaire covers the frequency of residents' communication, depth, outdoor stay time, residents' satisfaction with the status quo of the communication and so on. In addition, residents' communication behavior and activities were continuously observed for seven days, divided into three time periods a day. The results showed that: 1. The residential landscape space in the survey sample generally existed some problems, such as the short time of residents' staying, the weak connection between regions and low satisfaction of neighborhood communication status; 2. Space function limitation, spatial recognition, as well as spatial comfort level is the main factor affecting the neighbors' communication. Based on this, the design principles of composite functional design, identification design and comfort design of residential landscape space are proposed to improve the rationality of landscape space design in residential area, so as to improve the vitality of residents communicating, narrow the distance between neighbors and increase the harmony of the neighborhood, and in order to provide some theoretical basis for the optimization and design of the landscape space in residential areas.

Study on the Vernacular Landscape of Southeastern Zhejiang From the Perspective of Landscape Architecture

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Keywords: Landscape Architecture, Vernacular Landscape, Southeastern Zhejiang, Dynamic Evolution, Landscape Type Division, Protection and Development Strategies

"As an important type of cultural landscape, vernacular landscape is a product of human activity coexisting with nature. The area of Southeastern Zhejiang is located in Zhejiang-Fujian hilly regions, characterized by meandering ridges and peaks, stretching rivers, winding coast, large population with limited arable land. Generations of local people have continued struggling with mountains and sea for arable land, building water conservancy projects and cultivating diligently. The regional vernacular landscape pattern featured with high-yield safe lands and diverse types is formed with the continuous development of the thousand years of traditional agricultural civilization. Under the background of rapid process of urbanization, high-speed regional economic development and new rural construction in full swing in recent 30 years, the vernacular landscape features within the region is undergoing dramatic changes, the original unique landscape pattern is facing the danger of being gradually eroded.

In the perspective of landscape architecture, this paper chooses the vernacular landscape of Wenzhou, Taizhou and Lishui as the object of research, study its morphological characteristics and dynamic evolution in different periods since Han and Tang Dynasties through the way of comprehensive literature, field research and graphing. And then, make an intensive study of its landscape typology analysis and carry out its landscape type division. Summarize the core characteristics and components by the detailed study of diverse landscape type regions through multi-scale levels. Finally, under considering the development demand and actual problems nowadays, try to propose the strategy of protecting and developing the vernacular landscape in Southeastern Zhejiang, which takes into account the protection of the natural environment, the continuation of the regional context and the improvement of the quality of life."

The Association between built environments and crime around low-income and minority schools

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Keywords: The Association between built environments and crime around low-income and minority schools

"Background: Fear of crime is a major deterrent to outdoor physical activity and walking to school for children [1]. Literature suggests that low-income and minority children are more likely to live in neighborhoods with high crime rates but they are twice more likely to walk to school, compared to high-income and white children [2]. The effects of neighborhood environments (e.g., high deprivation, high vacant rate, poor lighting conditions) and fear of crime on active transportation among children are well documented [3]. However, little has been researched about the detailed aspects of the built environments captured at the street level that may be linked to crime incidences in areas around elementary schools.

Purpose: This study examines the associations between built environments and the distribution of crime at street segment levels around 14 elementary schools with high proportions of low-income and minority students.

Methods: In this study, crime records from 2011 to 2015 captured by the Seattle Police Department were analyzed at the street segment level (n=671 segments), within a ¼ mile buffer from 14 schools in Seattle WA. We used environmental audit data independently conducted by two trained and certified auditors. The built environment along the street segments was assessed for three domains: (a) land uses and housing types, (b) street characteristics (e.g., school zones, sidewalks, amenities, etc.), and (c) neighborhood perceptions (e.g., surveillance, street maintenance, etc.). A negative binomial regression was used to identify significant environmental variables associated with the number of crime incidents around the selected schools.

Preliminary Results: After adjusting the length of the street segments, certain variables in the three environmental domains were associated with the likelihood of falls. Street segments surrounded by single family homes or were more visible and had more vegetation were associated with lower crime rates while multi-family housing based street segments were associated with higher crime rates. Streets with more items associated with neighborhood physical and social disorder (e.g., graffiti, whole or broken bottles) were also associated with high crime rates.

Discussions: The findings were consistent with previous studies that physical incivilities/disorders were associated with a higher number of reported crimes [4]. Our study of the micro-level environmental effects on crime provides important insights into the potential environmental interventions around elementary schools (e.g. limiting high-density housing, improving visual surveillance, and removing signs of social disorder) that can improve safety among for the low-income and minority children."

The Associations Between Travel Mode, Physical Attributes of The Environment and Attentional Functioning

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Keywords: Travel Mode, Attentional Functioning, Neighborhood Green, Nearby Nature

"Research in environmental psychology and public health suggests that urban residents who walk more in outdoor spaces have relatively higher levels of wellbeing compared to those who walk less. It is unclear, however, the extent to which routine travel modes to work are associated with a sub-component of wellbeing – attentional functioning. Understanding these associations can shed light on possible ways to improve urban residents' wellbeing through restoration from mental fatigue.
This study focuses on urban residents' attentional functioning, and how it may differ depending on the way participants get to work or school on a daily basis. A random sample of 434 Chicago residents participated in a survey using a five-point rating scale to respond to a wide variety of questions on these concepts. Exploratory factor analysis resulted in two distinct measures for physical attributes of the environment including proximity to green/social space and amount of nearby green features, and attentional functioning. The attentional functioning measure was adapted from three scales: Social Connectedness (SCS- 3 items) (Lee and Robbins 1995), Positive and Negative Affect Scale (PANAS- 15 items) (Watson, Clark, and Tellegen 1988), and Attentional Functioning Index (AFI-13 items) (Cimprich, Visovatti, and Ronis 2011).

Analyses showed that the average level of attentional functioning among those who walk to work or school is significantly higher than that of those who drive or use public transportation (bus or train). Additionally, a strong association was found between the proximity to green/social spaces and attentional functioning. Given the significance of travel mode and proximity to green features in relation with attentional functioning, this study suggests more in-depth examination of outdoor spaces to find out possible ways of improving walkability and nearby green features in residential neighborhoods and encouraging the residents to walk more frequently. The next step, is to test the extent to which travel mode mediates the association between proximity to green/social spaces and attentional functioning."

The Attractiveness of Universal Design in Playground Environments

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Keywords: Accessibility, Playground, Park

"The primary aim of this research is to examine whether public play environments designed using Universal Design (UD) principles may be more attractive to the general public than those designed simply meeting Americans with Disabilities Act (ADA) statutory Accessible Design (AD) minimums. Theory presented in the literature supports the value of UD in play environments as having the potential to encourage more use by people of all abilities benefiting adults and children alike (1, 2), yet quantitative evidence supporting the theory remains underdeveloped.

The research is a cross-section case study involving a Case playground built using UD principles and two Comparison playgrounds built to AD standards. It compares the level of use between the play environments of three city parks that were chosen for their similarity of character and use which are themselves proximally located in a single North Texas city allowing observations of all three within about 30 minutes' time. They are in the three busiest city parks from a pilot study presented in 2014 (3). Methodologies were developed adding graphic recording of users in place within the park environments, building on established protocols. Participants were recorded through 70 systematic observations in each of the 3 parks (n=210) over 14 days during 5 time periods graphically recording users in place where they were recreating across the entire park and in the playground areas.
Between the Park Zones and Playground Zones, there was a combined total of 12,520 users observed. In the Playground Zones, the Case had a mean of 19.6 users per observation where the two Comparisons had approximately 60% fewer users. Significance was confirmed by ANOVA and ZINB regression analysis giving support to the hypothesis of UD being an attractive element in playgrounds. The parks showed similar overall use which serves to reject the possibility of a confounding effect of high park activity influencing playground use.

The evidence-based findings can give further support to city policies advocating UD in public play environments toward the goal of getting children and their families' outdoors and more active regardless of ability. Higher use in these play environments by people of all ages and abilities favors building these facilities for people having disabilities raising physical activity levels for all. The new graphic based research methodology has the potential of returning stronger generalizability toward the effect specific amenities have on use and physical activity in a variety of venues."

The Public's Perception of Air Pollution in China

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Keywords: Air Pollution, China, Public Health, Environmental Policy, Urban Planning

"On December 7th, 2015 Beijing issued a Red Alert, the first of its kind since the emergency air-pollution response system was established in 2013. The development of this system suggests that the government in China recognizes the serious health and environmental problems associated with exposure to air pollution. Poor air quality has been linked to significant public health issues (McAllister 1998; Pope 2000) and disease (Santos, 1973; Franchini & Mannucci, 2012). Yet, while environmental policies have been created to address air quality, there are still many challenges to be overcome in order to improve conditions. The purpose of this study was to better understand what the Chinese public perceives about air pollution. Specifically, to study the perception of 1) air quality and the sources of air pollution, 2) health effects caused by air pollution, and 3) the extent to which people know about air pollution and environmental policies in China.

We issued an online survey (in Chinese) initially spawning the survey via researcher's social media networks (WeChat, Weibo, and QQ) starting in December 2015 and in a month received nearly 400 usable responses. The anonymous survey was developed using Qualtrics and intended to be taken on a smart phone within a few minutes. The survey was presented in three modules: 1) Air quality and source of pollution, 2) Health effects of air pollution, and 3) Air pollution and environmental policies, as well as, demographic data. Questions ranged from asking about perception of air quality compared to the year before, the kinds of sources of air pollution, if air pollution has effected an individual's health, and the agreement with various policies for reducing vehicular pollution, amongst many others, and participants indicated these using a variety of sliders and multiple choice responses. Descriptive statistics and an analysis of variance (ANOVA) was conducted to identify influential variables and key results. The data collected come from numerous cities in China, including Beijing, Shanghai, Tianjin and Guangzhou. There was a near even distribution of gender and a wide range of ages (mean = 39) that completed the survey. Most respondents stated that they had a formal university degree (50%+ with bachelors). While the study was not a random sample of the population, the stated demographics suggest a reasonably diverse sample of the population (suggesting the survey was distributed beyond the researcher's own social networks). While the diversity may not be reflective of the population the results do offer useful preliminary evidence. The statistically significant results suggest that individuals believe that power plants cause the most air pollution, followed by motor vehicles and industrial manufacturing facilities. The results also show that the public believes that policies aimed toward individuals (related laws and education) are not nearly as effective at laws aimed toward organizations which include policing and investment in clean technologies. Perhaps what is most surprising is that more than half of respondents were not aware that China had an air pollution and prevention control law. Our findings suggest that the public may be growingly aware of air pollution and that the Chinese government has made strides toward developing regulatory policies. However, there is still a need for a greater dialog and education of and with citizens and organizations in order to improve air quality in urban centers."

The Relationships Between Human Comfort and Cooling and Humidifying Effectiveness in Semiarid Urban Green Spaces

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Keywords: The northwest semiarid region, human comfort index, cooling and humidifying effect, campus public green space

In the 21-century world, the urbanization advancement has improved rapidly but facing the huge impact and conflict, the resilience and sustainability becomes the significant for the urbanization development. The relationship between human comfort and cooling and humidifying effectiveness in semiarid urban green spaces become the more and more necessary.

With the development of the city life and leisure, more and more people demand outdoors recreation activities. Campus landscape green space system planning should on the basis of human needs with the humanized design. And humanized design is embodied in two aspects; one is the person needs and comfortable degree; another one is that campus public green space could bring the ecological benefits. Although there were lots of research about the campus green space ecological design, but the study of the microclimate influence and human body comfort were rare. The human comfort index model is adopted in the analysis of human comfort of cooling space to validate the feasibility of fine water mist cooling for regulation in large space of local environment. As a result, it is extraordinary important for the relationship of the human comfort and the effectiveness cooling and humidifying microclimates in semiarid campus green spaces, experimental analyzing the human comfort index, temperature, humidity conditions of the habitat green land in Northeast region.

This research measured plant community structure, human comfort index of the campus green land, and also included microclimate characteristics, including the wind speed, solar radiation, relative humidity and air temperature, at campus in Xi'an, China. Multivariate linear regression indicated that canopy area; canopy density, tree height and solar radiation had an effect on the relative humidity increase and temperature reduction. Cooling humidifying effects of different vegetation structure difference is larger, the average temperature of 0.2 ° C ~ 2.3 ° C, humidifying an average of 1.8% ~ 6.5%. This study analyzed the microclimate change under different structure types environment of campus green space, so as to explore the relationship of climate change and the human body comfort. The data were record by the Watchdog every 10 min from 7:00 to 19:00, the formula relate to human comfort was $S=0.6（|Ta－24|）+0.07（|RH－70|）+0.5（|V－2|）$. This study provided guidance for campus outdoors space design and planning, and had the practical significance to create a more comfortable environment for people in the urbanization advancement.

The Role of In-Between Spaces in Children's Expression of Agency Within School Environments

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Keywords: Schools, Physical Environment, In-Between Spaces, Children's Agency

This paper explores the influence of the environmental characteristics of in-between spaces within primary school environments on children's expression of agency. During the formative years of childhood, primary schools play a significant role in the development of children's agency. The concept of children's agency in schools is originated from sociology generally confined to the understanding of social and organizational characteristics. The potential role of physical characteristics of school environments in children's agency is often absent from these studies. This study develops the concept of children's agency into an environment-behaviour concept to include the role of the physical design. Sociological studies define agency as the ability to initiate purposeful actions which indicate freedom of choice (Bandura, 2001; Kangas et al., 2014). This definition aligns with the findings from environment-behavior studies which argue for the environment of in-between spaces which can support individual's expression of self (Gehl, 2011; Tschumi, 1997). This study refers to in-between spaces as places valued by children for their expression of agency although their potential quality is not recognized by school designers.

Three methods are used in this multi-case qualitative study involving three schools in Sydney, Australia: (a) 60 behavior mapping sessions in three school grounds during the recess and lunch time period; (b) 24 walking tours guided by children around each school ground; and (c) 6 focus groups of 3-5 children in each school. This study shows that children predominantly choose in-between spaces for their self-directed activities, which inform their agency. The findings identify the physical, social and organizational characteristics of in-between spaces and explain the dynamic relationship between these characteristics which influence children's choice of these places for use. Although there is already a consensus on the influence of the social and organizational characteristics of school environments on children's agency (Rainio, 2008; Sairanen & Kumpulainen, 2014), the central argument of this study is that the physical design can modify the influence of the socio-organizational characteristics. It also argues that social and organizational considerations for promoting children's agency are not fully appreciated without taking the role of the physical environment into account. The holistic view of this study to the combined influence of the physical, social and organizational environment on children's agency can explain the contrasting issues emerged from previous research on children's place preferences which does not often pay attention to this dynamism.

The Role of Water-Based Imageability in Climate Adaptation: Promoting Upstream Water Retention through Water-Based Place Identity

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Keywords: Climate Adaptation, Place Attachment, Imageability, Water Retention, Waterscape, Mappability, Identifiability

Many delta cities have sought to retrofit their public realm to slow and store runoff for climate adaptation while it is more cost-effective to mitigate downstream flooding by implementing controlled flooding upstream (Hartmann, 2010). Place attachment has been found to mediate societal responses to climate adaptation and to encourage pro-environmental behaviors (Adger, Barnett, Brown, Marshall, O'Brien, 2013). To identify possible mechanisms for encouraging water retention in upstream cities, we hypothesized that water-based place attachment contributed to openness towards adaptive water urbanism.

We operationalized water-based place attachment into water-based place identity and water-based place dependence based on the tripartite theory of place attachment (Scannell & Gifford, 2010) to analyze data from 60 participants sampled in eight water cities. From cognitive mapping and photovoice, we obtained waterscape mappability and identifiability as indicators for water-based place identity. Water-based place dependence was derived from interview results on waterscapes' capacities to help reduce stress and to facilitate self-orientation. We measured water-based place attachment by the extent to which participants would miss waterscapes if they were to leave the city tomorrow. We created structured interview questions based on the results of expert interviews for measuring the public acceptance of adaptive water urbanism. These questions were concerned with participants' openness to use the public realm for storing public storm water runoff, infiltrating public storm water runoff, water transportation, as well as canals and creeks.

We employed principal components analyses to reduce data into composite measures before performing two sets of mediation analyses. The first set of mediation analyses showed that water-based place attachment was significantly higher in cities with higher water densities compared to cities with lower water densities. However, this relationship became insignificant in the presence of aquaphilic urbanism as a mediator. Aquaphilic urbanism was a composite measure that accounted for waterscapes' mappability, identifiability, stress-reducing effect, and potential to facilitate self-orientation.

The second set of mediation analyses revealed that people's openness towards adaptive water urbanism significantly increased with water-based place attachment only when it was derived from water-based place identity, which is a composite measure of waterscape mappability and identifiability. The findings suggest that water-based imageability plays a critical role in climate adaptation. Despite their lower water densities than downstream cities, upstream cities can use mappable and identifiable waterscapes to help introduce adaptive water urbanism for public acceptance. Cognitive mapping and photovoice are promising methods for identifying factors for mainstreaming upstream water retention for climate adaptation.

The Study of Elderly Music Activities in Urban Park under Aging: Create a Comfortable Space for People at Particular Sound Environment

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Keywords: Urban Park, Elderly, Sound Environment

"With the aggravation of aging in China, the square dance in parks and mobile KTV activities of the elderly have become popular rapidly in recent years. At the same time, some cities promulgated ""noise limit"" which caused lots of social controversies. The paper draws a series of conclusions about the improvement of urban park acoustic environment in order to achieve the harmonious coexistence of" "city parks, music and people"".

Three parks of Zhongshan, Nanhu and Youth were selected as the research areas through the investigation and research on the seven central parks in Shenyang. The three factors of human, music and space were taken as the research objects. The questionnaire and physical investigation were used as the survey methods, and the SPSS analysis data was carried on the research.

According to the relationship between the times of park music activities and the number of participants, the types of acoustical environment in urban parks were identified as peak apparent, dynamic equilibrium and active stable.

Eight different kinds of music activities space, this research were selected to measure the sound pressure level, and the key factors of the sound attenuation in the space. The relationship between the sound attenuation and every factor was obtained by SPSS, which included that the density of the plant, the absolute value of ground elevation and the enclosure degree were positively correlated to the degree of sound attenuation, while the functional mixing degree and sound source sound pressure level were significantly negatively correlated.

We found that the majority of music activities' participants said that there were a serious lack of space and a poor coordination between space and music activities. The majority of young participants hoped that it would be working to reduce noise interference by improving the space.

There is a balance between satisfying needs of the elderly, coordinating the interests of other groups and reducing the negative effects of music activities in the duality of park music activities. According to the spatial requirements of the two types of music activities, mobile KTV tends to be the small space form of private space, hilly style, the quiet and beautiful landscape; and the square dance is inclined to be the large space form of full equipment, sink square, functional mix and open landscape.

The Study on The Interaction Between Users and Landscape System in Chengdu Tourism Old Town

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Keywords: Tourism Old Town, Environment Interaction

Around Chengdu, a lot of old towns were developed into tourism spots. With beautiful nature environment and valuable local characteristics of history and culture, they are becoming good places for leisure, vacation and sightseeing. In the continual reconstruction, the landscape of towns is developed and improved with the deepening of the design. We try to make a survey, classification and analysis for the interactive mode between users and landscape system in Chengdu ancient town. There are some inappropriate uses of open spaces, and some potential value of old town landscape need to be found. According to the existing landscape characteristics of local resource and conditions, we put forward some design strategies based on the interaction between users and landscape system, so as to increase the fun and enhance the importance of local culture and educational function. furthermore, the good interactive mode between users and landscape system could promote the public participation for the construction of old town landscape, and enrich the love for the native environment and nature.

Three Dimensionalities of Value Inspired by Cultural Landscape: Take World Heritage Cultural Landscape as Example

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Keywords: Cultural Landscape, World Heritage, Outstanding Universal Value, Cultural Heritage. Heritage Conservation

Cultural Landscape has been a new type of World Heritage since 1992. Its theory has been involved with the practices and it also brings great influence. For a better understanding of the influence that, this new type has brought in to the value system, the 98 World Heritage Cultural Landscapes inscribed by August, 2016 are taken as the object of study, and are divided into three types: artificial landscape, organically evolved landscape and associative cultural landscape. According to the evaluation, three dimensionalities of values are represented: space, time and spirit, coming from human creation, human dwelling and human faith respectively. The three dimensionalities have formed a system of cultural landscape values. The current heritage perception system in China is based on historic, scientific and artistic values, and the paper suggests to strengthen the inclusiveness towards the time and spirit dimensionalities beyond the space value.

Uncovering the Relationships between Regional Landscape Perception and Tourism Behavior Preference in Chinese Traditional Villages

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Keywords: Traditional Villages; Tourism; Landscape Context; Behavior Preference; Integrity; Authenticity

Uncovering the Relationships between Landscape Context and Tourist Behavior Preference in Chinese Traditional Villages
Chinese traditional villages feature long history and their architecture, landscape and culture highlight profound local characteristics, which are of significant heritage value. At present, they have become important tourist destinations and been confronted with tourism development on a large scale, which signifies both opportunities and challenges. For example, some villagers have reconstructed their own houses, street, public event space and even festival activities as "museums" in order to attract tourists. In the course, although traditional architecture and landscape symbols are still maintained, the context and atmosphere of entire villages have undergone change and become a "stage reality". Thus, what kind of effect will such landscape context exert on the tourist behaviors? Field survey are conducted in such three traditional villages as Anhui Hongcun Village, Jiangxi Huangling Village and Zhejiang Zhuge Bagua Village highlighting the same geographical characteristics but different commercial tourism development. The Richter scale is adopted and 450 survey questionnaires are issued with 420 recovered including 392 valid questionnaires. The questionnaires are divided to two parts, 150 and 242 respectively subject to the exploratory factor analysis by SPSS22.0 (n=150) and the confirmatory factor analysis by AMOS21.0 (n = 242).Indicated by the data analysis: 1) individual architecture landscape and the overall village context exert different effects on the tourist perceptions and behaviors; 2) tourists more concern the nature and unsophistication of the entire village atmosphere and the landscape context exerts significant positive effect on the tourist experiencing behaviors, the profound rural feelings, the unsophisticated folk custom, the leisure and comfortable living status, are conducive to stimulate the tourists' intention of participating in the experiencing activities so that the tourists want to spend much time in feeling the spaces of production, living and culture; 3) landscape context exerts significant effect on tourist behaviors and intention after their tours as higher perception of traditional village behavior context and atmosphere can further urge the tourists' intention of revisit and recommendation. In conclusion, the research verifies the significant effect of traditional villages landscape context on the tourist behavior preference. Efforts shall not only be made to protect individual architecture and landscape, but further protect the authenticity and integrity of the landscape context so as to achieve the tourism sustainable development and propose warning to the commercialized and stage development tendency.

Understanding Shanghai Residents' Perception of Leisure Impact and Experience Satisfaction of Urban Community Parks: An Integrated and IPA method

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Keywords: Community Parks, Importance-Performance Analysis, Leisure Impacts, Perceived Satisfaction and Importance, Recreation Experiences

"This exploratory study employed an integrated methodological approach to examine the relationship among several factors for residents of Shanghai when it came to using urban park spaces. These factors included leisure experience impact, users' perceptions, importance and satisfaction of the impact. The study was conducted using two sample groups of 1,200 residents each, around three community parks that contained a variety of recreation-related impacts. Participants completed open-ended questionnaires focusing on what impacts they noticed affected their leisure experience. The top three perceived impacts, in terms of cumulative percentage of selection, were exposed recreation space (3.79%), facilities (3.67%), and landscape architecture (3.43%). Subsequently, respondents fulfilled scales according to initial open-ended responses, to analyze if the six factors and 33 impacts affect recreation satisfaction, with SPSS software. The weighted average indicates that users were satisfied with landscape, obstruction, facilities, and management. Correspondence analysis was used to reflect residents' basic attitudes, recreational perception, and satisfaction evaluation on the existing situation by IPA method, and mirrored preferences for future development of community parks. The results suggest that for residents, high levels of satisfaction with landscape and environment were advantages, but recreation space and facility were critical for the perception of the community parks. In comparison, management was found to be an opportunity factor to improve leisure satisfaction. The findings emphasized landscape, environment, space, facility, and management as elements that enhance recreational perception and avoid passive interference. These findings have potential implications for community park planning and design as well as management and maintenance priorities.

Learning outcomes: Two integrated methods to target residents' leisure perceptions and satisfaction.
- Cumulative percentage was used to represent the importance of leisure impacts.
- Leisure space and environment had the most critical effects on users' experience.
- Perceptions are linked to recreational function in terms in urban community parks.

Unlocking the Potential of Big Data from Mobile Phone Base Stations to Assess Urban Green Space Utilization

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Keywords: Big data, Urban green space, GIS, Spatial analysis

There is an expanding body of research exploring the spatial pattern and the utilization of urban green spaces, while these studies typically collected utilization data by direct observation or survey methods. Little research has been reported based on big data. The massive data generated by mobile phones, which contain location information for users collected at a relatively high temporal frequency, can provide sufficient evidence to monitor the utilization of urban green space. Despite such high potential, systematic attempts have yet to be made to use such data to evaluate park utilization.

The overarching goal of this paper is to unlock the massive data from mobile phone locations to assess the utilization of urban green space, and then from there, provide evidence for policy-makers to improve the urban green space pattern in megacities. Our research focuses on Shanghai, one of the most densely populated urban environments in the world, with one of the highest urban green space per capita share in China. In this study, we pilot research on 27 parks in Shanghai. Park users' location data within the boundaries of selected urban green space are collected by Shanghai Mobile. Data includes geographic and temporal referencing of users' mobile phone locations.

We take a geostatistical approach to process the mobile phone data that contain both space and time information in ArcGIS. Kernel density analysis is conducted to map the spatial density of utilization within selected urban green space. Density of utilization is determined by calculating kernel utilization distribution (UD) from the mobile phone locations. The location data from mobile users also allow us to analyze the temporal patterns of park utilization. We estimate the number of users of each park diurnally and assess whether seasonality will affect the use of parks. In addition, we compare the different spatial and temporal utilization patterns with our high-resolution characterizations of land cover within parks and among different types of parks. Analysis of variance (ANOVA) is used to compare UD of parks associated with different attributes. The results indicate the spatial utilization pattern of green spaces in Shanghai, providing suggestions for optimizing the green space structure. There are two major contributions: 1) Advance on existing methods to understand urban green space utilization in densely populated built environment; 2) Innovate statistical and computational analysis and predictions of the utilization of urban green space.

Urban Agriculture in the South Plains

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Keywords: Urban Farming, Agriculture, and Community

Urban farming, also known as urban agriculture, can take a variety of forms, such as backyard, front yard, and roof-top gardens; pocket gardens; and community gardens. Urban farming is a growing interest in the United States and around the world; not only does farming in a community setting provide urban dwellers supplemental food, but evidence suggests that it reduces everyday stress, improves social relationships, and facilitates positive social interactions among neighbors (Wakefield, S. et al. 2007; Armstrong, 2000). As a result, many countries and many communities have already set up urban farms.
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While a regional farming community is growing in the West Texas South Plains, few farms exist within the city of Lubbock. By demonstrating the potential for urban farming in Lubbock, this study seeks to demonstrate the potential for urban agriculture in the South Plains. We plan to evaluated the potential for urban farming in Lubbock in two ways: 1) we will review the relevant literature to identify barriers to and opportunities for urban farming, and 2) we will conduct interviews with urban farmers to identify the farming practices currently in use in Lubbock.

For literature review, we focused primarily on theories and principles of urban farming, policies, and previous experiences and lessons. For interviews, due to the limited number of urban farming practices in Lubbock, we will conduct five face-to-face interviews with farmers around the Lubbock area. Our interview questions cover three major aspects: 1) basic farm information (e.g. structure, size, product types), 2) challenges and support, and 3) processing and marketing.

We anticipate that this study will deepen our understanding of the barriers and opportunities for urban farming in the South Plains. It will also provide recommendations on policies, marketing strategies, and design guidelines to help promote urban farming practices, and ultimately benefit residents’ health and improve social relationships in communities in the South Plain.

Urban Nature for Healthy Living: Urban Forest Research and Policies from South Korea

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Keywords: Public Health, Urban Nature, Urban Forest, Healthy Community

Background: Abundant evidence suggests that the need for humans to be connected with nature is genetic and fundamental (Kahn, 1999). The predominantly artificial urban environment itself is a significant source of stress and poses many threats to health. The magnitude of stress that people suffer is not equal. Megacities with high population density and size tend to generate more stressors. People living in megacities, most of which are located in Asia, are especially vulnerable to stress due to its rapid and dynamic urban expansion process.

Purposes and Methods: Utilizing literature reviews and case studies, this essay aims to achieve three objectives. First, it discusses health benefits of nature within the context of continuing urbanization. Second, this essay summarizes the current status of knowledge and highlights the remaining gaps (Shanahan et al., 2015); and discusses strategies to guide the development of policies and planning/design interventions to bring nature back to the city. Third, case examples from South Korea, home to one of the largest megacities in the world, are presented to illustrate recent policy efforts to bring nature close to the lives of its urban inhabitants. The outcomes of this policy intervention are evaluated in terms of the changes in the availability of urban forests and relevant health benefits.

Preliminary Findings: One of the case examples to be highlighted in this essay is the "Green Welfare 7" program in South Korea, a new policy enacted by the Korean Forest Services in 2012 to support lifestyle-based recreational and therapeutic activities in urban forest for Koreans of all ages. This policy takes a life course approach and entails tailored services/programs according to the 7 stages in life, ranging from early childhood to late adulthood. This policy also includes both "hardware" (e.g. school forest, healing forest, green schools/camps, education centers) and "software" (e.g. certified forest therapists, forest story tellers, school-based programs) components. Preliminary evaluations suggest significant increases in the availability of urban forests and related programs, and positive health benefits among the urban forest users and/or the therapeutic program participants (Choi et al., 2015).

Importance and Discussions: The success of Korean efforts appears to be attributable to (a) the governmental leadership, (b) tailored and systematic life-stage approaches, and (c) parallel efforts including the physical infrastructure (hardware) and the human infrastructure (software) supports. Lessons from the South Korean efforts offer insights to other cities/countries interested in bringing nature back to the life of their residents for health and wellbeing.

Use of urban greenway: from user perceptions, designer perspective and manager view

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Keywords: Urban greenway, Perception, Recreation, Ring Park

As an essential part of urban green space, urban greenway can fulfill a multitude of ecological environmental functions and increase the life and well-being of residents. Greenway is used by different users in many ways. However, who's on the greenway? Are they satisfied with the greenway? How are the designers' professional perspectives of the greenway? From the greenway managers' view, is it easy to manage? There is a lack of the combined information about such questions.

This research was based on three main categories of users' opinions and intended to determine if such greenway designs and management were contributing to the quality of the greenway and how people perceive such consideration basing on the way they used the greenway.

This study examined the socioeconomic, demographic, and satisfaction characteristics of greenway users. A questionnaire survey was conducted on four hundred and eighty users of five parts of the Ring Park Greenway around old Hefei city in China On April, 2016. To better understand and promote greenway design and management, the research also used questionnaire survey and interviews with the graduate students and teachers in the Department of Landscape Architecture of Anhui Agricultural University and managers in Hefei Nine Lions Landscape Construction Company to learn their knowledge and perceptions of greenway design and the problems.

Results indicated that it has a significant association with greenway user demographic characteristics and their preferences. The typical users were freelancers, students and retired people and most people used greenway for exercise and recreation. It also demonstrated that how users, designers and greenway managers have different satisfactions about traffic condition (e.g., greenway surfacing, greenway width, slope suitability, public transportation, parking), landscape design (vegetation design and management, local characteristics), infrastructure (e.g., recreational facilities, identification system, lighting facilities, commercial facilities, public health facilities), management maintenance services (e.g., security management, emergency service). Design and management decision and incorporate users' perceptions not only can help optimize the existing greenways but also can help the future greenways design and management achieve a broad range of goals to meet the users' needs.

Using Simulated Pedestrian Environments to Study Walking Behaviors

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Keywords: Pedestrian Environments, Walking, Landscape Buffer, Trees

What are the physical attributes in pedestrian environments that affect people's perception of safety and their decisions to walk? Landscape buffers are also extremely valuable amenities that provide a plausible solution to the pedestrian concerns studied. Landscape buffers are long planted areas between sidewalks and street curbs. Landis et al. (2001) found that buffering increases pedestrians' comfort or sense of safety. Lastly, tree-lined streets can also improve roadway aesthetics and provide shade. Giles-Corti and Donovan (2003) found that people who live on tree lined streets are more likely to walk than those who live on streets without trees. We investigated the effects of pedestrian environments on parents' walking behavior and their willingness to let their children walk to school.

This study was a simulation experiment that created six different pedestrian environmental conditions using landscape buffers, sidewalks, and street trees. We used a 2-D driving simulator with digital displays on three screens.

Condition 1: No buffer, no sidewalk, and no street trees
Condition 2: No buffer, yes sidewalk, and no street trees
Condition 3: Narrow (4') buffer, yes sidewalk, and no street trees
Condition 4: Wide (8') buffer, yes sidewalk, and yes street trees
Condition 5: Narrow (4') buffer, yes sidewalk, and yes street trees
Condition 6: Wide (8') buffer, yes sidewalk, and yes street trees

We investigated the effects of these six environmental conditions on parents' perception of safety for themselves and their children. Parents who participated also indicated their willingness to walk and to let their children walk to school.

We found that parents of elementary school children reported sidewalks with buffers are much safer for their children than sidewalks with no buffer at all. They are also more likely to let their children walk to school on sidewalks with buffers than without buffers. The effects of trees on walking and perception of safety were greater when there was a wide buffer than a narrow buffer. Increasing landscape buffers and planting trees in wide buffers in street design may play an important role in improving people's health by increasing their walking activity. Creating supportive physical environments that facilitate walking should be an important goal in designing pedestrian environments.

Research and Methods

Design Anthropology: Bridging anthropology and landscape architecture

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Keywords: Anthropology, Fieldwork, Methods, The Bahamas

Bridging landscape architecture and anthropology, this paper will describe the relationships between both disciplines primarily through an example of collaborative field research conducted in The Bahamas. Recognizing different epistemological forms, the project challenged designers to be more sensitive to the myriad reasons behind their work, and anthropologists to consider the activation of their observations. Using anthropological methods to better understand patterns of everyday life and to translate these patterns into design proposals, fieldwork becomes both active and reflective.

Anthropology—the writing about people—offers a set of tools to understand relationships. Through participant observation, often for a year or more, anthropologists try to unearth relationships, making "the strange familiar." But anthropology takes a very long time, not just for fieldwork but for the necessary reflection and writing-up. In adapting anthropological research for landscape architects, we asked what if the role of the individual fieldworker becomes part of a collective? What if rather than one anthropologist spending a year in the field, fifty-two fieldworkers spend a week each? The data will be different, but can it have a similar level of thickness? Over three years, in a course offered between Harvard Graduate School of Design and Faculty of Arts and Sciences we conducted an experiment in collective fieldwork. The site, the Exuma archipelago in The Bahamas is 180 kilometers long with 365 islands and cays, and was unmanageable to a single researcher.

We found that the data gathered by multiple fieldworkers, while of course different from that obtained by one fieldworker, was of a high level of "thickness," yet still needed a long time for the necessary reflection. The main challenge was that the fieldnotes needed to be shared among the collective. To this end, an innovative online tool was developed for the indexing and sharing of field research, allowing key topics to be identified. While these notes themselves have the capacity to become agents for change, one unexpected outcome arose when it became clear that fieldwork had become more than observation: it is also about action.

There is a question of method: if we are to design more human centered—or anthropological—landscapes then we need to find ways to better understand those landscapes. It is in this bridge between anthropology and landscape architecture, between reflection and action, that really rich opportunities arise to activate the various ecologies in a landscape, whether urban or rural.

A Comparison of park access with park need for children: Case Study in Cache County, UT., USA

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Keywords: Children, Park access, Proximity, Quality, Potential park need

Childhood obesity is one of the country's most serious health problems with growing efforts to prevent childhood obesity by improving opportunities for physical activity in their communities. The outdoor settings of the built environment, such as parks and open spaces, offer children opportunities for physical activities, experience with nature, and social interaction, contributing to children's physical and psychological health. However, children's physical access to parks is often inequitable. Simultaneously, the quality of parks also varies. These disparities caused inequitable distribution of health-promoting features of built environment among disadvantaged groups who may not have access to other resources (Floyd et al 2009). While most previous studies focused on physical park distribution inequities, the purpose of this study is to explore park access by both park physical proximity and quality related to children's (5 to 17 years of age) potential need for parks.

This study employs case study methods to explore these relationships across Cache County, Utah. Park proximity is identified by GIS network analysis methods to determine park service areas for each of the 86 census block groups in Cache County. Both overall park quality and five separate park feature qualities (facilities, amenities, aesthetic feature, cleanliness and maintenance, and incivility) are measured using the PARK tool (Parks, Activity and Recreation among Kids) (Bird et al., 2015). The measure of children's potential park need is an index (Loukaitou-Sideris & Stieglitz, 2002) created according to the following contributing factors; the population density of children, total population density, population percentage whose income falls below the federal poverty line, population percentage of unemployed, minority density, and yard size. Comparison between the measures is both graphical (spatial) and statistical (correlational). The graphical analysis identifies spatial gaps between the measures. The statistical analysis, using multiple linear regression assesses the extent that the park location and quality distribution is correlated with children's potential park need in the setting. Proposed parks are added in the graphically identified spatial gaps, the effect of which is statistically analyzed to see whether children's park needs can be better met in the study area.

This study can be a model for examining park access and park need among children to ultimately improve opportunities for physical activity and reduce the rate of obesity among the population.

A Cross-Cultural Understanding of Landscape Characterization

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Keywords: landscape characterization, environmental philosophy, national park

Landscape characterization responding to European Landscape Convention has tended to stress the everyday landscape but not assess which is better or worse (Swanwick, 2002; Tudor, 2014). It provides a framework for describing an area systematically, ensuring that judgments about future landscape change can be made based on knowledge of what is distinctive. However, the concept of landscape differs from the way we acknowledge nature within the cross-cultural context. A 'created' nature was preferred in the west while the Chinese believed 'harmony of man with nature'. Furthermore, Chinese views were ethical in orientation but western ones believed that landscapes had objective scientific meanings (YANG, 2014). Therefore, landscape characterization methodology is not appropriate for China because of different epistemologies and ideologies (Yang, 2015; Zhao,2016).

This paper firstly analyzed the evolution of the definition of LCA, indicating three distinctions of the natural views between the east and the west which refers to the relationship between human and nature, aesthetic attributes, and the relevance of entity and metaphor. Four components of landscape characterizations regarding as landscape conceptions, environmental philosophies, heritage values, and landscape character indicators are compared between the west and the east. Their relationships between each component are examined after the analysis of the ontological and epistemological issues. The western environmental philosophy described the values carried by non-human world and separated the nature and culture factors (Light & Rolston, 2003), whereas Chinese emphasize 'oneness of nature and human beings' (Han, 2006; Yang, 2014; Gao, 2015). The traditional Chinese landscape concept is not only the direct visual landscape but also the scenes with deep historical reference (Li & Woudstra, 2009).

Case selections are based on the most representative of cultural heritage resources which refer to National Park in UK (Peak District National Park) and Scenic and Historic Interest Area in China (Wudang Mountains). The comparative research indicates:
1)landscape character indicators applied in British National Park tended to separate the natural/cultural/perceptional elements while Scenic and Historic Interest Area in China regarded Shanshui(山水) pattern as a whole;
2)this landscape character classify method will provide scientific criterions in defining core, buffer and periphery areas when assessing landscape resources of Scenic and Historic Interest Area in China;
3)beyond the cultural heritage itself, landscape character map of Wudang Mountains classifying the multiple landscape types and values could help researcher recognize the world heritage site as cultural landscape (This has never been identified before).

A Framework for Design Research of Landscape Architecture

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Keywords: research paradigm, research method, science-based design

Landscape architecture is always believed to be the synthesis of science and art, but the role of science is often diminished in practices. As China is heading towards ecological civilization, science-based design will turn out to be more and more crucial to ensure evidence-based decision making. Beginning from the gaps between traditional research and design practices, the underlying reason for diminished role of science in landscape architecture, this article proposes a framework for "design research" for landscape architecture. Key components of design research include: research on design problems; research for design solutions; research through design processes and research on design results. The ultimate goal of this paper is to establish an independent research paradigm of landscape architecture, to define thus distinguish design research from traditional scientific research, to compliment traditional research's deficiency in facilitating design, and to promote the development of science-based design as well as independent scientific views in landscape architecture.

A Study on Sidewalk Landscape Under Urban Viaducts Based on Pedestrians' Safety

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Keywords: viaduct; sidewalk; landscape design; human care; traffic safety

Background: The construction of a large number of viaducts on urban roadways have made obvious roadblock off pedestrians on both sides under the viaduct. Meanwhile, status quo such as the dark light under the viaduct, barriers on vision, deficit of warning signal, unreasonable density of the sidewalk, has had many negative effects including inconvenience to go through the viaduct, high traffic accidents, pedestrians' easy psychological fear, and so on.
Methods: This study makes an investigation of the existing unreasonable problems of pedestrian walkway under the viaduct based on literature research, field investigation, and makes an analysis of pedestrians'behavior and psychology through questionnaire analysis and statistics. Combined with theories include the theory of color, that of environmental psychology, behavioral psychology, and traffic planning and management, determine the main environmental factors affecting the pedestrian safety.

Results: On the basis of my understanding of the spatial characteristics under the viaduct, I will especially discuss the following issues:
(1)Materials of pavement under the viaduct and its landscape.
(2)Distinctive settings of safe stop line on both sides of the sidewalks.
(3)The distance between the intersection of people and vehicles.
(4)Color of light under the viaduct and traffic lights' interval time.
(5)Decoration and material of piers and top of viaduct.
Through the above five aspects of the landscape improvement, combined with the situation of land-use and requirement of both sides of the viaduct and pedestrian psychology as a guide for landscape design of safe, comfortable and convenient environment under viaducts.
Conclusions: This paper summarizes humanized design methods and means of the sidewalk landscape under urban viaducts,and to improve the circulation condition and convenience of pedestrians to go across the viaduct between the street, and also to improve pedestrians' safety index and traffic efficiency under the viaduct, while improving the landscape under the viaduct.

Case Studies in Landscape Surface

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Keywords: urban surface, surface design, materials research, case study method

Industrialization and infrastructure engineering have altered the surface of urban environments, evident through ubiquitous pavements and fragmentation of ecological systems. This design research evaluates recent built landscapes that address this context, specifically by looking at how landscape architects are redesigning the urban 'surface' through material and operational design strategies that regenerate urban sites and systems. Design strategies, such as stratification and the creative re-construction of existing site materials, yield ecological adaptability and revive the public environment, elevating the role of landscape's primary medium—the ground plane—to a new level. Furthermore, these strategies reflect site-specific practices, wherein complex historical or regional narratives are expressed through surface materiality and their configuration.

Framed by a constructionist epistemology (Deming & Swaffield, 2012), the case study projects are evaluated, interpreted and categorized. Surface designs are evaluated for their urban ecological performance, and explored conceptually through fields such as surficial philosophy, sensory perception and new materialism. By reflecting on the operations and theories within the projects, several categories of surface in landscape architecture are identified—Deconstruction/Reconstruction, Geologic Matter, Layered Ground, Hybrid-Modularity, Transitional, and Not Landscapes—defining design, beyond what the surface IS (materials within a configuration), toward what the surface DOES as a design operation and human experience. The design evaluation of the case studies occurs by cross-sectional analysis through the surface as a thick, operational site, documenting materials and construction technologies. Social and aesthetic impacts, notably recognized through the original design expressions in many of the works, are shared through photographs and diagrams of material systems and their effects. Interviews with designers and project site visits allow interpretation of site specific design approaches and the critical social and environmental contexts of the projects. The paper presents the central argument and methods of the research, along with a case study from each of the surface categories.

Invested in the remaking of cities, by precisely targeting the urban surface, the case studies offer expanded research-based design approaches for landscape architectural education and professional practice.

Design as Laboratory: Locating Design-Directed Research Within University Scholarship

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Keywords: Landscape Architecture Research, Research Methods, Design Experiments, Design Scenarios

While science's domination of the language of research can be threatening for non-science disciplines – especially the creative arts – it also offers ways of conceptualising design as research. Recognising design as a laboratory adopts the metaphor of science, and positions design as more than simply a set of problems solving tools. Lincoln University's Landscope DesignLab (established 2012) uses the laboratory model to set up an environment in which questions are explored through design. Through design directed research the imaginative potential of exploring questions generates new knowledge about the dynamics of landscape. Multiple scenarios, design probes, and prototypes can all emerge from the process of designing. Core to the DesignLab's methodology are questioning, collaborating, designing, grounding and communicating. As Carter puts, we need to overcome the paradigm where, "knowledge and creativity are conceived as mutually exclusive" (Carter 2004). Design as Laboratory embraces the inter-disciplinary, mining connections, and quarrying the generative possibilities of problems, questions, absences, and data.

Two DesignLab projects provide insight into the practice of design directed research. Te Whenua Hou reimagines a 7600-ha dairy conversion project as a gateway for brand values and biodiversity corridor across monocultural agricultural landscapes. The Makenzie drylands conservation park investigates ways biodiversity values can be fostered within a distributed park system. These projects generate possibilities which challenge status quo expectations of landscape types, unsettling clichés, critiquing practice, and experimenting with innovative expressions of bio-diversity, culture and sense of place.
Design methods are considered in examination of walkways, paths and walking as a means of developing alternative ways of knowing (and coming to know) landscape. Iterative walking and diagramming combining with temporal and experiential mapping to provide new translations of known spaces. While objective methods of looking at landscape inform what is made known, these design exercises enable new and enriched ways of understanding spaces, and of finding diverse materials, processes and meanings.

The design of a trail and hut is developed in an immersive and experiential investigation in one of Aotearoa New Zealand's Forest Parks. The research is guided by a reciprocating dialogue between designer and experience, and pays particular attention to revealing often invisible aspects of landscape experience. 'Hutting' – a neologism expressing the distributed experience of dwelling in a mountain environment – becomes a key mode of exploring and re-thinking ways of being within protected areas.

Distance and Vegetation Factors Affect Little Egrets (Ardea garzetta) Habitat Selection in Natural and Constructed Wetlands

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Keywords: Natural wetlands, Constructed wetlands, Habitat selection, Egret

Waterfowl, including little egret (Ardea garzetta), is not only an aesthetical appreciation scenery in wetlands, but also an extremely sensitive indicator species of ecological environment in these lands. In order to unveil main factors which affect habitat selection of little egrets for their perching and foraging, and eventually understand ways to attract the little egrets to immigrate to constructed or man-made wetlands, 8 indexes such as guarding and flushing distances, distance from disturbed area, vegetation density, vegetation coverage, ground coverage, slope and distance from water surface were investigated and evaluated by means of quadrat sampling and factor analysis at the little egret habitats in three wetland parks including Gouxihe, Huanhuaxi and Bailuxi in Sichuan province, China. The results showed that:
(1) The guarding and flushing distances of little egrets were longer in natural wetlands than those in constructed or man-made wetlands suggesting that little egrets are more tolerant to the disturbance of human activity.
(2) Kolmogorov-Smirnov test, T-test, and Mann-Whitney U-test analysis showed that significantly differences ($P<0.05$) were existed between experimental samples and control samples in distance from disturbed area, vegetation density, vegetation coverage, slope, distance from water surface. PCA (Principal Component Analysis) analysis of all samples showed that distance factor and vegetation factor were two principal components whose cumulative contribute rate were up to 82.42%.
(3) Little egrets intended to inhabit at areas with gentle slope, dense vegetation, wide forest belt, short distance from water surface, long distance from disturbed area, and forest near a fork estuary.
(4) There were significantly differences ($P<0.05$) between natural wetlands and constructed wetlands or man-made wetlands in three habitat factors including distance from disturbed area, ground coverage and vegetation coverage, and the distance from disturbed area was the most limiting factor in constructed wetlands.
(5) Vanderloeg and Scavia selection coefficient analysis suggested that in natural wetlands, the little egrets preferred to selected farmlands, fishponds, rivers and shallows as their foraging sites, in which waters were: A) with large surface and depth less than 30cm (below their tarsometatarsus with the lowest feather cover), B) distance from disturbed area more than 60m or cover degree more than 0.5, C) distance from perching sites and rivers less than 1000m and 300m respectively. To compare with natural wetlands, the little egrets likely lived in shoals of artificial rivers and lakes in constructed wetlands, which reduced requirements for distance from disturbed area and cover degree.
In conclusion, great differences existed in egret habitat selection between natural wetland and constructed wetland, and there was a significant correlation between habitat factors in foraging and habitat selection, among which distance and vegetation factors contributed more to this selection.

Evaluating the Economic Benefits of Urban Green Spaces in A Spatial Hedonic Approach: Comparing Results from Different Remote Sensing Imageries

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Keywords: NDVI; land cover; green space; economic benefit; hedonic pricing

PURPOSE: This paper aims to compare the performances of different remote sensing imageries in estimating economic benefits of urban green spaces.

BACKGROUND: Many cities around the world have undertaken greening programs (e.g., planting urban trees, adding or enhancing parks, providing incentives for green roofs) to benefit from the amenities of urban green spaces. The hedonic pricing method is commonly used to evaluate the economic benefits of these programs, but the application of this method depends on the availability of adequate land cover data. There is a lack of studies which compare the estimation performances of land cover data generated from different remote sensing imageries.

METHODS: The researchers contrast results from the Cliff–Ord spatial hedonic models applied to single-family houses in Los Angeles (California, USA) with land use data at two spatial resolutions: (1) high-resolution (0.6 m) but relatively expensive classified land cover (CLC) data; and (2) moderate-resolution (30 m) but low-cost Normalized Difference Vegetation Index (NDVI) data from satellite imagery.

FINDINGS: The study shows that elasticities of price with respect to NDVI and with respect to tree canopy cover (TCC) are weakly correlated and often give conflicting signals for prioritizing tree planting efforts. Also, correlations between NDVI and CLC grass measures are low, which suggest that hedonic models based on NDVI would miss the benefits of grassy areas. Our spatial lag-Tobit models that predict tree canopy cover from NDVI, structural characteristics, neighborhood amenities, and socio-demographic variables highlight the relative importance of the latter in explaining tree canopy cover in the vicinity of single-family houses in Los Angeles; these characteristics are much less important to explain parcel TCC.

IMPORTANCE: The researchers highlights the advantages of using high-resolution CLC data over moderate resolution NDVI data to estimate the economic benefits of urban greening programs. This study provides data collection guidance to agencies interested in implementing urban greening programs.

Green Roof Plants Trials - An investigation of new plants from genus of Delosperma for green roofs by cutting

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Keywords: Green Roof, Delosperma, Cutting

Green roofs, as well as their undoubted functional benefits, can also be appreciated for their aesthetical value. Planting is a key issue for this and green roofs can look attractive through the use of a variety of species, rather than the predominant and monotonous use of sedums and grasses. There is therefore a need to expand the range of plants used for roof greening.

For recent studies, some properties of a few roof top species from the genus of Sedum were investigated, such as heat or cold resistance performance and drought tolerance. But no typical research were carried out, except UK as I know, regard to adaptability of specific species surviving performance on specific roof top environment, which is very important to expand the range of plants used for roof greening.

For the context of roof top environment, shallow substrates, drought and exposure to wind, succulent species showed huge potential to adapt to these constrains. The genus of Delosperma is a good candidate which has relatively ideal characters compare with other succulent species. A trail of 10 species from Delosperma was carried out in Seffield from July to September in 2010 in order to investigate their capability of surviving roof top environment. Cutting was used to propagate to investigate the possibility of using cutting for roof greening. To quantify the growth of the plants, height, maximum leaf length and diameter were recorded. The mean value of the data of each species was used to investigate their performance. Finally, 4 species were fully competent for the roof top environment. 2 species showed huge potential. Another 4 were failed at this stage, but still got potential for further research.

Identification of Landscape Character Types for Integrated Landscape Conservation in The Wuling Mountain Multi-Ethnic Area of Southwest China

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Keywords: Landscape character, Landscape typology, Ethnic minority, Cluster analysis, GIS

In China, 55 ethnic minority groups, accounting for 8.49% of the total population, live on 64.2% of the total land area. In the context of globalization and modernization, these areas retain a wealth of natural and cultural landscape types. Few studies have been conducted on landscape character on a regional scale in China, and to the best of our knowledge, none in multi-ethnic areas. Our study site was Wuling Mountain, which is located in southwest China and populated by multiethnic communities. Nine minorities including the Dong, Gelao, Miao, and Tujia have lived in the area for generations, coexisting with Han Chinese. We analyzed trans-regional data to visualize and identify the landscape character types of Wuling Mountain at two scales. The types were characterized at a resolution of 1 km2 based on elevation, relief amplitude, land cover, and ethnic population density. The latter, as a special cultural variable of a multi-ethnic area, indirectly reflects the regional differences in the lives and livelihood activities of different ethnic groups. We used k-means clustering based on a bottom-up approach of a combination of the geographic information system (GIS) and multivariate statistical analyses. The results highlighted the inhabited landscape characteristics of different combinations of minority ethnic populations and the key landscape characteristics that could be used as a basis for the development of trans-regional integrated conservation of the natural and cultural landscape in this multi-ethnic area.

Incorporating Environmental Data and Citizen Science into Mobile Information Platform to Promote Low Impact Development

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Keywords: Low Impact Development, Environmental Data, Citizen Science, Mobile Information Platform

Many people still have lower awareness on the concept of low impact development. While the dominating information channel is quickly moving to the mobile platform, an obvious gap still exists between the complex scientific environmental datasets and citizen usage. Stakeholders and citizens have to rely on specific equipment to access the geospatial environmental data in the field, such as the Soil Survey Geographic database, Flood Insurance Rate Map, National Wetland Inventory, water quality dataset. More importantly, citizens have limited opportunities to send the volunteered geographic information to the environmental managers. Most of the environmental datasets are still in one-way top-down communication style. This study aims to evaluate the major pioneering, scientific-based, environmental-oriented, mobile information platforms in the United States and identify the strengths, weaknesses, opportunities, and threats of each project. This study conducts a qualitative study for the pioneering cases in mobile-based environmental information platforms. This study analyzes the pioneering mobile information platforms - CoCoRaHS, What's Invasive, OakMapper, Field Photo, Leafsnap, U.S. Green Infrastructure Reporter, and Nebraska Wetlands. The results indicate that the long-term active users are the essential contributors to the environmental information. The motivation is key challenge and the data quality verification is a difficult task in citizen science projects. Successful online mobile information platform is well engaged with the off-line activities and professional network. The power of social media and network should be expanded to promote the mobile information platform. The findings of this study provide insightful recommendations to engage citizen involvement in low impact development research and projects.

Microclimatic Design of the 2020 Olympic Marathon Route: Establishing a Baseline

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Keywords: urban heat island, thermal comfort, microclimate modification

The 2020 Olympic Games will be held in Tokyo, Japan during the hottest part of the year. Many events will be held indoors where climate can be carefully controlled, but the marathon will be run through the streets of Tokyo on August 8, a time of year that is typically very hot, very sunny, and very humid. Marathons in New York, Chicago, and Boston that were run during similar hot weather resulted in many hospitalizations and even deaths of some runners, and the Tokyo Olympic Planning Committee would like to avoid similar outcomes. They would like the marathon course to be designed as a series of thermally comfortable microclimates in an otherwise blazingly hot urban heat island. Some microclimatic design options that will be investigated include green walls, shade trees, spraying fine mist into the air, and rerouting. The design process started four years in advance of the race by establishing a baseline of conditions. A mobile microclimate station was driven along the proposed marathon route at the speed that a high-performing athlete would run (Vanos et al, 2012).

Measurements of air temperature, humidity, solar radiation, terrestrial radiation, and wind speed were taken every second for the slightly more than two hours that the top runners are expected to take to complete the race. The results will be presented in a variety of formats, and some microclimatic design interventions will be proposed. This is the first stage of a four-year process whereby modifications will be made to the landscape and the microclimate will be measured on or about August 8 each year leading up to the Olympic Games to measure the effectiveness of design interventions. The results will identify the effectiveness of various design interventions in cooling hot urban conditions.

Mitigating the Thermal Characteristics of Stormwater Runoff through Low Impact Development

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Keywords: Stormwater, thermal pollution, low impact development

Stormwater temperature is an essential but overlooked aspect of the urban stormwater condition. As urbanization and build-out occurs, the thermal regime (surface, air, and water) of the surrounding environment is altered. Heated stormwater runoff flows into receiving waters where it mixes and potentially increases the base temperature of surface water in lakes, streams, bays and estuaries. The amount of heat transferred, and the degree of thermal pollution is of great importance for fisheries management and the ecological integrity of receiving waters. Fish and other aquatic life in particular are most sensitive to thermal pollution. (Galli, 1990) Thermal inputs to a stormwater system include influent and effluent temperature, solar radiation, longwave radiation, convection and diffusion from both the atmosphere and subsurface, and infiltration. (LeBleu, 2011; University of New Hampshire Stormwater Center, 2011) The main purpose of this research is to develop design models for standard stormwater control measures that can be used to meet specific effluent temperature standards and to maintain the required thermal regime in a receiving stream. This project engages controlled laboratory test to assess low impact development (LID) stormwater control measures as away to reduce the negative impact of the thermal characteristics of stormwater runoff. This project hypothesizes that pervious surfaces and rain gardens/bioretention can be used to mitigate ground level thermal loads in stormwater runoff.

The methods implemented captured and infiltrated simulated stormwater runoff from infrared heated impervious and pervious pavement cells, and routed the stormwater through planted microcosms. A data logging system and thermistors located within the cells and microcosms recorded the temperature flux. Water temperature exiting the cell was also measured. Surface thermal imaging was recorded using an infrared camera. Results from this project established a baseline measurement of heat removal effectiveness of pervious material when used as a solitary stormwater control measure, and when used in combination with other stormwater control measures (rain gardens/bioretention).

This research is important because very little has been published on the mitigation of thermal pollution using LID strategies. Data collected will help establish the role of pervious pavement and rain gardens/bioretention to mitigate thermal pollution in stormwater runoff to our nation’s receiving waters.

New Chinese Style material constitution in contemporary built environments: A quantitative assessment using Scenic Beauty Estimation method

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Keywords: Scenic Beauty Estimation（SBE）, New Chinese Style, built environment, material constitution

Using the New Chinese Style which is born in the revival of traditional garden cuture, contemporary indigenous landscape design approach focuses on the visual and psychological effects of the built environments, and how to organize landscape materials both in theory and in practice. A systematic study is imperative that would derive general design principles and rationales for technologies in use—for the purpose that the intrinsic laws for design and the trend of material constitution for the New Chinese Style are revealed.

This current study is a quantitative analysis of material constitution in selected projects that use the New Chinese Style. Five typical landscape projects were chosen, and were evaluated based on 30 metrics. Six features of material constitution were analyzed, including color, texture, material, planting, enclosure, and prototype. Evaluation was conducted using Likert Scale questionnaires presented to two different groups of participants. The 30 metrics are further evaluated quantitatively using the Scenic Beauty Estimation (SBE) method.

Results indicate that the theoretical core of the New Chinese Style stems from the traditional Chinese culture and aesthetic interpretations, and meanwhile, the style embraces the main stream modern landscape design approaches. The study concludes that it is efficacious to use the SBE method to analyze the New Chinese Style. In addition, the study provides a reference point for the current landscape design practices in China where intensive allocation of landscape materials occurs. Findings of this study would also shed light on the development of forecasting models based on the SBE method.

Proximity of Public Schools to Major Highways and Industrial Facilities, and Its Effects on Students' School Performance and Health Hazards

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Keywords: School Environments, Children, Academic Performance, Environmental Justice

Safe and healthy school environments are essential components for children to learn, play, and grow (Mohai, Kweon, Lee, & Ard, 2011). Children spend many hours in school, and it is important that school environments promote children's health and well-being. Research shows that locating schools near major roadways and industrial pollution is related to multiple threats, such as respiratory problems (McConnell et al., 2006), neurobehavioral health problems (Wang et al., 2009), DNA damage (Buthbumrung et al., 2008), and autism (Volk, hertz-Picciotto, Delwiche, Lurmann, & McConnell, 2011). However, many schools are located in close proximity to highways and industrial facilities which are key sources of air pollution to children. The goal of this study is to explore the association between the proximity from schools to highways and industrial facilities, and children's school performance and health hazards.

We measured the distances from 3,660 Michigan public schools to highways and industrial facilities, and linked these to the Michigan Educational Assessment Program scores and the National Air Toxics Assessment's respiratory and neurological hazards.

We found that schools located closer to highways and industrial facilities had higher risks of respiratory and neurological diseases than those located farther away. We also found that schools located closer to major highways had a higher percentage of students failing to meet the state standards than the latter after controlling for the location of schools, student expenditure, school size, student-teacher ratio, and free lunch enrollment. In addition, a larger percentage of black, Hispanic, or economically disadvantaged children attended schools nearest to pollution emissions than white students. Foe new schools, it would be a good time for national, state, and local governments to require minimum distances to protect children from the heaviest air pollution exposure. For existing schools, it might be necessary to distribute extra resources to the schools attended by poor and high-minority students with more environmental burdens to create better environmental quality fostering children's learning abilities.

Research on Contemporary Urban Landscapes in Critical Rationalism Methods

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Keywords: Contemporary Urban Landscapes, Critical Rationalism Methods, North America, Germany, China

In the late 20th century, a range of emerging theoretical analyses and conceptions of contemporary urban landscapes increasingly attracted research interests in North America (USA, Canada) and Germany. Notwithstanding, there is hardly any plain definition to sum up the Urban Landscape. Actually, cumulative theoretical differences of urban landscape account for its varying understanding in two developed regions. In a traceable fact, the post-industrialization leads to the urban dissolution crisis both in North America and Europe. And this global process stimulates a search for alternative spatial structures in different cultures. They are generally the term of urban landscape. The research methodology of contemporary urban landscapes is determined as “Critical Rationalism” by the philosopher of science Karl R. Popper in 1957. It is capable of offering “tentative rules for the choice of theories to examine, not to believe in” viewed as a scientific critical approach, because in his viewpoint methods of science generally should be: “a scientist whether theorist or experimenter, puts forward statements, or systems of statements and tests them step by step” (Karl Popper 1959, p.27). In this sense, the scientific examination of theories is certainly associated with questioning, criticizing and negation. Concerning the emerging discourses on contemporary urban landscapes, the Canadian-American architect and urbanist Charles Waldheim purported, they prove “professional and critical categories to account for the renewed interest in landscape found in the work of many architects, landscape architects, and urbanists over the past several years” (Charles Waldheim 2006, p.16). His two bullet points of “professional” and “critical” actually delineate the current inclination in the landscape architectural discipline as well as discussed here. Against this background, Karl Popper’s critical method could be transferred to our discipline so as to cross-culturally study advanced urban landscape formulations of North American "Landscape Urbanism" and German "Landscape Structuralism" appeared at the dawn of 20th century. Specifically, what will be further explained is two Critical Rationalism methods respectively used in North America and Germany — “Critical Thinking” proposed by James Corner in the 1999 “Cultural Imagination” and "Critical Structuralism" interpreted by Peter Latz in the "Cultural Contextualization". Both of them are inextricably bound up with North American "Landscape Urbanism" and German "Landscape Structuralism", and also are regarded as two theoretical schools of urban landscapes. By means of the Critical Rationalism methods, the research on contemporary urban landscapes in two developed regions is established, which is instructive to the rethinking of Chinese urban landscape.

Research on the Characters and Mechanism of Tempo-Spatially Response of Suburban Town Green Spaces of Beijing under the Urbanization Process: A case of Tong Zhou District, Beijing

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Keywords: town green spaces, Beijing suburban area, urbanization, tempo-spatially response, response mechanism

In recent years, Green Space of Municipal Administrative Area ecological function zoning is irreplaceable for the effective protection and rational utilization of the urban ecological resources. Derived by the integration of Beijing-Tianjin-Hebei, the urbanization process brought a significant shift to the social economy and spatial distribution of Beijing suburban town. As the green basis, ecological green spaces within the area were also dramatic evolution by the process. As a result of the ecological environment problem is more significant. Therefore the research on the characters and mechanism of the tempo-spatially response of the ecological green spaces will be conducive to the acquisition of a deep knowledge of the correlation relationship between the two , to provide scientific support for the current urban-rural planning and construction .The paper analyzes the temporal and spatial pattern and its forming process of the ecological green spaces of Tong zhou district in 4 time spans, with the assistance of Remote Sensing (RS) and Geographic Information System (GIS). Through a direct method of study on the temporal-spatial evolution, and an indirect method of study on the landscape structural evolution, the paper establishes a relativity of ecological green space and the temporal-spatial pattern of urbanization, in turn shows a quantitative analysis of the tempo-spatially evolution mechanism of the study area, with the assistance of geographical weighted models (GWR) so as to establish the guideline for Green Space Planning and Development. And through the above research, the paper indicates rules and characters of green space tempo-spatially evolution of the town under the urbanization process, provide basis and references for the development of integration in Beijing-Tianjin-Hebei region, and also conducive to ecological construction of urban agglomeration scientific advance.

Self-Rated Naturalness of University Greenness and Its Association with Student's Self-Rated Restoration and Health

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Keywords: self-rated naturalness, self-rated restoration, health, university students, university greenness

A growing body of researches indicate that university greenness is helpful to students' restoration and health. However, few research investigates the relationship among perceived naturalness, restoration and health. This study developed a self-rated naturalness scale (SRNS) to measure perceived naturalness and examined the association between self-rated naturalness and students' self-rated restoration and health. A total of 442 university students participated in the first experiment designed to develop the SRNS, which was examined and revised by exploratory factor analysis and confirmatory factor analysis. Finally, three dimensions (perception of natural attribute, perception of natural feeling and perception of natural form), 11 indicators summed up the scale. Next, the SRRS was used in the second experiment designed to examine the relationship between self-rated naturalness and self-rated restoration and health. Eight universities in Fuzhou, China were selected as study area and a total of 2550 students participated in the survey. Multiple analysis of variance showed a main effect of self-rated naturalness to self-rated restoration, $F(155,1982)=10.441$, $p<0.001$. What's more, a significant correlation between perceived naturalness and self-rated restoration（emotional response, physical response, cognitive response and behavioral response）were found. The logistic regression of self-rated health revealed that a positive relationship between self-rated health and perception of natural attributes and perception of natural form, for both boys and girls. However, the relationship between perceived restoration and self-rated health was only found in cognitive response in boys. The results suggested that universities perceived naturalness had contribution to students' self-rated restoration and health. Therefore, the universities managers and landscape architectures should pay more attention to students' perception and preference of greenness to better meet the demand of students' restoration and health need.

Spatial Differentiation Patterns and Influencing Mechanism of Urban Greening in China: Based on Data of 289 Cities

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Keywords: China’s urbanization, spatial differentiation pattern, spatial regression models, geographically weighted regression, urban greening

Significant differences in urban greening have occurred in Chinese cities, which accompanied with China's rapid urbanization (Zhao et al., 2013). However, there are relatively few studies on spatial differentiation of urban greening in China at the city level. In addition, there is no unanimous conclusion on the main factors influencing spatial differentiation of urban greening. Based on emission inventory data from 2014, gathered from 289 cities, the spatial differentiation pattern, spatial correlation characteristics and the distribution shape of urban green space ratio, urban green coverage rate and public green area per capita were calculated and analyzed, using Global and Local Moran's I method (Arribas-Bel and Sanz-Gracia,2014). Then we employed Ordinary Least Squares, Spatial Lag Model, and Geographically Weighted Regression to quantitatively estimate the comprehensive impact and spatial variations of China's urbanization process on urban greening (Yu, 2006). The results showed: ① a significant spatial dependence and heterogeneity existed in urban greening values, and the differentiation patterns were featured by the administrative grade and the spatial agglomeration simultaneously; ② regression models revealed urbanization has played an important negative role in determining urban greening in Chinese cities. The urbanization rate, population, the scale of urban land use and the proportion of secondary industry were all found to have had a significant influence over urban greening. Automobile density and per capita Gross Domestic Product (GDP) however, failed the significance test at 10% level. The GWR model performed better than global models and the results of GWR modeling showed that the relationship between urbanization and urban greening was not constant in space. Further, the local parameter estimates suggested significant spatial variation in the impacts of various urbanization factors on urban greening.

The Green Road to Recovery: Design with Nature to Heal the Wounded

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Keywords: healing, nature, measured effects, PTSD, military

In 2013, the TKF Foundation Initiative for Integrated Design and Research awarded $4.5 million to six projects for researching the transformational power of nature in urban settings. Each project was chosen for combining the creation of tranquil, restorative spaces with rigorous study of their impact on users' well-being and resilience. While individual experiences suggest that nature encounters offer therapeutic benefits, few objective studies have been conducted. TKF's "Nature Sacred" awards aim to strengthen the base of evidence by scientifically measuring healing effects of exposure to nature.

The Green Road, located at the Walter Reed National Military Medical Center in Bethesda, is a two-acre natural healing environment for injured service members. As an unprecedented number of veterans are surviving severe wounds or injuries, including Traumatic Brain Injury and Post-Traumatic Stress Disorder, a team of medical doctors, researchers and designers have explored how nature could help them heal. The Green Road was designed as a venue for engagement with nature and a platform for evidence-based holistic healthcare design for the military and the nation at large.

The Green Road grew out of the "Epidaurus Project ", a collaboration among prominent researchers, designers and military leaders that established holistic approaches to the healing process by engaging art, music and nature in treatment therapies. The Green Road Project was designed to give military service members, their families and their care givers access to the woodlands for self-directed or group activities. Throughout the design process, the team advocated for the preservation of the woodlands, the restoration of the streambank, and the creation of increased access to nature as a restorative oasis.
The Green Road project will use three metrics to directly measure the healing effects of nature on the body. Medical researchers will biomarkers of the stress response, qualitative analysis of journals and stories, and advanced genomics.

This presentation will chronicle the interactive and engaging process for creating the Green Road in the context of current holistic treatment methods for Traumatic Brain Injury and Post-Traumatic Stress Disorder. It will identify the direction of quantitative research for this funded project and outline the expectations of Green Road researchers as they conduct experiments, collect data, and interpret the outcomes of their explorations. The goal of the presentation is the dissemination of new trends in collaborative landscape research and new reasons to bring the healing power of nature into our urban lives.

Tools for Measuring and Visualizing Environmental Phenomena

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Keywords: visualization, phenomena, temporality, measurement

"Design begins with an appreciation for landscape as a shifting, living, material phenomenon."
- Anuradha Mathur and Dilip Da Cunha

OVERVIEW

This presentation will focus on the development of methods and tools to measure, observe, map and project microclimatic spaces in the landscape. As technologies used in the field allow for increasing modeling or simulation of the dynamics of site and space without the need for a designer or student to visit a site, a gap is opening up in the methods used in the field for direct observation, and in understanding how those observations can work in conjunction with computer models, geospatial databases, or the design process.This project has used three methodologies for recording and drawing spaces defined by light, shade, temperature, humidity and wind. These methods will be presented, concluding in an analysis of their efficacy and next steps.

BACKGROUND

Landscape space cannot be designed without understanding temporal phenomena: those perceptual elements that change over the course of the day as well as the dynamic forces that take action on physical forms over time. These elements create a complexity that "blends times in space [and] produces a new dimension." Dynamic phenomena in the environment influence patterns of human spatial behavior and play a significant role in shaping the public realm, however as designers we are equipped with a limited tool set when it comes to visualizing the spatial dimensions of environmental change. As noted by Kevin Lynch, landscape space is understood through multiple readings over time and change in the environment is recorded through contrasting images in memory. Lynch goes on to note that perceiving contrast in form is a "primitive way of sensing time." Our relationship to understanding change is critical to our understanding of the world, and central to how landscape architects shape the built environment, however there is ground to make up in communicating this as a core principle of our discipline.

METHODS

Three survey methods that use a combination of digital, analog, and image based observation and measurement tools. Each method was meant to create a translation from data collected by an instrument (such as temperature, wind speed or humidity readings from a weather meter) to an output related to human sensory readings in the landscape (such as gradients in light, color, or sound coming from a sensor). These translation tools were used to create observation-based mappings and projections of the microclimatic spatial volumes.

Understanding Urban Context using Mapping Techniques: Case Study of Seoul Central Station

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Keywords: mapping, urban renewal project, Seoul Station 7017 Project

This study examines ways to capture the potential of urban regeneration and trace the heritage of historic Seoul near the Seoul Station by using various mapping techniques. In recent decades, Seoul Metropolitan Government has converted old infrastructure to urban open spaces under a slogan of sustainable development. Seoul Station 7017 Project is one of the projects that tried to convert old overpass infrastructure over the historic Seoul Station into an urban greenway, similar to Highline project in New York. In fact, the mayor of Seoul, Won-Soon Park, proposed the project inspired by the Highline project after visiting it. Although such urban renewal projects are controversial due to their expensive costs and other problems, a positive part is the potential to revitalize an old and shrinking district. In order to achieve that goal, careful investigation of the area is necessary. Since mapping evolved in landscape architecture, it has played an important role in analyzing the characteristics of natural environment. However, mapping is powerful visualization media to demonstrate urban context. By visualizing the quantitative data of urban contexts, it is possible to examine the situation in the city. Also, by accumulation the historical images such as old maps, we can trace valuable heritage in trace city.

In this study, two specific mapping techniques are used to verify the current context and trace the history. To understand the current streets and use patterns better, above ground and underground pedestrian traffic was mapped. For above ground data, ancillary data provided by the city was used to quantify the pedestrian traffic. As the city is connected by a web of underground corridors-some of which are commercial and others are for movement around subway stations-subway users were quantified for underground traffic. For historic understanding, multiple old maps were digitized and examined. The historic overlay process revealed pedestrian paths frequently used in various historic eras from the beginning of Joseon Dynasty that began in the 15th century to the end of 19th century when the dynasty ended and through 20th century's modernization.

Current pedestrian traffic mapping provided an understanding of spatial use patterns by day of the week and time of day. Historic streets revealed through historic mapping could possibly aid in developing a cultural heritage trail. The public can follow historic streets by era. The mapping method used in this study shows its potential in interpreting urban contexts crossing over centuries and in revealing historic pathways.

Urban Mood Footprint: Design Interventions to Enhance Adolescents' Health

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Keywords: Human Motion, Urban footprint, Place-specific interventions

As the design profession moves toward a variety of possibilities in experiential design and turn our emphasis to the role of reception of and user participation in the design process itself, we are faced with a critical challenge: how can we design in ways that are sensitive to people's motion and emotion, thus creating experiential-responsive places that promote health and well-being?
This research proposes a new method to complete the design-reception feedback loop by analyzing the urban environment through a critical aspect of mental well-being, mood states. We selected adolescents as our population, a group vulnerable to stress and mood variations. Employing an interdisciplinary set of tools (GIS, Google Street View, R, etc.). Mobility was captured by tracking adolescents using Garmin Fortrex devices over a four-day period. The environments adolescents expose to and their mood were analyzed. We then created an urban mood footprint surface, representing the emotional qualities of urban space as indicated by data from adolescents. By analyzing this footprint and reading the human-powered space-time fabric, we can develop place-specific interventions to promote mental health.
This research models the urban mood footprint based on user input. Using our mood footprint and the affective circumplex, we propose small-scale interventions that energize or tranquilize, define or free up, and endow new meanings to ordinary urban spaces. The intervention strategies feature empowerment and autonomy, stimulation and affordances, dynamics and enjoyment, as well as restoration and tranquility. We propose a mobile application to automate the whole process and achieve real-time urban mood monitoring. This would provide place and routing information for the public, design feedback for designers, and information regarding management options for managers. Our research proposes a way to model human motion and experience, and recognizes the public health implications of design.

Using Image Statistics to Predict Perceived Openness

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Keywords: image statistics, power spectrum, openness, landscape perception

Openness—defined as the obstruction of a scene wherein some objects are considered to block the view (Ode, Tveit, & Fry, 2008)—is an essential property that affects visual preference (Han, 2010; Hur, Nasar, & Chun, 2010) and environmental restoration (Herzog, Maguire, & Nebel, 2003). This study developed a novel method to predict the perceived openness of a scene.

In 2001, Torralba and Oliva reported that a specific feature in the power spectrum of an image could indicate scene openness. Images of open scenes contain relatively more horizontal elements. For example, a coastal scene contains a distinct horizontal line separating the sky and the sea, whereas a forest scene, which is relatively closed, has more vertical elements (e.g., trees). Thus, the proportion of horizontal and vertical elements in an image can be used to predict the perception of image openness.

Moreover, we verified the feasibility of the aforementioned prediction method. Using the power spectrum method, we obtained the power spectrum of an image, following which the energy levels of the vertical and horizontal elements were extracted from the spectrum. The statistics of openness was the ratio of vertical and horizontal energy. In addition, the perceived openness of each image was investigated with a questionnaire from approximately 30 college students.

The results show that image statistics were significantly correlated with perceived openness. However, the prediction ability is not yet reliable. Future studies could investigate perceived openness in different parts of the image, incorporating the results of which could help improve the accuracy of the proposed method.

Using Unmanned Aerial Systems (UAS) for photogrammetric recordings for Historic American Landscapes (HALS)

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Keywords: Conservation, Image orientation, Historic American Landscapes, Theodore Roosevelt National Park, Thermal images, UAS

The aim of this work is to study the value of UAS (Unmanned Aerial Systems) technology as an instrument for recording and analyzing Historic American Landscapes. This paper focuses on the application of an UAS platform of establishing base information in the Theodore Roosevelt National Park System (USA). By gathering imagery and terrestrial data to establish working data for such recordings to be used in the HALS submission. Format for such work is used to produce national cadaster systems and geospatial data infrastructure that relates with the HALS database. Because of the remoteness and severe topography traditional surveying would not be practical in previous survey methods.

Preliminary findings have produced a detailed analysis of high level wall top and roof condition, archaeological recording of excavated features and capture of still and video imagery to allow for both real-time and off-site analysis. These images aid in presentation and interpretive display for illustrations within guidebooks, journals, newsletter, research reports, and websites.

Service-Learning and Community Engagement

A New Generation of Public Process Education

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Keywords: Community Engagement and Education

"When working in the public realm, it is required and necessary for landscape architects to conduct productive public meetings, designed to engage many different individuals and organizations in the design process. A project's success lies in the ability to research and collect a wide range of community feedback and bolster interest. However, the public process has become routine and inaccessible to most people within impacted communities. To engage a broader audience, we will build on current outreach methods and introduce new social media techniques as a more direct way to engage in the design conversation.

It is crucial that attention is paid to this vital part of the design process. The exchange of ideas and information can benefit both the ultimate users of projects as well as the designer, allowing them to make informed decisions based on close interactions with the community. We propose teaching solutions that would engage students with the public throughout the design process to be explored as a part of the curriculum. This would expand students' skills sets beyond learning the technical and theoretical aspects of the profession. Building on our professional experience of designing immersive workshops for public hearings, the aim would be to allow students to engage with community meetings firsthand. As educators, we seek to develop an advanced research and design course geared towards addressing current project trends. This would provide a real-time opportunity to become involved in community engagement and test ideas for how to most effectively gather and use information.

In our design studios, we will test and explore the roles that new digital technologies or platforms have in streamlining the process, facilitating interactions and continuing discussions across multiple interfaces. Students can design and test alternative ways to formulate questions and methods of engagement tuned to particular aspects of their designs. These courses would also teach students how to articulate, organize, and communicate the intention of a design, finding digitally interactive ways for the community to access information and how to gather and utilize user feedback. Additionally, we hope to explore methods of sustaining interest and public involvement across a diverse range of generations, languages, and cultures. There is enormous potential within the educational environment to test multimedia platforms that aid in enhancing the relationship between community members, landscape architects, public agencies, and private clients. Our panel would discuss the process and outcomes of this research within the studio environment."

A Participatory Process for Increasing Community Flood Resiliency

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Keywords: Participatory Design, Resilient Communities, Engagement, Flood Prevention, Hazard Events

"Participatory design is a necessary program for environment creation. As environment is designed for people, where there is real demand for space, there must involve users in design process. Participatory design has formed a bottom-up pattern, a method to push active interaction of the three parties, namely, designer, manager and user, to effectively avoid the design to become a graphic, shape, image and symbol, create a good quality community environment and form democratic neighborhood lives.
The landscape architectures in Tianjin University and Chung Yuan Christian University are the reflection of the joint teaching of ""concept and practice of participatory design"" completed together by teachers and students in 2016. Taking Fenghu Park located in the residential area of Tianjin University as a base, the concept of participatory design is explored through residents' participation, which subjectively and actively makes response to the real problems at the community park, building a life place in the environment. Students and people are encouraged to participate in the renovation of community spaces during teaching. On one hand, people in the community are guided to put forward questions to be modified; on the other hand, teachers and students provide professional technical assistance to improve environmental quality and rebuild the sense of community. This teaching activity makes young designers return to the real base instead of conceptual one, and understand the objective, process and operation method of community construction and participatory design, which has effectively trained students to obtain the technologies, skills, tool-using capacity, effective communication ability and team cooperation capacity required by the implementation of engineering practice, so as to make a better contribution to society and return to people's life.

Fenghu Park was built in 1990s, where exists some problems, such as space design lacking of humanity, imperfect function, aging facilities and management difficulties. This park renovation which takes residents participation as core has a demonstration effect and guiding significance, providing a new idea and method for the renovation of community parks in old cities in Tianjin."

Application of Participatory Design in Landscape Architecture Teaching

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Keywords: Participatory, Community Building, teaching, landscape architecture design

"Participatory design is a necessary program for environment creation. As environment is designed for people, where there is real demand for space, there must involve users in design process. Participatory design has formed a bottom-up pattern, a method to push active interaction of the three parties, namely, designer, manager and user, to effectively avoid the design to become a graphic, shape, image and symbol, create a good quality community environment and form democratic neighborhood lives.
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Can A Community-Engaged Seminar Help Broaden Students' Skill Set and Conceptualization of the Design Profession: The Student Farm Initiative Seminar At (Name Removed to Preserve Anonymity)

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Keywords: Community-Engagement, Assessment, Student Learning, Professional Identity

"Background and Purpose
Even though community-engaged projects have a long history in higher education, systematic assessment of their impact is still relatively new (McIlrath et al. 2012, Bose et al, 2014). In this article, we report the impact of a community-engaged seminar on: 1) student learning and specifically student skill set, and 2) students' conceptualization of the design profession. We identify course elements that worked well and those that proved to be problematic, with the intent of improving future community engaged courses.

The course
Larch 424/497/510 seminar on community-engaged design/planning was offered in Fall 2015 as an upper level undergraduate/graduate seminar open to students from all departments at a research university. The seminar provided students with the theoretical and methodological tools to work with (not for) communities through a community-engaged project. The instructor partnered with the newly formed Student Farm Initiative (SFI) at the University to develop the needs of the student farm that would be attentive to a wide range of stakeholders. Student farms are increasingly considered a necessary component of engaged academic scholarship in sustainable agriculture and food systems education (LaCherite 2016).

During the course, the students communicated with three sets of stakeholders: 1) community members of the neighborhood adjoining the proposed site of the student farm, 2) farmers in the region, as well as 3) faculty at the University. Based on the data collected through stakeholder survey/interviews, the students created a report outlining possible program elements that incorporated the interests of the different stakeholders. The report also identified additional opportunities for future courses. The report was shared with the public and members of the SFI for ongoing planning and design of a student farm.

Method
The study goals are achieved through three steps: 1) analysis of end of semester student reflections by the instructor; 2) reflections of a graduate student on the course and its impact with respect to her learning and conceptualization of the profession, and 3) a discursive comparison of the instructor and student perspectives to identify both effective and not so effective elements of the course.

Preliminary Findings
Preliminary analysis reveals that students learned to navigate the University Institutional Review Board's (IRB) requirements for research, to conduct interviews, develop and administer a survey and communicate their findings to a diverse audience. The project illustrated how design impacts a wide range of stakeholders and society, and led to a widening of the professional identity of a designer. Faculty learned about the need for more structured instruction and guided reflection at key points in time to help students make more meaningful connections between their project and larger social structures of society. Though the academic semester imposed specific time constraints that compromised the engagement process, these constraints are not considered insurmountable."

Collaborative Design-Build as A Strategy for Enhancing Community Involvement: The Experience of Contrada Nicolo Along the Simeto River, Sicily, Italy

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Keywords: Collaboration, Design-Build, Simeto River, Sicily

"Our research employed Action Research to build a Collaborative Design process for the ecological design of an open space park near the Simeto River in Sicily, Italy. The application of these approaches involved community participation in the development of site functional relationships, site design, and the installation of site design elements. Our design and implementation processes led to the adoption of a site design plan for Contrada Nicoló, a historically- and ecologically-significant open space south of Paternó, Sicily by community resource groups (ViviSimeto, Lega Italiana Protezione Uccelli, Simeto Participatory Presidium) that have been actively engaged in the management of the Simeto River Watershed for ten years, with long term University-Community partnerships that have involved several researchers. In this most recent phase, our objectives were to:

1. Test the efficacy of the Collaborative Design-Build approach, a bottom-up process for site-scale design and construction;
2. Engage local community groups for the realization of a community-led site improvement project that increases site biodiversity; and
3. Evaluate community participation and biodiversity improvements from the implementation of the Collaborative Design-Build approach.

Contrada Nicoló presents numerous opportunities to convey connections between the site and greater watershed needs for conservation and ecosystem management at the watershed scale. If successful, visitors see the value of habitat restoration, collaborative design, and collaborative management. An overarching goal of the project is to convey native forms of streamflow and riparian habitat so that visitors might employ similar approaches on private and public lands that they manage. Our approach for increasing community involvement in the site restorations at Contrada Nicolo included:

Step 1: Engage the community in problem assessment;
Step 2: Identify multiple possible interventions and select outcomes;
Step 3: Plan projects for installation; and
Step 4: Set up a monitoring and evaluation system.

Our presentation summarizes the results of a community collaborative design exercise where participants were asked to provide perceived positives and negatives associated with collaborative design-build, and then to propose solutions to any negatives that they identified. Participants were also asked to consider and evaluate all existing on-site materials and to give their opinions of what the forms in the landscape should take, specifically with regard to roads/pathways, soil/rocks, water, and plant forms. Discussions about biodiversity and implementation were introduced using knowledge of place that the participants possessed. We used multiple tools such as a 3D model, numerous maps, and a collective blackboard with open questions that anyone could answer to facilitate open conversation. All input was summarized and distributed amongst the participants. Milestones were the adoption of a 4-phase implementation plan, numerous public work days in late summer and fall of 2016, an art installation in January 2017, and the planning of future public work days in spring 2017. Monitoring of plant survival will continue through the summer of 2017.

Findings show the necessity of providing specific tools to encourage and facilitate the participation and stewardship of laypersons in the design and implementation of ecological restoration with a collaborative approach."

Cooperative Charrette as Experiential Learning

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Keywords: Participatory Design, Charrette, Extension, Pedagogy, Community Design

"The charrette as an interactive design mode is a well-known approach to generating quick, diverse solutions to an identified problem (National Charrette Institute, 2006). The charrette serves as a coming together of diverse populations in order to give voice to engaged stakeholders and provide a forum for contribution to project development and visualization (Condon, 2008; Hester, 2006; Sanoff, 2000). As a design, professional landscape architects are trained in the necessary skills and knowledge to lead charrettes. Skills are necessary in drawing, mapping, verbal communication, listening, and knowledge of technological concerns and social and ecological aspects of open space (Hester, 2014). Within the academy, especially from the base of the land grant institution, the charrette model creates a key opportunity to engage in service and outreach, especially from the platform of the classroom (Angotti, Doble, & Horrigan, 2011). As a service-learning activity students engaging with stakeholders in an iterative design process provides reciprocal benefits- an authentic learning environment and a valuable product (Butler & Erickson, 2011). Adding the benefits of drawing back alumni to the academic environment for participation in interactive design serves to build community between the academy- students and faculty, alumni and community.

As a component of studio design education within a designated service-learning course the landscape architecture program at West Virginia University landscape architecture program began integrating a charrette experience in course flow that engaged a state-significant site design project with alumni, students and stakeholders. This presentation will review two models of the cooperative charrette that were organized and executed differently and that provided differing outputs and outcomes. The project type and location were key to the quality of outcomes and differing levels of engagement provided differing levels of success. Reflecting on the varying outcomes will guide the development of a model experience that seeks to satisfy community needs, student learning outcomes, and alumni engagement."

Evidence-Based Healing Garden Design and Community Engagement: A Comprehensive Approach

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Keywords: Evidence-Based Design, Healing Garden, Community Engagement, Service Learning

Evidence-based design (EBD) is an emerging design methodology and process that requires planners and designers use the best available evidence from research and practice during critical decisions (Stichler & Hamilton, 2008). EBD has promoted patient safety and resulted in an enhanced overall quality of the physical environments of healthcare facilities (Ulrich, 2000). The implementation of EBD in the design of garden settings in healthcare environments, namely healing gardens, is desirable because nature and gardens play significant roles in the healing process by reducing patients' stress, enhancing their mood, and improving the perceived quality of care (Ulrich, 1984, 1999; Verderber, 1986; Goto, Park, Tsunetsugu, Herrup, & Miyazaki, 2013). Influenced by the movement to patient-centered care, healing garden designs should also focus on users' preferences and special needs, and empower their participation throughout the design process (Reynolds, 2009).

This study discusses two healing garden projects as studio projects which involved the application of EBD process, participatory design and community engagement. The first project was the design of an interior healing garden for Milan Puskar Health Right Clinic, a community supported charity outpatient facility in West Virginia. In a seven-week course module, 19 undergraduate students and five graduate students participated in the project. They analyzed the site, interviewed clinic staff, and derived design principals from relevant research evidence and exemplary design practices. Students' design outcomes were demonstrated to the client through an open review with external reviewers and healthcare design experts. The second project was the design of a restorative garden at Health Sciences Center, West Virginia University. In an eight-week course module, 23 undergraduate students participated in the project following a similar EBD process.

EBD is best based on the process instead of the result. As a laborious process that proposes, tests, and rejects many ideas, any healthcare design concept/product could be translated to researchable hypotheses for successive research (Hamilton, 2004; Verderber, Jiang, Hughes, & Xiao, 2014). In the second phase of the projects, end users such as patients and clinic staff were surveyed regarding their opinions on selected students' designs through visual simulations. Such post-design evaluation is necessary to examine the effectiveness of decisions made during the design process. For the first project specifically, since the clinic provides care to a medically underserved population in the community, evaluation that invites community engagement, instills pride, and ultimately facilitates the healing process is preferable. Participatory design process is essential in establishing design objectives that match users' needs, while EBD is imperative to address various health outcomes in relevant to design.

A model for implementing EBD in healing garden studio projects has evolved including the following key steps: (1) a thorough site analysis; (2) a comprehensive understanding of users' needs; (3) reference to the best available evidence; (4) post-design evaluation to test alternative hypotheses, and select the optimum solution. A limitation to the model could be an inadequate participation of patients and other stakeholders in an earlier phase of the projects.

Fast and Early Feedback: Collaboration Tools to Support Informed Public Engagement

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Keywords: User-Centered Design, Collaboration, Public Engagement, Visualization

"Responding to the complexities of sustainable development and the necessary diversity of stakeholders (Mathur 2007), new public engagement methods are increasingly geared toward discourse, collaboration, and interaction that emphasize: providing understandable yet credible information targeted to the audience; integrating data and visualizations of information; employing experiential and interactive modes to engage people; employing social and peer learning (Sheppard, 2012; Moser, 2010; Holden 2008; Davis, 2008).

Providing the right information at the right time in understandable formats is important (Brody et al. 2003). Digital tools fill that need. They enable concurrent "live" consideration of multivariate and complex interdependent information, including marrying geo-spatial information (what is where) with social processes and empirical metrics (Arciniegas 2012, Talen 2011). Digital tools help lay people understand how changes made at the scale of a building might impact the neighbourhood and how neighbourhoods may affect larger urban systems such as transportation. Active engagement through hands-on workshops and design charrettes increases the diversity of viewpoints and groups participating (Lennertz et al. 2006, Brody et al. 2003) and enable discourse that improves social learning (peer-to-peer learning) and buy-in for final solutions (Innes & Booher 2004). Many planning support tools that were intended to meet these needs are expert-intensive, causing the public to be passive consumers. A new generation of tools puts users in the driver's seat and enables interaction and collaboration (van der Laan et al. 2013, Arciniegas 2012, Salter et al. 2009). These tools are the subject of our study.

Our presentation reports on a user study that tested UD Co-Spaces (Mahyar et al., 2016), a multi-touch table with integrated data and 3D visualizations on linked displays, designed to engage the public in charrette-style urban design exercises. University students from various disciplines served as surrogates for the public. Following a five-minute lecture about principles of walkable neighbourhoods and brief instruction about the tool set, they worked in groups of four to five to design a walkable neighbourhood centre within an existing suburban neighbourhood. Control groups solved the same task using paper maps and tokens. Every team prepared a credible solution and most met basic targets for walkable neighbourhood design. Pre- and post surveys, focus groups, and video-taping provided detailed data about group processes, interactions and experiences. Preliminary findings indicate the digital tools were easy to use, very engaging, and enabled collaboration, high-level discourse about implications of urban design decisions, and both self- and peer-learning."

Informal Urban Communities Initiative: Taking Design Activism to Scale, Slowly

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Keywords: Design Activism, Developing Cities, Informal Urban Communities, Service Learning, Scaling

"Design education, research and practice in developing communities abroad are often limited by a lack of consistent, long term, on-site presence. Students participating in study abroad programs only learn a fraction of the skills necessary to design and implement sustainable interventions, project assessment is often limited to immediate outcomes and designers fail to grasp the nuances of the contexts in which they work. At the same time, long term projects that are thoroughly rooted in communities can be difficult to replicate and scale.

The Informal Urban Communities Initiative (IUCI) is a design activism, service learning and research program based in the University of Washington's (UW) Department of Landscape Architecture. It focuses on the design, implementation and evaluation of small-scale, incremental interventions that improve human and ecological health in urban slum communities.
Between 2010 and 2015, the IUCI's intermittent on-site activities have been located exclusively in Lomas de Zapallal (LdZ), an informal urban community in Lima, Peru. Working in collaboration with community members, students, faculty and professionals from multiple disciplines at the UW and Architects Without Borders- Seattle have undertaken projects ranging from public parks to household gardens to a large-scale fog collection system as a source of water for irrigation. In 2016, the IUCI continued to work in LdZ, while, at the same time, expanding its footprint to include projects in Claverito, an urban slum in Iquitos, Peru and Pongro Senchey, an urban slum in Phnom Penh, Cambodia.

The presentation/paper will reflect upon the depth and breadth of these projects and explore the opportunities and challenges of taking them to scale. It will 1) provide an overview of IUCI projects, 2) discuss the impetuses for the IUCI's expansion (such as testing the adaptability the IUCI's participatory methods in varied contexts, scaling the IUCI's impacts, empowering IUCI alumna and young professionals as project leaders, and reconciling the personal and professional opportunities and constraints of IUCI team members), 3) assess the competing values, challenges, successes and lessons learned from the IUCI's experiences in Lima since 2010 and the recent expansion process and 4) drawing upon these lessons, as well as related efforts of organizations such as the Council of American Centers for Overseas Research, outline a preliminary action plan to pilot and slowly grow a network of permanent, on-site centers for interdisciplinary design activism in developing cities that integrate service learning, research, and professional practice."

Landscape Design Innovation Based on Public Welfare and Service-Learning

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Keywords: Tree Adoption, Community Mode, Rural Landscape Design, Social Participation

"Online applications on smart phones(APPs) is now changing our daily lives and the relationship with environment. This paper tends to analyze the combination of the traditional landscape design and online community service, in the aspect of environment public welfare. This new method is aiming to solve actual problems in landscape design process such as physical and functional determinism, lack of public participation, community deterioration in rural areas, etc.

In the case of landscape planning and design practice of Longmen Love Tree project, Apps were used as a bridge to connect users and environment, by establishing a platform for adopting trees and sharing information. An online community was founded through apps with real-time information and maps, providing specific area for trees adoptions from which the public can participate in the environmental recreation of Longmen Tiantang Village.

Specifically, a series of village landscape nodes will be formed including fields and ponds etc, then the low-carbon rural park will be established with hostel and forest lecture. Furthermore, large-scale forest reservation will be set up to provide engineering saplings for the construction of public green land use in urban area. Finally, users can choose to donate their trees to public green land use projects or transplant them into cities after they grow up. Designers, artists and community workers will help to complete this micro-transplantation of the local environment upgrade.

In conclusion, the adopted trees were not only planted to join the rural space and achieve the landscape design interaction among general public indirectly, but also repair the local community connection, by online personal-interest-oriented community and public participation of landscape suggestions of local village. The subject shows us a dynamic and sustainable landscape design methodology to new village construction movement in China."

Motivating Students with Experiential Learning Real-world Projects via Community Service Awareness

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Keywords: Real-World Project, Design Education, Real Client, Service-Learning, Community Service, Experiential Learning

"In landscape architecture design classes, some professors and instructors strive to find real-world projects from the community for students to practice their design skills instead of giving students speculative projects. This paper described how a landscape architecture faculty used actual projects with real clients in academic teaching to "bridge" between formal education and community service through service learning. Such practical, hands-on experience is crucial in landscape architectural design programs, as real-world projects provide students with more effective learning outcomes. Although service learning and community engagement are part of the Council of Educators in Landscape Architecture's (CELA's) mission, CELA focuses mainly on the issues of urban green spaces, community heritage landscapes, sustainable community design, neighborhood transformation, cross-cultural community engagement, urban design collaborative and rural development. As a result, landscape architecture educators have not emphasized student learning and motivation stemming from philanthropic values.

This study applied real-world learning approaches with the additional focus on students' learning experience, client-professional interaction, and community service awareness. Past research indicates that students gain experience to solve real world design problems through speculative projects. The experiential learning experience approach allows students to grow and mature through their exposure to community engagements. The community service-awareness approach helps students to develop philanthropic values and behaviors. The lead faculty selected three community service projects for three different design classes to engage in this study and conducted a follow-up survey. The data were analyzed with means, standard deviation, and t-test. The results were presented in histogram charts, data tables, and preference distribution curves.

This paper examined how the students were interested and motivated when they faced a real-world project with a real client versus a speculative project. It looked at students' time spent engaged in a real-world project, and revealed the benefits of being able to interact with real clients during the design process of a real-world project. There were lessons learned during the working process of three service projects, and the survey results confirmed that real-world projects provided benefits to students' learning and facilitated better teaching outcomes in design education. The community members responded with positive feedback, valued the technical assistance, and enjoyed the reciprocal benefits. Lastly, the collaborative design process strengthened the connection among the community, faculty, and students."

Participative Cultural landscapes? Two case studies from Singapore

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Keywords: Participatory, Methodologies, Singapore

"Public participation in envisioning the re-purposing of a disused railway track into a green, cultural and ecological corridor, and collective recollection of a rustic island into a cultural landscape are the two most recent projects undertaken by Singapore's government to address design and management of large open spaces in a holistic and participative manner.

Singapore shares with emerging Asian megacities similar problematics related to rapid urbanization, as the exponential growth of the city raises the difficulties of urban planning and management. Together with solving functional issues a matter of debate that in recent years has become central, concerns striking a balance between urban growth versus retaining city-identity, goal recently being achieved by preserving structures and sites that promote continuity of place (Yuen 2005).

In the evolution of this concept, dealing with city planning, emphasis is shifting from conservation of single artifacts to preserving areas of cultural significance, recognizing the importance of the social, cultural and economic processes involved in conservation of urban values.

A further step towards preserving the social and cultural in the urban landscape is the active participation in the design process of citizens and various stakeholders, who can best reflect on and share values and significance of the place.

The research presents participatory methodologies used in on-going Singapore's Rail Corridor Project, initiated in 2011 as conversion of the former Keretapi Tanah Melayu (KTM) Railway Line, built in 1903 and dismantled in 2011 (URA, 2015) and Pulau Ubin Project, initiated in 2014 to preserve Singapore's last undeveloped offshore island, lying north east of Singapore along the Straits of Johor (MND, 2016.

These strategies are recollected from my direct experience as course leader at the Department of Architecture of the National University of Singapore, which engaged both efforts as stakeholder and advisor, involving in the Pulau Ubin Project almost 2/3 of the students enrolled in the architecture program.

The purpose of this research is to identify some of the potentials and challenges related to the engagement of a community in the building of an appreciation for areas of historical significance, and a consequent commitment to their conservation. It is also to have closer insight on the processes of engagement used, and the actors which shaped these processes.

It is noted that, started as grassroots initiatives, where groups of interested parties built a 'critical mass' of discussion around the cited historical areas, debates on the possible values and conservation of such sites have been consequently assisted by the government.

Participatory methodologies supported by governmental authorities have included group discussions open to community, also in the form of NGOs, followed by brainstorming with invited specialists in fields of ecological, historical and cultural significance; sponsoring of community on-site events and exhibitions; building of an on-line archive to collect oral history; launch of design ideas competitions; involvement of educational institutions in survey of the cultural landscapes and management/design proposals for such sites.

Research finds that participatory methodologies prove successful in moving beyond implications in the on-going debate of what to conserve and for whom, related to what history is told in terms of political message and the thematization of the urban landscape to suit touristic purposes – the objectification of history in the landscape, but it also acknowledges what has already been recognized in the Asian debate that, although the less powerful do attempt to redefine the constitution of heritage using particular sites of resistance and negotiation, these efforts are due to fail if not supported by state initiatives (Yeoh and Kong 1997)."

Participatory Strategies of Nonprofit Organizations in Community Gardening Programs

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Keywords: Community Gardening Program, Nonprofit Organization, Community Empowerment

The involvement of nonprofit organizations in the public sphere has become more dominant. The community gardening programs, as a venue for the community development as well as food security, is no exception. While the community gardens at the beginning of its movements strongly supported by government and public policies, Community garden programs since 1970 have been led by a mostly group of individuals or non-governmental organizations, more recently with the collaboration with many stakeholders and public institutions. According to decreasing administrative support and service provision on welfare and growing values of participatory democracy and citizen involvement in community affairs, the role of nonprofit organizations has been receiving attentions as a bridge between community people and the social movement. Thus, participatory strategies established by organizations are emphasized for successful gardening programs. The successful community gardening programs are required to achieve intrinsic empowerment which means people having a right to take control of their lives and sense of autonomy of the space. Nevertheless, the existing participatory strategies tend to presume that people would be passive users, not active agencies. This study aims to investigate how participatory intervention of nonprofit organizations in community gardening programs have created the conditions for community empowerment. This study has significance in shedding light on the authentic meanings of community participation and empowerment in community gardening programs.

Research on The Method of Monitoring and Maintenance of The Campus Storm Water Management Facilities

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Keywords: Sponge Campus, Water storm management facilities, Operation maintenance, Innovation management

"With the promotion of storm water management concept in Storm Water Source area treatment and natural water cycle imitation, many campuses took lead in construction of storm water management landscape. There are many “sponge campus” models, such as Harvard University, Massachusetts Institute of Technology, Tsinghua University, Tianjin University, etc. In 2015, based on the storm water management concept of coupling green and grey infrastructures, we constructed storm water management campus landscape, which is interconnected with storm water regulation and storage systems, pollution control systems of sewage and storm runoff, and water resources recycling systems. Combining campus landscape construction with the graduate course “Theory and Technology of Urban Green Infrastructure Construction”, students are encouraged to participate in efficiency monitoring of campus storm water management landscape, experimental observation, and final-period site management and maintenance.

During last the two years, we have carried out the full- cycle storm water management project, including design, construction, monitoring and maintenance. According to prototype observation of “rainfall - runoff” prototype and SWMM model numerical simulation by SWMM model, plant maintenance cooperating with facilities management, and through device monitoring and manual recording, we extracted several influence influencing factors of storm water regulation and storage effectiveness efficiency, which is based on characteristics of rainfall characteristics in North China. People also have been trying and answering three aspects have been studied: (1) Operation method of daylily management and maintenance of storm water management facilities; (2) Activation method of measures after winter dormant period in northern China; (3) Innovation management methods of weakening and transforming adverse environments. We tried to explore the methods of storm water management system maintenance in under great temperature difference and uneven rainfall, which are climate characteristics of North China, in order to optimize the regulatory regulating capacity of storm water management facilities. Within In the whole process, on the one hand, we can have deepened systemic knowledge understanding on the working process of the storm water management system process, and while thinking over the design during in practice and observation.; On the other hand, based on management and maintenance of the systems of water, soil and, artificial vegetation, we have made clear the applicability of storm water management facilities in North China and improved the use of the method. It is of great significance to the long-term and sustainable use of the storm water management system."

Research on The Protection and Regeneration Model of Historic Districts Based on Community Participation

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Keywords: Public Participation, Scenario Planning Methods, Old Street, Regeneration

At present, old street in the city are facing the dilemma. On the one hand, the general public is more and more agree with its social and cultural value; On the other hand, to retain, and afraid of the demolition, but it's difficult to renewal; Again, the existing old street renewal cases often unsatisfactory, just meet the demand of the minority interest related groups. The author thinks that in the existing research method has certain drawbacks. Although studies often mentioned the importance of public participation, but there was no overall and systematic planning object and environment (Planning makers, market participants, trading environment, etc) interests research on comprehensive evaluation and consultation. the results did not really solve the problem inside of the planning object, and the external environment. The research will show the application of public participatory scenario planning method in the preliminary analysis of the old street renewal in Chongqing Beibei District Tongxin Village. Starting from the stakeholder demands, through discussing about problem resolution, scenario definition, situation assessment, strategic decisions, to realize the trend prediction, different situation assessment, evaluation of stakeholders, negotiation and integration、specific policy formulated, order of policy making, etc. Eventually determine the renewal plan of action, provide gist and guidance for the detailed design of planning.

Serve Your Community-- Integrate Community Participation into Landscape Architecture Education in China

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Keywords: Community Participation, Landscape Architecture Education

The concept of community participation through interactive workshops that seek feedback from the community has evolved immensely in the United States (Mortice 2014). In fact, the concept of service-learning and community engagement are typically found in professional landscape architecture programs in universities throughout the USA. In China, the notion of seeking community feedback early on involved the presentation of three dimensional physical models in local government offices with a box at the front door where the community can leave their writte. The concept of seeking community participation is in its early stages in China. This research seeks to explore answers to the question: How can the American model for community-based design approaches be integrated into landscape architecture education. This research is experimental for China and considers various dimensions: the complexity of community development and community structure in China; residential communities are varied and the following types co-exist: families who live in rural areas, a type of government-owned housing, and a new complex of high rise, mid-rise and low rise residential development. Compared to the United States, awareness of the community's needs and community-management are weak. Communities and residential development relies on government-led construction practices that do not engage with the community. Simultaneously, the current policy in China called "Internet +" encourages residents' to change their life style, where the scope and boundaries of physical space and virtual space are conflated where the community may not be unified. In recognizing these challenges, this research presents ways that community participation was incorporated into landscape architecture education. Through work with the Hou Cun community in our Urban Design Studio, we attempted to demonstrate methods to build relationships with the local residents. The goal was to explore with them their community needs community. The objective was to also raise consciousness and reclaim the core spiritual meaning for the whole community. The research goal is to develop a model for community participation through the students' engagement with the local residents. As an experiment in "action" research and community engagement, this work presents the activities and outcomes of this work.

Sketching Together: Sketching in Community as a Form of Design Engagement

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Keywords: Sketching, Community, Health, Gardening

"Introduction

Sketching in community is an activity that takes advantage of multiple modes of communication - writing, drawing and talking - to document a group's attitudes and perceptions about space and work. The technique helps designers gather direct impressions for a proposed or ongoing project and documents a group's bias, preconceptions, and attitudes towards community and space. Sketching together promotes an informal communal interaction and mode of communication that, over a few weeks' time, can create bonds of trust and provide information and insights not accessible through the inventory, workshop, or charrette processes. The sketchbooks provided a valuable record of everyday thoughts, emotions and actions; all valuable to the planning and management of the project.

Drawing and writing about garden work and a day's activities is not new. Sketchbooks and journals are often used to document observations and impressions, and the participatory design process has a vast number of techniques that map and document community attitudes and vision, but sketching in community addresses dialogue, communication and reflection. This activity focuses on understanding, getting acquainted and building trust in a community rather than on any specific design or research outcome.

Sketching Together

Sketching Together was an important component of the Healthy Garden and Healthy Living Project, a grant funded collaboration between a Medical School, a local Not-For-Profit organization and the University's Department of Landscape Architecture. The project sought to understand the potential for community gardening to improve the health of underserved individuals through gardening and food-related activities, with sketching and health screening as two key methods to assess impact. Participants were primarily homeless or previously homeless individuals who utilized the local soup kitchen and health clinic.

The participants were given a small sketchbook and pen and were asked to record, in text or images, what they did that day at the garden. The sketchbook entries were scanned daily and tagged with the date and participant's first name. Sheets were tallied and categorized into the type of sheet (all text, all images or a mixture of both) and subject (the subject matter of the sheet). An analysis and review of the sheets revealed the deep emotional involvement of the participants in their work and to each other. The activity provided us with a measure of insight into the project not readily available through traditional surveys or participatory events."

The Testament of the Workshop of The Village Community Design on Catalyst ---About the System of The Protection and Development of The Traditional Rural Settlement Construction

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Keywords: Rural Construction, Catalyst, Workshop, Vitality, Community Design

Along with urbanization, rural town community environment and living have shown a big problem. Meanwhile, the ecological environment nearby villages and towns is also affected by urbanization. How to protect the environment and traditional villages and develop them is considered a big project needing lots of money?

This project is to improve the quality of rural town community, but not needing start-up capital. Here, we have started 5 steps of community design:
1) Selected case: Tongxing, Beibei District of Chongqing, is a traditional scene protection zone planned by Chongqing Government in 2015. It is a good and comprehensive case covering problems of ecological destruction, tradition disappearing and economic backwardness.
2) To investigate the resources on environment, landscape, or other good aspects.
3) By using catalyst theory and community design theory, to hold various community activities for residents, tourists and volunteers (the RTVs), such as cleaning of riverbank rubbish, investigation of town history and riverbank natural vegetation conditions, organization of excellent photo exhibitions of tourists and art exhibitions of community residents, running of a grand hot pot party, as well as some traditional drama appreciation, workshops, foreign language learning activities, etc. As the circumstances may require, some are free of charge and some are not free.

4) To examine and analyze the effects of various activities and workshop participated by the RTVs, to see whether these activities show them the charm of this town, let them begin to learn to protect this natural ecological riverbank and the architecture and street pattern of the traditional villages and towns, especially for residents, also begin to be proud of their own homeland, and begin to learn how to maintain the streets and the ecological environment surrounding the streets and villages. This is the primary objective of this project.

5) A more important goal of this project is to achieve the enlightenment that this gradually declined historical town is facing development and vigor enhancement in the condition of no start-up capital, but it needs repeated practice and verification, and it cannot be verified in short period of time.
Now, through various activities, more and more tourists and volunteers have come to this traditional village town, and these residents have become happy and proud and realized that their towns should be protected, and also, they have seized a number of business opportunities. This project was implemented in order to let residents better live in this traditional area.

Sustainability

A Rural/Small Town Landscape Suitability Model from a Regional Perspective

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Keywords: Sustainability, Landscape Sustainability, Environmental Sustainability

This research endeavor focuses on Rural and Ex-Urban Landscape Suitability. From over five years of testing, a model using 7-10 landscape suitability variables has been developed and applied to West Texas. In an effort to be universally adopted, a limited selection of landscape variables was identified that could easily be applied to other North American landscapes. This is in contrast to most sustainability studies which primarily focus on Landscape Performance of one project, but rather at the neighborhood scale. The model is easily scaled for diverse settings, whether it be natural conservation lands, parks, small towns, agricultural areas, or small town urban industrial and commercial sites. While adopted for rural areas, this could be also adjusted and modified to large metropolitan areas. The purpose for developing this model is to create a quick data base of sustainability that could be mapped in GIS format and easily applied in Rural Long or Short Range Planning. It gives the land manager and designers an opportunity to establish a base of regional sustainability and utilized in directing specific strategies for improving sustainability ratings. This model should be used in conjunction with site specific Landscape Performance models to be best applied for real change. The case studies presented were developed over five years and utilized 7 different scale rural communities in West Texas, with over 300 sites canvassed. The results of this quantitative research testing and surveys showed easy application with GIS mapping, strong correlation to landscape variables of native plant selection, irrigation, age of residence, real estate value, and landscape design quality. Additional values incorporated in the model in 2015 were: recycling/reuse, food gathering/gardening and other landscape social values interrelated with quality of life issues, central to sustainability success. Further data collection would dramatically improve the potential management value and accuracy.

Aesthetically Qualified Native Polycultures: Rationale, Methods, and Ongoing Research Results

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Keywords: Polyculture, Native Plants, Planting Design, Urban Nature, Intermingled Planting Design, Ecology

"The purpose of this presentation is to explain the rationale, methodology, and ongoing trial garden results of a research effort to develop freely recombining polycultures of native plants for metropolitan areas of North Texas. The results are narrowly focused on the North Texas region but the methodology has broad applicability to any biome. The native polycultures are designed to create a better balance of aesthetics, environmental services, and ecology than is possible with the discreet groupings of monocultures that are usually employed for planting designs.

Native polycultures take advantage of the seasonal interest of native plants while mitigating the times when they are dormant or have less aesthetic appeal. Polyculture design is more dynamic and can be understood, in the language of abstract expressionist art, as “slow motion action painting”. Native plants are used as base matrix groundcovers of dense intermingled plants unified by criteria such as texture, line, form and height, as accent plants (“like boulders in a stream” (Oudolf, 2013)), as transparent scatter plants, and as edging plants that either frame the polyculture or provide a lower and less wild looking transition to paved surfaces and turf areas.
Environmental benefits of polycultures include effects as far reaching as increasing oxygen production and improving the efficiency of cleaning both air and water through phytoremediation (Oikos 87:15-26 and Tilman (1999).

Examples of how polycultures improve the often-neglected component of ecological services include using “resources more completely than simple communities and thus being more resistant to invasion” (Levine and D'Antonio 1999; Tilman, 1999), providing reservoirs of beneficial mutual fungi and bacteria (Dave Jacke and Eric Toensmeier, 2005), and increasing arthropod species richness (Cook-Patton, et al. (2011).

The palettes of plants developed for the trial gardens began with a carefully qualified list of attractive, indigenous, shrubs and perennial grasses and herbaceous plants from the North Texas biomes. The second phase of selection applied over 59 criteria to the plants to gauge their suitability for development conditions. Mode of spread and relative aggressiveness were added to aesthetic and horticultural qualifications typically associated with planting design in order to gauge compatibility for the creation of recombinant polycultures. Test polycultures will be presented that have been installed at the Botanical Institute of Texas and The University of Texas at Arlington campuses, and at a private residence. These test gardens are being documented photographically for aesthetic appeal and measured for the balance and spread of species as they mature by using transects with 5 meter intercepts. The results of this research show the viability of the concepts and provides valuable information to practitioners."

Application of "Flexible Construction" Design Strategy in Transitional Landscape Architecture Design ——Taking the Space Design Beneath the Shenzhen Da kong Harbour Bridge as an Example

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Keywords: Flexible Construction, Transitional Landscape Architecture, Landscape Architecture Design

James Corner pointed out the view that:" a series of uncontrollable events, such as capital concentration and dispersion, population movements and aggregation, directly affect the urban space, making it full of complexity and uncertainty"[1]. China, as one of the world's fastest-growing countries, is faced with such uncertainties exacerbated by rapid urbanization. However, general landscape architecture design methods pay more attention to the current functional requirements and aesthetic principles, rather than the need to adapt to future changes. Therefore, the core proposition of this study is focused on digging out a landscape architecture design method which can coordinate with development of uncertainties, so as to respond to future changes.

By literature review [2]and classical case study, this study inducts the core design method:" Flexible Construction", which refers to a refined landscape architecture design method adapting well to the uncertainty and complexity in the urban development. Firstly, the landscape architecture system under this design method is an open structure, and the construction activities are not completed in one time, but will be carried out step by step in response to emergence of varied problems in the future. Secondly, " Flexible Construction" is a "limited action", which attempts to balance between the reality and the future, thus creating a material space in continuous extension. In spite of the recognition of uncertainty and transience, such design method is not a passive follow-up but an active controlling attitude. This control not only leaves space for future development, but also responses to the present problems.

Compared with general landscape architecture design methods," flexible-construction" method has the following characteristics:

1. Compare content
Attitude to space
Attitude to time
Attitude to construction
Construction methods
2.General landscape architecture design method
Certainty
Disregard
One-time completion
Normal construction
3. "Flexible Construction "design method
Openness
Time as a clue
Uncompleteness
Adaptability and sustainable construction

In the following study, the essay introduces the operation of "Flexible Construction" method in the space design practice beneath the Shenzhen Da kong Harbor Bridge. As a transitional site, Da kong Harbor Bridge will embody different functional uses in the future, while the traditional landscape architecture design methods will not be able to cope with future changes and even result in economic and ecological unsustainability," Flexible Construction" method can be suitable for this project.

Comments on The River Harnessing Projects and Its Enlightenment to China in The Context of Eco-Water Urbanism

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Keywords: Landscape Architecture, Eco-Water City, Water System, Water Harnessing Projects, Near-Natural River

The arranging and reconstruction of the urban water system context can't be ignored when building today's ecology garden cities. Some International cities with experienced water conservancy, carried out a number of water harnessing projects on national strategy level, after fully aware of the drawbacks of traditional water control method. In order to create an ecological water city, these cities break down barriers between rivers and cities and have achieved remarkable results

Many European countries, led by Germany, reflected on river environmental damage caused by river engineering in the middle of the nineteenth century, which gradually promoted the river naturalize transformation, additionally created and developed river control method (Naturnäherer Wasserbau in German). In the late 20th century, Japan proposed the "Multi-natural River Regulation" project, thus the traditional concept of river engineering is altered and the "Near-natural Method" suitable for local is introduced. The river remediation goal of simply the river management is replaced by the integrated restoration and re-naturalize of the riverside environment. In 2007, the Netherlands launched an 8-year national strategy project "Room-for-the-Rivers". The main objective is to improve the river's capacity of self-flood-control through technical means, so as to provide sufficient ecological base for the river ecosystems. In 2006, Singapore implemented an "Active, Beautiful, Clean Waters Program", which integrates Singapore's water resources (blue), urban parks (green) and leisure facilities (orange) as a whole, building the "blue, green, orange" comprehensive system. In recent years, the concept of "landscape city" and the development of "mountain-water-city system" have illustrated that the restoration of river system in China should not only confined itself to the river, but also pay attention to the relationship between city and water. Actually, the problem of Chinese water system is very complex, because China is on the way to the developed countries. So that, analysis and comparison of these four strategic projects on national level of the water system transformation, putting forward for the "Macro-meso-micro" multi-scale perspective study on Chinese rivers, proposing the near-naturalization strategies, is of great significance for reshaping the landscape pattern of China's eco-water cities.

Comprehensive Planning for 2019 China Beijing World Horticultural Expo

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Keywords: Landscape Architecture, World Horticultural Expo Planning, Ecological Wisdom, Multidisciplinary Coordination

"The period for 2019 China Beijing World Horticultural Expo is just the critical time for the Chinese economic and social development and the Expo will provide significant opportunities for the regional and urban development. The concept of the park planning researches how to rationally utilize natural environmental and cultural factors to make utmost efforts to fulfill the harmonious co-existance between human society and natural environment.

The planning advocate multi-disciplenary coordination, takes the Expo as an open complicated mega-system by adopting a metasynthesis approach to integrate experts' knowledge, data, and all kinds of information regarding landscape architecture, planning, horticulture, transportation, tourism planning, historical preservation, operation planning, municipal engineering and lighting design, etc. With the aids of computer technologies, such as Gis, Fragstats and Linkage Mapper, the design team overlaid the ecological secure pattern, traffic organization structure, landscape function layout, landscape sight analysis, municipal utility's integrated pipe network, floodplain range, cultural relics protection and available land for construction, which were then combined with quantitative results and previous experience and knowledge for the ultimate optimal solution.

Thus, the results of the park planning include:
(1) Promoting eco-environmental quality;
a. Constructing ecological security pattern
b. Protecting and recovering damaged wetland and river ecosystem
c. Creating diversified native habitat systems
(2) Constructing spatial pattern of "Shan-shui City";
a. Creating a mountain- & river-visible landscape corridor
b. Forming a spatial pattern with development surrounding the river
c. Establishing a high-quality leisure development belt of Guishui River
(3) Simulating landscape structure in natural system;
(4) Inheriting local characteristic human wisdom.
a. Creating horticultural industry community
b. Introducing projects of cultural tourism, urban agriculture and aged-care leisure
c. Advocating horticultural life and constructing beautiful village

China Horticultural Expo 2019 is the second national level project in the post-Olympic era and we highlight our core ideas of demonstrating our own features with understanding of nature and ecology at the planning level from the perspective of landscape architects. This Project will establish a sustainable expo organization mode, which may provide reference for landscape planning and design of large domestic and overseas expos on the respect for both human beings and nature. Furthermore, the role of landscape architects in balancing relationships with industrial development, urban construction and economic industry, as well as comprehensive coordinators will be discussed."

Designing for Ecosystem Services Provision in Urban Areas: Between Landscape and Architecture

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Keywords: Landscape Architecture, Architecture, Ecosystem Services, Rating Systems, Sustainability

Cities are the everyday environment for the majority of the global population, as more than half of the world's population is living in urban areas. They are continuously growing in terms of geographical area, number of buildings, and population. This growth of cities and population is increasing the demand and impact on natural resources and energy, and, thereafter, the challenges for ensuring human welfare and for preventing the increasing loss of soil, habitats, resources, and biodiversity. In this sense, design has a great potential to reshape cities transforming them for improved living conditions and balanced ecological systems. The most adopted practices for ensuring sustainable design, for buildings and for landscapes as well, are the rating systems, in particular, LEED (Leadership in Environmental and Energy Design) for buildings and neighborhoods, and, more recently, SITES (Sustainable Sites Initiative) for landscapes. Considering that highest levels of sustainability may be achieved through an optimum provision of ecosystem services, those two assessment systems are analyzed in relation to the ecosystem services matrix, in order to identify their potentialities and deficiencies. The context considered is the urban area, including all the different urban transects. Then, a case study of a project, located in an urban site, that has both architecture and landscape architecture certified by LEED and SITES, respectively, is analyzed. The case study is conducted for identifying its ecosystem services provision in accordance to the criteria attended for its certification. The same way that landscapes are encouraged to be designed to provide as many ecosystem services as possible, buildings should be designed and considered to add to the potential of the site to deliver ecosystem services. Therefore, a multifunctional site is of great importance, considering all of its elements, open spaces and buildings, living and non-living elements, all connected and interacting to respond with as many ecosystem services as possible for a healthy and functioning urban setting.

Developing Typologies for Vacant Urban Land

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Keywords: Urban Vacancy, Vacant Land Typology, Hazard Model

"The recent increased emphasis on regenerating vacant urban land has produced an amplified amount of research on the subject, reflecting a necessity to better understand how vacant urban land both functions within and effects surrounding areas. According to Newman et al. (2016) 's survey on vacant land in large American cities, responding cities designated vacant lands primarily as greenfield, unused agricultural lands, brownfields or derelict open spaces. However, numerous types of vacant land were reported and tended to vary by city. Similar and opposing terms were both interchangeably used to describe urban vacancies depending on locality. The issue of varying typologies of vacant land makes it difficult to study longitudinally to better identify causal factors contributing to its formation.

This research questions what types of vacant urban land exist and how these types can be categorized, based on their causes and physical/socio-economic characteristics. The research aims to 1) statistically examine patterns of urban vacancy examining duration, land use, parcel size and percent canopy coverage and 2) identify and generate vacant urban land typologies which can be used to more acutely compare vacant land conditions across localities using Minneapolis, MN, USA (2005-2015) as a case site.

The distinctive spatial patterns of vacant land across neighborhoods and varying duration of vacancy (Kremer, Hamstead, and McPhearson 2013, Foo et al. 2014, Sternlieb et al. 1974) are primary measures used to develop the typologies. Spatial pattern analyses include locational characteristics and duration of vacancy includes whether or not a vacant parcel is occupied and how long it stays vacant. A Cox Hazard model is employed to examine duration of vacancy and potential for development. The results suggest that tax-paying private properties have a higher possibility to be developed but will contribute to shorter vacancy duration. Residential and commercial properties are primary actors of urban change, but are thought to have different patterns of vacancy duration. Innately, residential parcels will have more parcels in the market and also will have less turnover of vacancy than commercial properties. These distinctive patterns of vacant land lead to four typologies: remnant, speculative, reserved, and dormant land. This study extends the existing vacant land literature by longitudinally comparing vacant land types to better identify the driving forces of urban vacant land. Understanding the life-cycle of vacant land can provide insights on how to reduce long-term urban decline."

Evaluating Resilience Capacity: A Case Study on Urban Regeneration Policies in South Korea

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Keywords: Resilience, Urban Regeneration, Urban Policy

"As many cities in South Korea are experiencing, and expected to face, urban decline including population decreases, economic decline and housing and environmental deterioration in urban areas, the Korean government has launched a nation-wide program to foster community-led urban regeneration activities. The “Urban Regeneration Act”, legislated in 2013 as its legal tool, focuses on soliciting and supporting urban economic and neighborhood regeneration projects with special tax regimes and incentives. However, despite such efforts to revitalize Korea’s urban areas and economy, environmental regeneration and sustainability seem to be largely ignored. The current regeneration policies and projects show a lack of other imperative considerations such as newly emerging threats of the climate changes and environmental deterioration.

Believing that resilience capacity is the ability of a society exposed to hazards to resist, absorb, accommodate to, and recover from the effects of a hazard in a timely and efficient manner, in the current context of emerging demographic, urbanization, and climatic trends, ideas of urban resilience have become increasingly demanded to be embedded in planning and design practice for better sustainability of public infrastructure and urban management.

The purpose of this study is to evaluate the current urban regeneration projects in Korea through the resilience capacity index, drawn from the literature. Expert surveys will be conducted among the project managers and directors from 13 model projects using the analytical index. The results will help policy makers and practitioners aware of the resilience approaches to the current urban policies in South Korea."

Greening Baltimore: What Can Herring Run Greenway Network Do for Its Neighborhood and The City?

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Keywords: Urban Stream, Landscape, Sustainability, Conservation, Design, Policy, Planning, Development, Greenways, Blueways, Green Networks

"Over the past few years, Baltimore city has been busy investigating the issues of vacancies since it triggers a complex effect in terms of dereliction, crime, dis-investment and emigration. The Vacant to Value and Power to Dirt programs were reinvigorated under Mayor Stephanie Rawlings-Blake since around 2010. The ongoing Power to Dirt program enables the community to claim, adopt, or buy vacant lots to grow food, community gardens or plant trees. City of Baltimore published a "Green Pattern Book: Using Vacant Land to Create Greener Neighborhoods" in 2015 as a tool used to guide the greening of vacant land by City agencies, NGOs, community-based organizations, and individual residents (City of Baltimore et al, 2015). The city also kick-started a project on "Green Network Plan" in Fall 2015, through the collective of leadership team, advisory team, and various agency work groups to articulate a collective vision for Baltimore to revitalize communities through a citywide interconnected green network.

This paper examines city's attempts to addressing vacancies, with particular focus on urban greening programs through vacant lots and landscape, from the lens of landscape architect or as an open space planner. This examination is undertaken with the objectives of understanding and communicating ongoing initiatives at Baltimore to broader audience and discussing the role of neighborhood scaled green networks to city level urban greening initiatives, through a case-based inquiry into Herring run greenway network. The discussion is framed within the total ecosystem approach and this will be used to assess the efficacy and impacts of Baltimore and Herring run greening efforts.

Research for this paper, draws from literature review, field-visits, photographic analysis, and Google earth map studies and academic studio explorations over three years from 2012-2015. In conclusion, the paper presents alternative proposals on Herring run greenway network, on Green Network Oriented Zoning Ordinance and space-programming ideas and master-plans integrated with bike lanes, green streets, solar harvesting technologies, water cleansing and conservation installations and urban agriculture pods, aimed at making the stream accessible to its neighborhood community in northeast Baltimore while broadly reinforcing environmental sustainability values in the neighborhoods, along with a critical reflection on the same, fit with city greening initiatives and further research trajectories."

Hydroelectric dams in the Andes: How sustainable?

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Keywords: Water, Sediments, Dams, Sustainability

Dams provide numerous benefits to societies, such as municipal, industrial, and agricultural water supply, hydroelectric power generation, and reduction in flood magnitudes downstream. However, dams have many negative impacts, including flooding out river valleys and loss of cultural, economic, social, and environmental values therein, creating still-water reservoirs that often suffer water quality problems, blocking fish migration, and altering flow patterns downstream. Moreover, dams trap sediment, which affects both the reservoir sustainability (by impairing dam functions, reducing storage capacity, increasing risk of dam failure) and negatively impacts the geomorphology and ecology of downstream reaches. In the Amazon River tributaries of Colombia, Bolivia, Ecuador and Peru, at least 151 new hydroelectric dams >2MW are planned over the next 20 years, increasing hydropower capacity by 300% (not including dams in the Brazilian lowlands) (Zarfl et al., 2015; ARCE, 2015; Finer and Jenkins, 2012). Despite the scale of this development, no comprehensive cumulative impact analysis has been undertaken to date, nor any attempt to analyze potential distribution of dams within the drainage network to optimize power production while minimizing environmental impacts. The high sediment loads of these steep Andean tributaries make sediment problems likely, and they are already evident in at least two projects in Ecuador. Many of the new dams are being designed and built by foreign investors. Typical contracts require investors to design and construct the projects, collect most of the power revenues during the first 20-30 years of project operation, then turn the projects over to the host countries. If the dams have substantially filled with sediment by then, the projects may be more burden than benefit to the host countries. However, reservoir sedimentation problems need not be inevitable, as there are multiple approaches to pass sediment through or around dams that can work in many contexts (Kondolf et al., 2014). Such measures are best developed and implemented in the initial design stage, as retrofits tend to be costlier, less effective, and riskier. We systematically reviewed available information for planned hydroelectric projects in Ecuador in the context of river basin sediment yields to assess the degree to which dam design and proposed project operation incorporate strategies to pass sediment downstream or otherwise account for incoming sediment in a sustainable manner. Based on this analysis, and drawing upon experience elsewhere employing sustainable sediment management approaches, we recommend priority actions to improve the sustainability of future reservoirs in the Andes and to minimize their downstream impacts. Countries throughout the world need to implement regulatory frameworks for dam planning, design, and construction, which consider sediment management. We encourage those initiatives through our case study.

Maintaining Sustainable and Resilient Urban Places: A Future

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Keywords: Spatial Frameworks, Resilience, Sustainability, Ecology

"The nature of our relationship with the environment in the future is unsettling. Population growth is increasing rapidly, worldwide. The world is becoming more urban as well. Changing and unstable social, economic, and political forces, globalization, rapid technological and scientific innovations, changing demographics, and trends driven by climate change are the drivers of landscape change that continue to challenge our ability to adapt well with the environment we call home. Rapid urbanization, social and political unrest, extreme weather conditions, rapid species extinction, as well as water and food shortages, are some of the defining issues of our time. Human actions that were merely offensive or disturbing 50 years ago are threatening life itself today. We need new ways of thinking about how to effectively balance human needs and ecological concerns.

Despite a remarkable assortment of urban spatial forms and structures, the nature and increasing complexity of the problems associated with landscape change have made solutions increasingly difficult to attain. Based on an extensive literature review, case studies analyses, and key informant interviewing, I propose a conservation-based ecological land ethic as the appropriate ethical position for balancing human use and ecological concerns as well as an interrelated set of principles to facilitate meaningful dialogue in addressing these problems. At the core of these principles is the search for a pathway directed at creating and maintaining sustainable and resilient urban places.

The principles are: Adoption of ecological regionalism to frame the context, spatial scale, and infrastructure for intervention; espousal of resilience thinking and action ; conservation and enhancement of ecosystem services; engagement in adaptive and regenerative practices; implementation of performance-based thinking and practices; commitment to place making and place enhancement; design of nested interventions; as well as adoption of social action ---advocacy, activism, learning, and education. I conclude by asserting that the effectiveness of these principles in managing growth in urban landscapes lies in their synergistic effects."

Quantitative Evaluation of the Ecosystem Service Value at The Upper Yangtze River with Regards to The Natural and Social Factors

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Keywords: Ecosystem Service Value, Landsat TM, Hydrological Analysis, The Upper Yangtze River

As a significant ecological barrier on the southwest China, the upper Yangtze River plays a strategic role in the development and prosperity of China. With the data collected from the remote sensing images taken by Landsat TM, the hydrological report of the upper Yangtze River and the local Statistical Review, this study has managed to investigate the land usage features during 2000 and 2015. Furthermore, factors such as ecological frangibility of six tributaries were identified through the hydrological analysis. The result indicated that (1) the total ecosystem service value of the upper Yangtze River is 1.06×1012 yuan, which accounts for 44.52% of the total GDP at Yangtze River; (2) the land area proportion of Jinsha River basin, Min River basin, Jialing River basin, the main stream area of Yangtze River, Wu River basin and Qing River basin are respectively 55.52%, 16.38%, 12.31%, 7.29%, 6.24%, 2.35% with their corresponding ecosystem service value of 1.55×1011, 2.80×1011, 1.21×1011, 1.35×1011, 1.22×1011, 1.24×1011, (3) based on GM (1, 1), the expected ecosystem service value of the upper Yangtze River are 1.18×1012 yuan in 2020, 1.24×1012 yuan in 2025, 1.30×1012 yuan in 2030, 1.36×1012 yuan in 2035 with the relative tolerance (e) of .0574 which suggests a great result.

Reducing of Artificial Factors and Promoting of Natural Factors: The Meaning and Method of LA Minimization Design

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Keywords: Sustainable Landscape, Minimization Design, Nature and Culture

"Currently in the context of resource-saving and environment-friendly " "two-type society" " in China," "minimization design"" is booming in landscape architecture, which is required to reduce a variety of resources, energy consumption and waste emissions, so as to improve ecological, environmental and social benefits of landscape. However, minimization design of landscape architecture is inseparable from the comprehensive functions and social position of LA, the core idea of that is still to emerge the natural features, improve the quality of ecological environment, guide lifestyles and promote the cultural values. Therefore, the ""minimization design"" was considered to reduce a variety of redundant and unnecessary ‘"quantity"‘, and on the other hand to add a variety of shortage, neglected" "quality"", and adding combined with reducing improves the natural, ecological, and environmental technology of landscape design and presents the real meaning of nature and culture."

Research of Linpan in Chengdu Plain Based on The Construction of Green Infrastructure ——Case Study of the Hele Village, Chongzhou

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Keywords: Green Infrastructure, The Linpan in Chengdu, Rural Areas, Sustainability

Green Infrastructure is the sustainable development approach to achieve the objection of protecting and utilizing the urban and rural open space. And as a new method to solve the land problem in urban and rural area, it has made some achievements nowadays. The Linpan in Chengdu plain as a composite rural settlement pattern including the function of ecology, living and production, forming an important ecological barrier in the Chengdu plain. With the developing of urbanization, the texture of Linpan was destroyed, and the balance between rural land using and ecological environment has been affected. Based on the case study of Hele village in Chongzhou, which has the typical Linpan characteristics, we analyze the geographic information data by the method of Green Infrastructure Assessment (GIA), and make a land classification according to the characteristics of Linpan in Chengdu. Green Infrastructure explores a new way of sustainable development in rural areas to solve the rural problems and stimulate the vitality of rural areas without destroying the texture of Linpan in Chengdu.

Resilient Village: Exploration of the Post-Disaster Reconstruction Planning of Wenquan Village, Jianhe County, Guizhou Province

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Keywords: Resilience, Fire Disaster, Post-disaster Reconstruction, Minority Settlement

In recent years, the conservation of physical and intangible culture of the traditional settlement such as Miao villages is facing multiple challenges. There is a series of material crises - fires, flash floods, landslides and so on, and a series of humanistic crises - the invasion of modern cultures, the decline of national culture and the slow growth of economic productivity in the Miao settlements in the mountains. In response to this series of problems, the author applied the concept of resilient city to Miao villages and proposed some resilience strategies to ethnic minority settlements, taking the reconstruction planning of a Miao village, Wenquan village in Guizhou province as an example.

Considering the local topography and the Miao traditional customs, the author tried to construct the resilient village from four aspects: construction engineering, ecological cycle, safety control, and social management. To adjust the building layout and materials, set the ponds, drains, underground water pumps and other fire protection facilities to deal with the fire; to transform the natural river and build drains network to reduce the risk of floods and landslide; to reform education and production model to enhance vitality of cultural and economic. By empowering the villagers with low risk and high-intensity facilities, so they can obtain the ability of disaster prevention and apply their unique natural and cultural resources to develop diversifying industries, and eventually enhance the resilience of the whole village. These planning ideas can be used as reference nationwide for rural settlement reconstruction and minority village conservation.

Sustainable by Design Using SITES? Exploring the Role of SITES in Sustainable Landscape Design Projects in The United States

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Keywords: SITES, Role, Sustainable landscape design, Utilization

The purpose of this study is to explore the role of the rating system, The Sustainable Sites Initiative (SITES), in sustainable landscape design projects in the United States by examining the extent to which criteria of SITES are incorporated in SITES-certified projects and collecting designers' views towards SITES. SITES offer a comprehensive rating system administered by Green Business Certification Inc. (GBCI) for developing sustainable landscapes ("SITES", 2016). Compared to Leadership in Energy and Environmental Design (LEED), the well-known rating system also provided by GBCI, SITES are a relatively new rating system associated with sustainability. At the same time, SITES are focused on sustainable landscape specifically which is different from LEED-Neighborhood (LEED-ND). Thus, even though there have been some research focusing on LEED-ND (Garde, 2009; Weshah & Sadeghpour, 2011; Szibbo, 2015; Smith & Bereitschaft, 2016), their results cannot simply be transformed and utilized for SITES. This research gap leads to the following research questions: 1) What is the role of SITES in sustainable landscape design? 2) How to help designers utilize SITES in future sustainable landscape design projects? For the methods of this study, in the first phase, the official scorecards processed by SITES for certified projects will be collected to help to analyze the role of SITES in sustainable landscape design. In the second phase, a survey, including open-ended questions, will be conducted aiming at designers who participated in the SITES-certified projects to further explore the role of SITES in sustainable landscape design, including collecting views about challenges and successfulness of using SITES in sustainable landscape design. Our study area will focus on 48 SITES-certificated projects in the United States, and will try to collect all 48 projects' scorecards, then recruit designers from all the projects respond to us. The first part of the anticipated outcomes will be the descriptive statistical analysis of different criteria in the scorecards of certified projects to determine the extent to which certain planning and design criteria of SITES are incorporated in certified projects. The second part of the anticipated outcomes will be in-depth survey results about how designers, who participated in those projects whose scorecards we would be analyzing and respond to our survey request, think about the role of SITES and the challenges. As doctoral-level researchers coming from Virginia Tech, we see our learning outcomes as understanding the precious design experiences gained from the SITES certified projects and learning how to utilize SITES rating system in future sustainable landscape design projects. It is important for us to look into how the criteria of SITES are used in the SITES-certified projects and understand the precious experiences gained from designers who actually pursue SITES-certified projects, so our findings can help to make suggestions for the SITES improvement and the designers who are interested in using SITES in the future to achieve sustainable landscape design.

Sustainable Development Possibilities in the Intermountain West: A County Level Assessment

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Keywords: Sustainability, Rural Planning, Intermountain West

Purpose
This study applies a comparative assessment model to evaluate the sustainable development possibilities for over two-hundred counties in the Intermountain West. Through identification of rural sustainability measures, this study provides planners with operational tools to apply locally relevant criteria for understanding sustainability through a rural lens.

Background
Most current sustainability research focuses on urban environments. While urban areas support the majority of the population and built infrastructure, a regional approach to sustainability requires evaluation of the rural context as well (Audirac, 1997). Given that dimensions of sustainability are affected by context, priorities for achieving sustainability at a regional scale requires a holistic evaluation of the continuum of all settlement typologies, from dense urban centers to rural hinterlands that supply food and fiber for burgeoning urban populations. Most sustainability evaluations favor urban environments due to their high densities and resulting efficiencies, leaving rural areas labeled as "unsustainable" because of their decentralized growth patterns. Characterized as "not urban," they fall short of urban sustainability benchmarks (Isserman, 2005). By evaluating their dimensions of sustainability, the role of rural environments in achieving regional sustainability can be illuminated.

Methods
In this study, different combinations of sustainability indicators are evaluated in an interactive model. Through testing different scenarios, the effects of different indicator combinations on the sustainability of the counties are visualized through a series of graphs and maps, allowing planners and citizens to see the relative impact of various dimensions.

Findings & Significance
The model's scenarios resulted in key findings. Rural sustainable development is heavily influenced by environmental conditions: negatively, due to resource conflicts, or positively, if the region has an abundance of natural resources. In contrast, urban areas, show stronger dominance and variance based on social conditions and built forms.

Natural resource extraction-based economies have shifted to service and natural amenity-based economies (Winkler, Field, Luloff, Krannich, and Williams, 2007). The model highlights this shifting role that natural resources play as environmental indicators that affect rural economies. The model also highlighted water's prominence in driving rural sustainability in the Intermountain West.
While many of these findings corroborate previous research, this study provides a deeper examination of which specific indicators drive rural sustainability, and their relative importance in the context of the Intermountain West (Bosshard, 2000). Additionally, the model's visual outputs allow rural communities to easily visualize the impacts of regionally-specific criteria on the broader context, empowering courses of action that maximize rural sustainability."

Thermal Performance of a Vertical Greening System and Its Numerical Simulation

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Keywords: Energy Plus, Living Wall, Thermal Simulation, Thermal Benefits, Subtropical Climate

"Thermal performance of urban environments has caught researchers' attention and been studied intensively worldwide in recent years as an attempt to mitigate urban heat island effects. To improve thermal environment in urban areas, the main strategies include increasing urban planting and green coverage, increasing urban albedo, and improving the efficiency of energy use. Roof and vertical greening which covers a building as the outmost layer regulates the thermal environment of the building. To inform an energy efficient design, the thermal performance of roof greening was evaluated either by empirical observation or numerical simulation. Energy Plus, a widely used whole building energy simulation program, has developed "Material: Roof Vegetation" to model green roofs. However, studies on the thermal performance of vertical greening were limited both in empirical and simulation studies.

The purposes of this study were to (1) evaluate the thermal performance of a vertical greening system under a subtropical climate condition and (2) model the thermal behavior of a vertical greening system with Energy Plus. In this study, two physical building models with and without a vertical greening layer were constructed. The temperatures of outside surfaces of exterior walls, indoor air temperatures, and heat fluxes were monitored continuously in the period from 2014.04.01 to 2015.04.30. Because the heat transfer behaviors between plant and the surrounding environment are quite complicated and not included in available software (Larsen et al., 2015), we used the element "Material" in Energy Plus to simulate a vertical greening system by adjusting input parameters for the thermal behaviors of plants.
The results indicate that surface temperature of exterior wall and indoor air temperature of the physical building model covered by a vertical greening layer were approximately 13 ˚C and 6 ˚C lower than that of without a vertical greening layer at noontime. Thermal heat flux passing through external wall was also much lower in the physical building model with a vertical greening layer. In the simulation modeling by Energy Plus, we used the index of agreement (Willmott, 1982) to evaluate the simulation performance. The results indicate that the adjusted use of the "Material" parameter in simulating a vertical greening system was satisfactory. As several systems in green wall technology have been developed, future works could apply the same method to simulate different vertical greening systems for their thermal performance evaluations."

Towards Wholeness: A Pattern Language for Restorative Ecological Design

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Keywords: Regenerative Design, Whole Systems Theory, Restorative Ecology, Design Patterns

"Across disciplines and cultures in the environmental design sciences, the acknowledgement of the 'whole' and 'integrative adaptive systems' are aligned with 'restorative ecological design', and supportive of a new restorative ecology worldview. Prompted by the emergence of the regeneration and sustainable ecologies discourse, inspiring and authoritative new insights into the deep rooted and interconnected affiliations of humans as part of nature and humanity's responsibility to the planet, restorative ecological design is being expressed through the rapidly increasing science of pattern theory. In the context of living systems, the environmental design sciences have redefined 'restorative ecology' as 'the knowledge of making life', where processes in nature support an evolution of resilience, gesture and design narrative. This new paradigm is provoking the architecture and landscape architecture discourse to seriously consider design solutions and new possibilities that include a pattern language based methodology inclusive of morphogenetic sequences, bio-urbanism, self-organization, generative codes, biophilia, integrated and regenerative-adaptive design, initiating a new era in restorative ecology-informed design.

Our environment is changing, as a society we need to better adapt to an unknown future climate and one that is getting more forthright as evidenced in the recent increased large scale extreme storms and floods at a global scale. Thus, our design processes need to seriously chart a shift from our present fragmented state of design practice to a preferred state of 'wholeness'. The idea of design as an adaptive and transformation process is at the core of the whole systems theory pioneered by Christopher Alexander expressed in The Nature of Order (2001-2005). Alexander positioned this hypothesis in generative codes supported by morphogenetic sequences. He concluded that there were fifteen geometric fundamental properties of wholeness that aligned with nature's generative systems, and by successfully addressing these was a prerequisite of evolutionary success and thus successful adaptive design. Accordingly, the self-organization process in nature is in essence a system-generating technology, regenerative and adaptive that works extremely well. It is resilient, functional, self-regulating and constantly evolving.

Drawing upon Alexander's whole systems theory, this paper further advances the regenerative-adaptive design theory (Roös, 2016), using Australian exemplars, charting a method towards a holistic integrated design process that incorporates the principles of regenerative design with an adaptive pattern language that re-establishes human wholeness with nature and offers relevant strategies towards resilience; in essence creating a basis for establishing a living systems inspired design paradigm. The theory offers for nature-informed sustainable development of our built environments analogous to the model of morphogenetic sequences that organisms are governed by in an unfolding process that follows a set of rules in wholeness. Bringing the discussion back to the architecture and landscape architecture discourse, the paper explores this 'knowledge of making life' and its potential application to applied practice and design education possibilities, identifying a strategy for integrating the principles regenerative-adaptive patterns in crafting a holistic integrated design method."

Urban Design

A Study on Color Planning and Design for the Architectural Environment of the Old City of Qingdao

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Keywords: Urban Color Planning, Urban Color Design, Architectural Environment, The Old City Of Qingdao

Due to special natural geographical conditions, history of urban development and local culture of the city of Qingdao, China, the architectural environment of the Old City of Qingdao owns unique color features. In order to explore these color features, case studies on the architectural environment of the Old City of Qingdao were conducted. This series of studies are based on literature and fieldwork, with ethnographic approach and photography analysis used as main research methods. The findings of the research mainly include the main color characteristics, color planning and design, effects of color application of the architectural environment of the Old City of Qingdao. Furthermore, the reasons for the formation of these color characteristics in the Old City area are also analyzed and revealed. These finding could provide guidance and information for the future urban color planning and design.

A Study on the Ways to Cognize and Reshape Local Features of Urban Landscape in Chinese Cities: with Case Study in Huaiyuan County, Anhui Province

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Keywords: Urban Form, Local Features, Overall Urban Design, Huaiyuan

"Chinese cities are experiencing very rapid booms of urban construction, while in a large number of which, local features of urban landscape are becoming disappear. The “modernized, uniform but characterless” urban appearances have led to increasing criticism by both the researchers and the public.

Current literatures have proposed various classifications of key elements to cognize the local features of urban landscape, respectively by the perspectives of semiotics, systematics, sociology, environmental art science and so on [1-6]. Nevertheless, these findings can hardly provide scientific and effective ways to understand the local features of urban landscape in practice. In this paper, the research aim is to summarize valuable current findings in this research area at first, and then set up a specific framework to cognize the local features of urban landscape in contemporary Chinese cities, by which effective measurements can be proposed to reshape more localized urban landscape, especially through overall urban design in the macro-scale.

The setting of the framework is based on the Chinese traditional philosophical ideas for the construction of human settlement (so called Shan-shui City). According to the ideas, usually the Interactions between the cities and the surrounding mountain and water systems, as well as the historical remains including heritages and traditional neighbourhoods, were definitely decisive elements to the skeletons of urban landscape in traditional Chinese cities [7-9]. And in contemporary context, these elements actually form the most authentic and valuable remaining local features of urban landscape. Therefore, the effective strategies to enhance the “localities” of urban landscape should focus on the interactive elements between cities and natural or historical surroundings through the overall urban design control.

Under this framework, the overall urban design practice in Huaiyuan County in north Anhui province is as a typical case study. In this county town, a system of urban design control was established to enhance the “locality”. The formation of visual corridors from key urban viewpoints can ensure the surrounding mountains, waters and other landmarks conserved in a good vision. Also, there sets up three main historical corridors to connect remaining historic relics, traditional neighbourhoods and main open spaces. Thus, in practice, the work of this paper provides realistic ways and valuable experiences to reshape the local features of urban landscape in Chinese county towns as Huaiyuan, with a long history and fast boom of urban construction."

A Systematic Review of the Effects of New Urbanism on Housing Prices

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Keywords: New Urbanism, Meta-analysis, Hedonic Modeling, Housing Price

"The design principles embraced by New Urbanism highlight specific aspects of urban form such as higher density, mixed land uses, street connectivity and proximity to transit; these components are often recommended as a solution to containing uncontrolled suburban sprawl (Newman and Saginor 2016). Advocates of New Urbanism posit that these principles can create more physically active, socially interactive and environmentally friendly neighborhoods while simultaneously promoting higher neighborhood satisfaction (Talen 1999; Lee and Moudon 2004). Previous empirical research has begun to examine whether these principles can actually increase neighborhood satisfaction, using housing premiums as a proxy for measurement. These study findings have been inconsistent; some research reports increased housing values in denser, more mixed and walkable residential environments while other studies found that consumers are willing to pay less in neighborhoods with the same characteristics.

This research attempts to shed light on this quandary by quantitatively synthesizing previous conflicting findings through a statistical meta-analysis. One hundred and thirty-nine different analyses from 52 articles with a total sample size of 654,762 were collected and consistency levels, weighted effect sizes, signs and significant levels of 19 different measurements of density (2 measures), land use mix (9), street connectivity (4) and proximity to transit (4) were analyzed. Findings indicate that a lower density (i.e., lower population and dwelling density), decreased street connectivity (i.e., more cul-de-sacs and lower street density), and closer proximity to a transit stop (i.e., shorter distance to transit stops) can contribute to increased housing premiums, while the impact of mixed use can vary according to proximity to specific land uses and/or the proportion and location of land uses per neighborhood.
Being close to institutional uses was found to increase housing value, while having a higher ratio of industrial uses decrease it. One interesting outcome from the study is that the land use mixture was perceived differently depending on whether or not the mixture had the presence of non-single-family housing. If different types of land uses including single-family housing were spatially and proportionally scattered, housing prices were more likely to decrease. However, when only examining the level of mixture of non-single-family housing land uses, higher and more equally mixed non-single-family housing uses tended to increase housing premiums. These findings indicate that the principles embedded within New Urbanism-based philosophies are not yet fully accepted at in real estate and housing market ventures."

A System-oriented Design Approach for Urban Revitalization: Transit Hub and Mixed-Use Development in the Energy Corridor District, Houston, Texas, USA

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Keywords: Transit Complex, Compact City, Walkable Environment, Green Infrastructure, Storm water Management

"Created in 2001, the 1,700-acre Energy Corridor District (ECD) is the third largest employment center in West Houston, Texas. Currently, this master-planned business district contains more than 300 multi-national, national and local companies employing over 84,000 people. The largest open natural areas of any US metropolis, including the Addicks and Barker Reservoirs, surround the district with over 50 miles of trails. With rapid urban growth, however, a conflict between environmental preservation and economic development threatens the current demand for new mixed-use development. The Interstate 10, a bisecting highway within the district, has also exacerbated the isolation of development parcels and no landmark features create cohesion between urban activities. Despite the attractive natural areas preserved on-site, lack of accessibility to the area limits integration of human processes and nature.

Given these challenges, the primary focus of this project was to develop a comprehensive master plan for the ECD to guide future development, while providing the means for balancing economic growth and environmental sustainability. To respond to these issues, this project applied a system-oriented design approach (SODA). The SODA has been utilized in much design research to promote systemic thinking to deal with the complexity of design projects. With growing demands for sustainable development and healthy living, the SODA helps to integrate complex ecosystem needs with aspects of human livability. To achieve SODA in this project, the final design applied three design principles of 1) research-based evidence, 2) analysis-based quantified evidence, and 3) practice-based evidence. The research-based evidence included data, methodology and findings from literature and policy review pertaining to the ECD. The analysis-based evidence came from the results generated by spatial analyses using geographic information systems and remote sensing techniques. Finally, field assessment and international case studies enhanced practice-based evidence.

The comprehensive master plan included two concentration areas: Addicks Park-and-Ride and Terry Hershey Park. Main design goals were: 1) creating a superior multi-transit system for flourishing built environments, 2) enhancing the value of natural environments, and 3) catalyzing energy savings and production on the site. To achieve these goals, a green transport system of low-emission facilities and a working bicycle network were suggested to provide a variety of commuting solutions and reduce ecological footprints. Low Impact Design (LID) features such as ponds, rain gardens, bioswales, and porous pavement were integrated with design solutions to minimize development impacts on the existing natural hydrological systems."

Active Living by Using Public Resources to Enhance Private Spaces

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Keywords: Public Space, Private Space, Healthy Environment

"The Belmont/Mantua neighborhood is one of the areas within Philadelphia that is facing considerable challenges of an economic decline, an increase in crime rate and lack of active living environments. As a result, streets have become deserted and health issues such as obesity, mental health, asthma have emerged. Moreover, with the high percentage of low SES population and single mother households, health disparity has become a major concern. However, traditional design approaches that target reclaiming existing public spaces cannot provide accessible destinations for people living in the dense areas within the neighborhood. Literature also suggests that centralized urban parks are not as effective in providing health benefits compared to trees and vegetation at every door step.

To provide healthy environments where all people thrive, we propose bridging between both public and private spaces. By challenging the conventional approach of resources to reclaim public space, we propose to gather public resources for private spaces. Our design aims at spreading SEEDS by encouraging residents to draw on public resources to reinvigorate and personalize their homes and sideyards. We can thus turn streets and sideyards into places where people can engage in yard innovations, physical activities and social interactions.

In our design, we proposed SEEDS as community hubs, nursery, and planting studios, and exercise and creative arts classes where people can gather around, develop ideas and skills, and bring home tools, seedlings and saplings, and materials that they can later use to regenerate their own neighborhood streets and sideyards. By customizing the design of the SEEDS according to individual needs and preferences, we further ensure that our design is resilient enough to meet both current and future needs. Our design facilitates bottom-up place-making and proposes indeterminate future scenarios which are to be developed by the residents themselves, through their own initiatives on the streets and in the sideyards.

To evaluate the effectiveness of our design in promoting physical activity and active living, we employed the framework of Pikora's four categories of the environmental determinant of physical activity, specifically functionality, safety, aesthetics, and destination. By instilling interactive space and encouraging creative actions, our design can enhance the connectivity and activity density, encourage "eyes on the street" to reduce the crime rate, promote streetscapes and sideyard landscaping to add visual appeal, as well as provide a variety of community destinations where active engagements occur."

Biophilic Design Applications: Challenges and Directions in Australian Practice

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Keywords: Biophilia, Biophilic design, Built environment practice, Australian cities

"In the three decades or more since EO Wilson's Biophilia (1984) hypothesis was introduced to the scientific lexicon it has become widely accepted as a powerful way of understanding and examining the bond that humans have with other species and living systems, which Wilson suggests is fundamentally instinctive. The hypothesis has been advanced and incorporated in the concept of Biophilic Design promoted by Kellert et al (2008) and further interpreted and celebrated by Newman (2012) and others, particularly Beatley in Biophilic Cities (2010). Biophilic design has been codified for commercial and professional acceptance, notably by Terrapin Bright Green LLC (Browning et al 2014) with 14 Patterns of Biophilic Design (2014). The adoption and embrace of biophilic design in Australia has been slow and piece-meal, and largely concentrated in the capital cities and more often under the guise of urban landscape design initiatives. Despite this, there is increasing applied exploration and acceptance of the hypothesis in Australian planning and landscape design applications linked to bridging sustainability, bio-urbanism, and green infrastructure aims.

This paper considers the position and adoption of biophilic urban landscape design in Australia, identifies biophilic patterns and principles found in extant and proposed examples of Australian urban landscape design, with reference to relevant international case studies, and explores the relevance of those patterns and principles to the development of smart cities. There has been little attempt, as yet, to bridge biophilia with the design and operation of smart cities in Australia. This paper explores that relationship, based on a synthesis of Terrapin's 14 Patterns (2014), Beatley's (2010) definition of biophilic cities, and the authors' propositions for biophilic design parameters in their recent research engagements. The paper concludes with suggestions for incorporating biophilia in the urban landscape design of smart cities in Australia."

Bridging a Complementary Town-Gown Relationship: A College Town Experience

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Keywords: Economic development, Sustainability, College town, Place-making

"Moving into the 21st century, many universities realize that they need more than a well-planned campus and top-ranked academic programs to attract students and faculty. Rather, they need a complementary town-gown relationship with their host communities. College town or University City, an ideal American city form, can provide high quality of life for students, faculty, alumni, and retirees who choose to live nearby. But what if host communities fall short? Any relationship takes efforts from both sides to develop and flourish. The underlying physical fabric of the community where a college or university resides must consist of physical components that are suitable in supporting place-making, which in turn transforms both the community itself and the campus it hosts together into a livable place for all. But what are those physical components necessary to build a long-lasting town-gown relationship beneficiary to both?

This paper presents students' work in Urban Design Program at UNC Charlotte in spring 2016. This class used Charlotte's University City area as a testing ground for understanding potential roles of students-oriented local economy in sustainable urban development.

The class first identified various ways an institution of higher education affects the local economy of its surrounding neighborhoods. These include: 1) university as economic base industry; 2) retail and commercial development; 3) knowledge-based economy. These theoretical views then helped students develop strategies to create an environment that best nurtures the dynamic synergies between the institution and its host community. These include: 1) a shared vision; 2) complementary and diverse development; 3) integrated smart growth and sustainability concept.

This class further adopted a framework to explore issues relating to the physical design of a college town: 1) economy: a healthy college town is built through the dependence upon students for the survival of local businesses as well as through relationships created between college and town.; 2) proximity: colleges should be in close proximity to amenities and destinations to benefit from natural assets on campuses and other human and physical resources that add values to their surroundings as place-making elements; 3) connectivity and accessibility: a college town should be integrated into a larger urban transport system with coordination in pedestrian movements, non-motorized circulations, street connections, public transits, and natural corridors.

This paper discusses the resulting four proposals, with each representing one of the four districts in the area, together forming a cohesive urban design plan for Charlotte's University City."

Design Research on Landscape Regeneration of urban public spaces -- A case study of the old Beijing city

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Keywords: Landscape Regeneration, Urban Public Spaces, Urban Design, Old Beijing City

In recent five years, as landscape architects, we did analysis and research about the development of city history and current situation of urban public spaces in Beijing Old city, trying to explore the effective landscape renew way of regeneration for urban public spaces. The Purpose of the research is to recall the vivid activities in the Beijing HUTONG and to stimulate the vitality of the public life in old city area from the perspective of landscape architecture. The means of survey are varied and bottom-up, including residents' interviews, interactive research, literature research, program display and art devices, etc. Based on the current situation of public spaces in Beijing Old city, we propose four main methods of urban regeneration: First, adding and promoting the Micro Public Spaces (MPS) in HUTONG area; Second, encouraging certain Privately Owned Public Spaces (POPS) to be open for public all day or interval; Third, transforming and redesign the Bus/Railway station plots into landscape infrastructure with multi-function; Last, reconstructing the network and system of the public spaces in Beijing Old city. According to above four methods, we also select some typical pilots in old city area as study cases, and propose certain design plan for them, in order to conclude the criteria of certain kinds of public space. The achievements of the design research were displayed in the exhibition during 2014\2015 and 2016 Beijing International Design Week.

Exploring the Concept of Health in Urban China: Case Study of An Activity-Friendly Neighborhood in Beijing

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Keywords: Activity-Friendly Environment, Neighborhood Form, Walking, Biking, Outdoor Recreation, Urban China

"Since the late 1970's economic reform, China's rapid urbanization and population expansion have created a contemporary society with a growing exposure to health risk factors, particularly in the built environment. This study explores ways that the built environment can promote healthier and active living. It focuses on the mixed-use, primarily residential development, currently the dominant built form in urban China's new neighborhood. Currently, the literature on healthy communities and activity-friendly environments in western countries suggests that the built environment can impact physical activity (McCormack & Shiell 2011; Sallis, Floyd, Rodríguez & Saelens, 2012). However, very little scholarly work examines the concept of physically active communities in urban China and this research seeks to close this gap. Furthermore, the Chinese government is grappling with health issues and the environment and this research can contribute to developing government policy.

This paper presents a framework, preliminary analysis, and findings on ways that the design of this type of built environment can promote active and healthy living in China's residential neighborhoods. The primary research question originally posed was: does China's model residential development type promote physical activity and a healthy urban neighborhood? And it investigates more importantly: what physical features of China's urban neighborhood facilitate outdoor recreational opportunities and physical activities? What are the hindrances? It examines ways the designed environment of a residential community in urban China can affect the residents' health through the provision and opportunities for walking, biking, and outdoor recreational activities. The literature review revolved around three areas: the design impact of the built environment; urban mobility and transportation; designed outdoor environments research. Research methods employed were a mix and included: using a single case study method and analysis of Fangguyuan, a model development project located in southern Beijing, planned in the early 1980's and completed in 1990. Primary data was collected through other research methods: field observation using mapping strategies and field audits; archival review of original plans and government documents; and survey research. The objective was to verify physical activities, user groups, the variety of outdoor recreational facilities and the mix of land uses and open spaces. Local residents were surveyed to capture their perceived neighborhood environment and experiences. This study is currently in the data-gathering stage and potentially could, by May, have preliminary results and share information then. Our goal is to present the preliminary analysis and findings for feedback at the conference."

Global City Landscape: Addressing Increasing Urbanization and Technological Change

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Keywords: Global Cities, Urban Design, Landscape Sustainability

"With increasing global urbanization and technological change, the conference topic: BRIDGING elicits notions of global city landscapes and their role in bridging contemporary urban transformation. For several decades, scholars have sought to define this kind of urban transformation. Prominent global city scholars have described the characteristics of these cities, including: a) communication and information infrastructures linking places for face-to-face economic, cultural, and political interaction (Castells 1996); b) centers of control and command by finance and business services (Sassen 2002); c) the presence of global stock exchanges, banks and multinational corporation headquarters (Taylor 2006); d) cultural, media and entertainment industry headquarters (Appadurai 1996); e) advanced manufacturing centers; and f) by supporting transportation infrastructure (Friedman 1986).

Little scholarly work to date, however, addresses this subject of global city landscapes. This paper addresses the following research questions concerning the definition of global city landscape: what are the breadth of roles performed by the landscape in global cities, the predominant landscape types, their underlying rationale, and the extent of their distribution throughout the global cities? The questions are addressed through an examination of more than 1000 projects undertaken by 20 international multidisciplinary architecture and landscape architecture firms with extensive global presence measured by the number of their international offices and projects. The projects were analyzed according to city and country location, size of the project in acres and built space, type of project related to land use, ecological/sustainability rationales, social/public/community rationales, and ranking in terms of existing global city indexes. A comprehensive global city hierarchy used in this paper was established utilizing a weighted average of five well-recognized global cities ranking indexes.

Research findings suggest a) concentrations of global city landscape development in relatively few American, European, and Asian countries; b) global city landscape development primarily in rank 1 and 2 global cities; c) diversity in landscape ranking ratios, which vary by country; d) global city landscape development primarily on medium to large scale sites that are highly multifunctional, frequently sustainable in approach, and which often combine ecological functions, including water management and control; and e) global city landscape relative size, significance, connectivity, and functional program, which increase with the scale of project. These findings suggest approaches to global city landscape development capable of resolving uneven development between the center and the periphery, environmental injustice, inequitable urban redevelopment, and spatial polarization."

How Can Ecology and Culture Be Integrated in Urban Development? A Systematic Literature Review from A Landscape Architectural Perspective

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Keywords: City, Ecology, Culture, Systematic Literature Review, Landscape Architecture

"The project of modernization, manifesting itself evidently in urban settings, is often criticized as oriented towards utilitarianism and universalism without considering environmental integrity and local culture (Harvey 1989). Widespread environmental degradation and loss of regional characteristics have resulted in the rise of nature conservation and ecological restoration on the one hand, and historic preservation and regionalist design on the other. However, these efforts are sometimes understood as barriers to urban development and, worse still, they are often fragmented due to disciplinary divisions, although the increasing global interest in landscape as a conceptual tool seems helpful to improve the situation (Corner 1999). The contemporary urban crisis calls for a new model of development that is not only economically sustainable but also ecologically and culturally sensitive.

But how exactly can ecology and culture be integrated into urban development? We have approached this broad question by asking three sub-questions. First, what components should a sustainable city-ecology-culture relationship comprise of? Second, through what strategies should these components be managed? Third, through what evaluation parameters can the performance of these strategies be measured? A systematic literature review was thus conducted to answer these sub-questions.

Different from the traditional narrative approach to literature review, this study adopted a structured one (Kable et al 2012). To distill ideas most pertinent to Landscape architecture, we limited the search within four leading peer-reviewed English journals, including Landscape and Urban Planning (SCI/SSCI), Landscape Ecology (SCI), Landscape Research (SSCI), and Landscape Architecture Magazine (A&HCI), with a total number of 27772 articles. Through Thompson Reuter's Web of Science citation database, we performed searches by topic with various combinations of search keywords, such as ""city ecology culture"" and ""municipal ecological cultural"". These searches eventually returned 94 unique records that have explicitly addressed the city-ecology-culture relationship.

These records were subject to both quantitative and qualitative analysis. To identify influential publications, search results were screened by title and abstract to weed out irrelevant ones, and cutting-edge bibliometric analysis tools were used to quantify and visualize the co-citation network. Full papers of results that met inclusion criteria were then retrieved and coded by qualitative data analysis tools. Twenty-two definitions for a sustainable city-ecology-culture relationship were eventually identified, compared and categorized based on their positions with respect to three sub-questions. The findings were presented in framework matrices, visual diagrams and critical syntheses, followed by recommendations on how to operationalize ecology and culture in an urbanizing world."

Landscape Reimagined: Ecology as Design Intervention

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Keywords: Chicago River, Post-Industrial Brownfield, Resilience, Ecosystem Services, Clybourn Corridor

As repurposing of land use becomes more prevalent in evolving cities, bridging the industrial past of a site and repurposing it to fulfill the needs of contemporary urbanism is of utmost importance. At the same time, the ecological and environmental needs of a region and, by extension, the greater global community should be reconciled. Reimagining post-industrial sites is at the heart of landscape architecture as urban practice.

The purpose of the study was to utilize a common post-industrial typology found along urban rivers and explore design interventions that honor site context and provide meaningful ecological enhancement. The Clybourn Industrial Corridor on Chicago Illinois' north side, a 42-acre post-industrial brownfield, situated on the North Branch of the Chicago River, served as the model. The past lands uses of steel production, tire recycling, and tannery of this river front property, provides a unique opportunity to reimagine a post-industrial landscape.

The use of urban rivers as a conveyance of goods and materials, as well as, a dumping site for industrial by-products contribute to current conditions that reflect pollution of both water and soil, absent or reduced riparian habitat, and infrastructural repurposing of the river channel that severely limits habitat and ecosystem services.

Utilizing evidence-based design and a Landscape Urbanism theoretical framework, a master plan encompassing the 42-acre site was prepared. Literature review, site inventories and analyses were prepared and utilized to arrive at the conceptual design solution which sought to address issues related to the site's former industrial use, such as lack of ecosystem services, storm water runoff, pollution, and public access to green space. This was accomplished through the use of constructed wetlands that provide increased riparian habitat and increased wetland function; floating islands which reduce turbidity, clean excess nutrients from water, provide a base for food-web development, provide cover and spawning habitat; connection to the 606 Bloomingdale Trail which provides a link from western neighborhoods to Lincoln Park and Lake Michigan, and public park space which increases recreational opportunities and permeability.

A broader impact is to be realized from this study. There are issues of social, environmental, and economic justice tied to post-industrial sites and urban waterways. The inter-connected nature of river systems and the shared impact of both pollution and land use on those downstream have global significance. The interventions explored in this study have application potential to similar sites elsewhere.

Mainstreaming Water Retention within Right-of-Ways with Ecosystem Services: Meandering Blue Parkways as Building Blocks of Amphibious Transportation System

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Keywords: Water Retention, Right-of-Way, Ecosystem Services, Meandering, Blue Parkway, Amphibious Transportation, Place Attachment

"To better adapt to sea level rise, drought, and flooding, many cities have sought to combine place-making with water retention. Water capture within development parcels and public spaces cannot achieve system-wide connectivity without water retention within right-of-ways. However, the latter often encounters public resistance due to people's reluctance to lose traffic lanes and parking.

We investigated place attachment as a possible lynchpin between ecosystem services and public acceptance of water retention because ecosystem services had been found to contribute to human wellbeing as a correlate of place attachment. Our findings suggest significant relationships between ecosystem services and two interdependent facets of water-based place attachment, which are water-based place identity and water-based place dependence. Specifically, when derived from water-based place identity, water-based place attachment had a significant positive influence on people's openness towards a more water-coherent approach to urban design.

The author sampled 60 participants from eight water cities. Waterscape mappability and identifiability were obtained from cognitive mapping and photovoice as indicators for water-based place identity. Water-based place dependence was generated from waterscapes' capacities to help reduce stress and to facilitate self-orientation based on interview results. Similarly, water-based place attachment was measured by the extent to which participants would miss waterscapes if they were to leave the city tomorrow. We created structured interview questions based on the results of expert interviews, which identified 22 design parameters as ecosystem services that could potentially be provided by water retention within right-of-ways.

Using water-based place identity and water-based place dependence as two dependent variables, we conducted two sets of stepwise regressions to pinpoint design parameters that significantly improved the model fit. For water-based place identity, the extent to which a waterway meanders was the only significant independent variable. The abilities of a waterway to support floating traffic lanes and to infiltrate storm water were the only significant independent variables for water-based place dependence. The findings suggest that the aesthetics of meandering waterways is instrumental for introducing water retention within right-of-ways for public acceptance. However, to contribute to water-based place dependence, such meandering waterways also need to accommodate floating traffic lanes and facilitate storm water infiltration, possibly through incorporating continuous waterfront parkland. The advent of mass-produced amphibious vehicles may eliminate the need for straight floating traffic lanes to help mainstream water retention within right-of-ways as an interconnected system of meandering amphibious blue parkways through engendering water-based place attachment from both water-based place identity and water-based place dependence."

New Rural Community Construction from the Perspective of Regional Culture ——Taking the Urban Design of Baijiatuan District in Haidian District as an Example

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Keywords: Regional Culture, Community Building, Urban Design

Regional culture is a distinctive feature of a region formed in the natural geographical environment and in the historical and cultural conditions, and the characteristics of the regional culture of the urban marginal rural communities based on the circumstance of history-society-cult and natural ecological background are particularly prominent. This paper first analyzes the characteristics and attributes of rural communities in the suburbs of Beijing from the perspective of regional culture, and puts forward the strategy of regional design for urban design in rural areas. Secondly, taking the urban design of Baijiatuan district in Haidian District of Beijing as an example, the development status of the area is analyzed, and the regional characteristics. Finally, from the three aspects of restoration of ecological landscape pattern, characteristic function industry injection and regional cultural memory inheritance, this paper puts forward three basic methods of urban design from the perspective of regional cultural perspective, and integrates regional cultural characteristics into urban design.

On the Forming of Consumer Landscape of Villages in Jiuzhaigou Valley——An Analysis from the Perspective of Spatial Production Theory

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Keywords: Landscape Architecture, Village Landscape, Consumer Space, Space Production, Jiuzhaigou Valley

"China is vast in territory with a considerable diversity of natural and cultural resources. While in recent years, there are more and more similar landscapes within Chinese scenic areas. For example, in China, almost every city or tourist area has a street crowded with tourists where similar commodities are sold (for example, stinky tofu, grilled squid, milk teas, and artworks from Yiwu city)—all in the name of tradition and/or literature. The names of the streets are Nanluogu Lane in Beijing, TianZiFang in Shanghai, Hefang Street in Hangzhou, Tunxi Aged Street in Huangshan, Kuanzhai Lane in Chengdu, Gulangyu in Xiamen, Sifang Street in Lijiang, Dabazha in Urumchi. A primary question is: What attributes to the same landscape style have in completely different geographical conditions and unique cultural contexts?

Taking several Tibetan villages in Jiuzhaigou Valley as cases, the paper studies the evolutionary process of village landscapes and as an attempt to understand the forming mechanism of the same landscape style. The Jiuzhaigou Valley is a famous scenic area of exceptional natural beauty with spectacular jagged alpine mountains soaring above coniferous forest around a fairyland landscape of crystal clear, blue, green and purplish pools, lakes, waterfalls, limestone terraces, caves, and other beautiful features (WHC,1992). The name of ""Jiuzhaigou"" means nine traditional Tibetan villages. Although far from cities and having a long history, these villages are changing markedly, evolving to familiar Chinese tourism “villagescapes”—similar to the cases mentioned above.

This paper consists of three parts. First, a description of landscape characteristics of the villages in Jiuzhaigou Valley at the beginning of the scenic area opening is provided—including the location of villages, village layout, streetscape form and quality, structure and decoration of buildings, places of interest, and so forth. Second, based on the theory of space production (Lefebvre,1991), the form of consumer village landscapes initiated by changing social and economic relationships (and driven by institutions and capital) is examined. It is hypothesized that commercial interests strongly contribute to village landscape variety, but that institutional measures seeking to halt changes from traditional residential landscapes to consumer landscapes has shown no significant effect. Third, the paper discusses the phenomenon of natural and cultural resources protection, which relies heavily on the tourism industry. Pros and cons of current natural and cultural resource management approaches are examined."

Pop-Up Parks: Theories, Applications and Changing Perceptions

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Keywords: Pop-Up Parks, Par(king) Day, Tactical Urbanism

"The growing Park(ing) Day movement, started as a modest repurposing of a single parking space in San Francisco, has caught the imagination of people around the globe. Combined with the ideas of Tactical Urbanism which is described in Tactical Urbanism 2: Short-Term Action, Long Term Change, as tactics used to improve the urban environment, it has created a new genre of pop-up, or temporary, public spaces.

These landscapes have provided a more humane alternative to the asphalt parking culture and the vacant lots as viable and thriving spaces for people. This grassroots movement has, in many cases, resulted in the creation of permanent public spaces. The transformation of Times Square started as series of modest temporary interventions, which created public demand leading to a grand reimagining of the confusing, congested and car-oriented space into a green, pedestrian friendly and safe urban landscape.

Based on a first-hand experience of creating pop-up landscapes, the intent of this presentation is to develop an understanding of the collaborative process (including university, non-profits, governmental agencies, business and community organizations along with volunteers), involved in applying the ideas underlying Park(ing) Day and Tactical Urbanism. Case studies, spearheaded by the author, will include the first Pop-up Garden sponsored by the Pennsylvania Horticultural Society in Philadelphia, and two recent Park(ing) Day Pop-up Park installations in Doylestown, PA. The goal of these projects was to explore alternative scenarios that are people-centric and create sustainable and attractive spaces, celebrating people, art and nature.

These case studies bring attention to the need for greener and people-oriented urban open space, sparking discussions about how public space is created and allocated, and improving the quality of our human habitat, at least temporarily, with the larger mission of permanence in the future.

The transformative power of these memorable moments has challenged and change the long-held beliefs about the primary importance of parking necessary for the viability of commercial activities. They have galvanized the whole community around measurable social, environmental and economic, benefits of public space.

The overwhelming response and momentum resulting from these projects has resulted in working with local Sunday School Kid’s groups to generate ideas for pop-up parks, meeting with governmental parks and recreation committee, and other civic organizations, aimed at laying the ground work for permanent transformation of the prevalent parking culture.

This new landscape typology opens up possibilities for expanding the educational curricula and scholarly inquiry for landscape architecture."

Possibilities and Limitations of Temporary Landscape on Urban Vacant Space

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Keywords: Temporary Urbanism, Temporary Landscape, Vacant Land, Temporary Activities

"This study focuses on the temporary dimensions of cities and its Temporary Landscape on urban vacant land. The temporary utilization of abandoned urban space functions as a gap-filler that re-vitalizes the city. In this situation, there are various attempts being made to utilize the vacant urban space on a temporary basis to achieve various purposes.

Architectural planning in the modern era has failed to consider the spontaneity of the urban life. It is without a doubt that the everyday urban life consists of fragmented events. Therefore, the urban planning must consider the spontaneity when designing any particular piece of landscape, as landscape becomes an essential element of the urban system. A method that takes such spontaneity into account, then, must have a transient thought embedded within its design. Currently, the approach to designing with the temporary use of space that takes such transient and spontaneous element of urban life into account is Temporary Urbanism. Temporary Urbanism is also referred to Tactical Urbanism, Guerilla Urbanism, and Pop-up Urbanism. In regards to the discipline of landscape architecture, the idea deriving from Temporary Urbanism is referred as Temporary Landscape.

One of the recent discussions in the literatures related to the temporary use of space acknowledges the role of temporary activities and interim phases of development. Specifically, the discussion within the literatures revolves around the topic of the temporary activities utilizing the abandoned urban space with the cooperation of various institutions. This study comprehensively analyzes and contributes to the ongoing discussion of the temporary activities in regards to the temporary use of space. Overall, the purpose of this study is to illuminate the possibilities and limitations of Temporary Landscape projects by exploring the aspects of temporary use as a collaborative design. In particular, the study focuses on the collaborative design pertaining to the temporary use.

This study primarily utilizes the case study method. To explore the phenomenon of Temporary Landscaping, several projects from the United States (i.e., Parking Day, Pop-up Café, Guerilla Gardening, and Parklets), United Kingdom (i.e., Urban Orchard and Dalston Mill), and Germany (i.e., Temporary Garden Project and 72-hour Urban Action) have been selected as the objects of analysis. The comparative analysis of these projects considers the perspectives of designers, users and administrators. By doing so, this study illustrates the implications, future directions, and long-term business plans for Temporary Landscape Projects."

Proximity of Urban Parks Associated with Park Use and Mental Stress

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Keywords: Quality of Life, Public Open Space, Space Syntax, Park Access

Urban parks are crucial public facilities that encourage physical activity and health promotion. Current studies of parks still focus on maintaining the quantity of parks or delineating the buffer zone of public services by using linear distances as the radius. Many existing studies have conceptualized proximity using one's shortest distance from home to the nearest park. However, people perceive and navigate urban spatial layouts in topological rather than metric terms. This distinction in distance measures is important because distances are often overestimated when routes include more intersections or turns and barriers en route. To our knowledge, no research has considered the topological dimension of networks when examining associations of proximity to park and psychological stress. Thus, the purpose of this study is to use metric and topological proximity as the degree of proximity to examine the effect of park proximity on residents' park use, and stress. This study is conducted in Taipei City, Taiwan. We had 920 valid participants from 30 urban parks. Geographic information system (GIS) is used to overlay map spaces and calculate indices. In addition, an on-site questionnaire survey (Perceived Stress Scale, PSS) is conducted. The results showed that as topological distance decreased, residents' park use increased. We found no significant relationship between metric distance and park use. As park use frequency increased, residents' perceived helplessness decreased and perceived self-efficacy increased. Furthermore, higher duration of park use for each time has better mental condition. This study introduces the concept of space syntax to explore the effect of proximity of urban parks on the welfare of residents. Hopefully, these findings can inform urban designers and landscape architects when designing urban greenspaces, can influence policy and design guidelines concerning urban parks and finally can have an impact on decision makers and local governments in cities.

Reflection on Road Landscape under Urban Overpasses —Taking Nanjing City for Example

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Keywords: Urban Overpasses, Road Landscape Space, Under Overpasses, Comprehensive Benefits, Nanjing City

Road transport is one of the most common utilization methods of the space under urban overpasses. However, since the road landscape under the overpasses lacks reasonable planning and guidance, the landscape visual effects, comfort degree, traffic security, social value, economic value and other benefits are not fully exerted and comprehensively optimized. This thesis selected 15 typical urban overpasses, the spaces under which serve as traffic routes, in different regions of Nanjing City to carry out researches and to analyze the landscape features under overpasses and main problems as well as summarize major influencing factors of landscape construction under the overpasses. According to the situations under the overpasses including environmental types of surround land, overpass structure, bridge features, pedestrian-vehicle traffic flow, settings of crossed entrances and exits and plants growth tendency, domestic and foreign advanced overpass landscape design cases were analyzed and more active landscape design strategies of roads under the overpasses were put forward. The results show that: (1) Fully analyzing the conditions for planting grass under the overpasses and reasonable layout of plants are beneficial to the construction of ecological landscape under the overpasses; (2) Paying attention to united treatment of climates and surrounding land use types as well as commercial districts, residential districts, industrial districts, administrative districts, public green land and surrounding environments that the overpasses cross is helpful to exert the comprehensive benefit function of spaces under the overpasses. (3) Attaching importance to the signboards, featured landscape, lightning, civil facilities, advertisements and other landscape elements on the roads under the overpasses, whose materials, forms, colors and height should be subject to psychological feelings of drivers, passengers and pedestrians as well as traveling safety, with a view to provide reference for the optimization of landscape of roads under the overpasses in other cities in China.

Shaping a Contemporary Art Landscape in China: An Investigation of Tanhualin Arts Village in Wuhan

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Keywords: Arts Village, Cultural Icon, Landscape Perception, Multiple Stakeholders

"Combined with urban changes in the Chinese context, the paper explores the emergence and growth of Tanhualin Arts Village in Wuhan, a provincial capital and metropolis in central China. Actually, since early 2000s, Chinese cities have been increasingly recognizing the symbolic importance of the arts within their financial systems and urban image constructions. Arts districts have been officially established as Cultural Creative Industry Parks, such as 798 Arts Zone in Beijing, M50 and Tianzifang in Shanghai, Redtory in Guangzhou, etc. Tanhualin, a historical cultural district combining traditional vernacular fabric and foreign missionary settlements in modern era, has been promoted by Wuhan municipal government as a cultural icon for Wuhan.

This paper examines how the landscape of Tanhualin Arts Village has been branded, first unofficially by its original artists to preserve the historical area and then officially to promote Wuhan as a global and cultural creative city in the context of the rise of culture within Chinese society and urban policy. It firstly investigates the initial occupancy by artists from nearby Hubei Institute of Fine Arts since late 1990s. The research also elucidates the wide range of official efforts to promote Tanhualin by Wuhan Municipal Government from 2007. It explores current battled existence of Tanhualin as an aged neighborhood, a tourist cliché, a weak breeding ground of limited creative studios and independent galleries, but a fashionable home to commercial eateries and cultural enterprises. The research further reveals the landscape experiences and perceptions by different stakeholders including government, cultural enterprises, artists, local residents and tourists. Based on questionnaires and interviews, it identifies various tourists' perceptions on environments and behaviors. It further collects big data of web reviews, and analyzes the activity types and spatial preference of tourists. Based on the multi-dimensional surveys and analyses, the paper intends to uncover how Tanhualin manifest its landscape under the increasing pluralisation of power within local society, and its implications for contemporary art landscape in China."

Small Town Regeneration in North Carolina, How Newcomers and "Prodigal Sons" Can Serve as Catalysts for Change

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Keywords: Small Town Regeneration, Rural Small Towns

"There is a paucity of research into the regeneration of small, rural towns, particularly in the United States. Much of the existing literature and research is focused on international locales or on urban regeneration. Just as manufacturing and traditional industries have left large cities as the result of globalization, they have also vacated small rural towns (Bowns, 2013; Filion et. al., 2004; Robertson, 1999). Because of their size and remoteness, small towns have less depth and variety in their economic base so industry retreat is often more acutely felt than in metropolitan regions (Bowns, 2013; Osborne, Williamson and Beattie, 2004). Further, because of their locations, traditional industries in rural areas are commonly dependent on resource extraction (mining) that are subject to depletion once the resource has been exhausted (Cloke, 1985; Filion et. al., 2004; Petrzelka et. al., 2005). And as in manufacturing, agricultural production can migrate to lower costs regions of the world (i.e. tobacco production from the American South to Central and South America). However, numerous small towns are retooling to attract new types of industry, particularly tourism and entertainment (Lewis,1998; MacDonald and Jolliffe, 2003; Saxena et. al., 2007).

While populations are migrating to larger metro areas, some will opt to remain in rural areas. Small town regeneration can help direct populations to more urban, developed areas rather than bleeding into the countryside. This study identifies two influences resulting from case study analysis conducted in two towns in eastern North Carolina that seem to be provide some success in launching such regenerative efforts. One influence, dubbed "The Prodigal Son Effect" describes efforts in Kinston, NC where native sons and daughters have returned from other regions with renewed energy, ideas, and actions that have begun a revitalization movement. The second case discusses "The Newcomer Effect" in Goldsboro NC and the impact that outsiders have had on regenerative efforts. In both cases, many of these change agents are young, energetic entrepreneurs who are motivated to bring livability and vitality to these small towns.

These two effects are either newly identified or sparsely covered in the existing literature, but may be key ingredients in regenerative efforts (Flora et. al, 1992). This study will discuss the successes and challenges encountered in both towns and will add to the literature about measures that are successful in launching small town regeneration efforts in rural regions of the United States."

Study on The Generating Scheme of Ecological Plant Community in Sponge City Construction: Taking Beijing As an Example

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Keywords: Sponge City, Ecological Design, Ecological Plant Community, Low Impact Development (LID), Storm water Management, Planting Design

Facing the destruction of the city's original natural and ecological background and hydrological characteristics by rapid urbanization, the Chinese government has carried out large-scale sponge city construction in recent years to respond to urban problems such as waterlogging. Low impact development (LID), which is the core link of sponge city construction, aims to solve the problem of urban rainwater through ecological and landscaping rainwater management. Huge government investments are driving the pilot cities to be active in research and application of LID and rainwater facilities. Green space is the important basis, and its eco-efficiency has a key role in the establishment of the sponge city. Therefore, the study on plant materials and planting methods has become very urgent. Most of the current researches mainly focus on the selection of plant materials, and pay more attention to the waterlogging resistance and stress resistance and other traits. However, direct combination of multiple resistant plant materials does not have ecological stability with fixed monotonous landscape pattern. This paper aims to study on the generating scheme of ecological plant community in the construction of sponge city, and multiple factors that influence ecological community stability, such as plants species, interspecific composition, plant density and community size. This article mainly considers basing on the functional requirements of various LID facilities in the construction of sponge cities, analyzing and evaluating the plant communities under various natural conditions around Beijing and then selecting the suitable composition of plant community, finally, simulating the ecological plant community pattern according to the design parameters of LID facilities.

Study on the Spatial Planning and Design of Beijing University of Civil Engineering and Architecture Based on the Theory of Life Between Buildings

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Keywords: Campus Space Environment, Life Between Buildings Theory, Spatial Types, Landscape

Beijing University of Civil Engineering and Architecture(BUCEA)was founded in 1936. The environment of Xizhimen campus has been unable to meet the needs of teachers and students now. There are a series of problems such as lacking of green area, communication space and plant species, etc. On the premise of not changing the campus buildings and main roads, the campus seized the 80th anniversary event as the opportunity to redesign the landscape to improve the quality and vitality of the landscape. Campus is a place where teachers and students can exchange information, and promote relationships, so, it is necessary to create a pluralistic and complex communication space. Based on the theory of Jan Gehl's 'life between buildings', this paper analyzed the behavior and psychology of teachers and students combined with the characteristics of landscape environment, and then proposed the transformation strategies of landscape. First of all, according to the relationship of 'space-activity', this paper classified the space environment of Xizhimen Campus into three types: public space, semi-public space and semi-private space. Under the guidance of the theory 'life between buildings', this paper analyzed the population types and the activities characteristic of the three kinds of space types, and summarized the theoretical models of three kinds of space types based on six spatial elements, including boundary, place, passageway, path, sign and surrounding. Secondly, this paper analyzed spatial structure and function of the three kinds of spaces, and then further analyzed the main contradiction between the space types and the requirements of study population, mainly concentrated on the space scale, plant configuration and layout of landscape facilities and landscape architecture, etc. By contrast, the authors concluded the difference between the actual space and the theoretical model. Then, under the principle of preserving the original landscape texture, eliminating the difference between the present situation and the theoretical model, the authors put forward the landscape design programs of three kinds of spatial types, which provided reasonable communication space and interpersonal distance for people Finally, combined with the study on the process of the landscape transformation of BUCEA, the authors summarized new understanding of the construction of communication space in campus landscape design, in order to have a reference value for other designs.

Sustainable Planning and Design of Urban Cultural Heritage: Amasra Case (Turkey)

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Keywords: Cultural Heritage, Historic Urban Landscape, Urban Archeology, Urban Sustainability

Ancient urban fabrics, rich in history and architecture, are important cultural heritages in terms of urban identity and sustainability. The ancient coast city selected as the study area, Amasra (Bartin-Turkey), is an important settlement with its natural and cultural landscape. Amasra is also on the UNESCO Tentative List of World Heritage Sites as of 2013.

The main aim of this project is to develop sustainable planning and design approaches for the ancient urban landscape of Amasra within scope of cultural heritage. For this purpose, natural, cultural and economic revitalization strategies and plans will be developed using holistic landscape planning and design principles. Cultural heritage strategies will be determined in line with the criteria to be generated according to the landscape planning and design principles for the ancient sites and archeological areas around the city. The data obtained are expected to contribute to the sustainable development of Amasra.

First, the concepts about ancient urban settlements and urban design and the national and international practices concerning urban heritage, archeology and sustainability, landscape planning and design in ancient environments, the UNESCO process will be explained. The existing and potential natural, ecological and cultural corridor networks in the area will be determined based on the natural and cultural landscape of Amasra using the Geographic Information Systems (GIS) developed by Cengiz and Cengiz (2014). GIS and remote sensing technologies will be used in the holistic planning of these route networks. An analytic survey will be made on Amasra's historical spatial development. Ultimately, the "Urban Cultural Heritage Guide and Management Plan" will be prepared for sustainable planning and design approaches to the cultural heritage of Amasra's ancient urban landscape.

The Driverless City Project

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Keywords: Driverless City Project, Autonomous Vehicles, Landscape Architecture, Illinois Institute of Technology, Nayar Prize, Scenario Builder

"The Driverless City, a project based at the Illinois Institute of Technology (IIT) in Chicago and funded by the Nayar Prize, investigates the urban design implications of driverless and autonomous vehicles by developing social scenarios, technical solutions, infrastructure prototypes, and model urban codes to transform streets into twenty-first century human infrastructure.

As cities around the world leverage the opportunities and manage the impacts of driverless cars, this project investigates a transformative advance in transportation and communication technologies - the kind that have always changed cities and demanded new forms of physical infrastructure. In the next decades, we can improve urban social life by increasing the ecological performance, safety, and efficiency of streets while continuing to add vitality to our cities.

This presentation will outline the findings after the first year of this funded multi-disciplinary investigation by faculty with expertise in landscape architecture, architecture, urban design, social media, technology, critical futures, transportation engineering, and law. Investigation methods included literature review, technology review, technical experiments and digital modeling, stakeholder and constituent interviews, policy assessments, and visionary urban designs prompted by a ""scenario builder"" developed by the team. The initial findings are organized in four sections: When is the Driverless City? What is the Driverless City? How is the Driverless City? and Where is the Driverless City?"

Urban Regeneration: Reflection of Design Studio on Recovering and Renewal of Traditional Residential Block in Wuxi, China

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Keywords: Urban Design, Regenerative Development Paradigm, Urban Open Space, Design Studio, China

China's rapid urbanization process caused many problems, such as ecological degradation, environmental pollution, the demolishment of historic spaces as well as the loss of city memories. This is why the Chinese government is promoting a NEW urbanization concept for a more sustainable and livable city. How to achieve sustainability in urban development? How to reach a balance during rapid urbanization? The answers might be found in traditional wisdom, international experiences, or in contemporary planning and design theories. Regenerative development paradigm, as described by du Plessis (2012), expresses the Chinese philosophy like "let nature do the work", as well as the "regenerative design theory" by John Tillman Lyle. This paper discusses the application of regenerative development paradigm in China based on an international design studio in fall semester at Tongji University. The design studio which took Mojiazhuang neighborhood in Wuxi city as site and research object, had 24 students divided into 6 groups. It set up 3 goals: 1) reading and understanding the life and urban space in the city, including the history, status quo, possibility of the site in the context of Wuxi City; 2) mapping, studying and optimizing the structure and function of urban open space at site in Wuxi; 3) exploring the possibility of combining the development and conservation of the site by applying the regenerative approach. The problems, research methodology and final proposals put forward by 6 groups are compared. The paper draws general conclusions as follow: 1) Regenerative approach can provide a holistic and rational framework considering economical, ecological and social issues; 2) An systematic methodology and open design process can define various problems, as well as different strategies and proposals; 3) understanding the context and life system of the site is the key of design. Although it is just a teaching program on a real project, the conclusions and experiences are still experimental and valuable for applying the regenerative development paradigm in China.

Urban Wilds of Tropical and Subtropical Asia

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Keywords: Southeast Asia, Urban Ecology, Landscape Management

"Asia is home to 18 out of 20 of the most rapidly developing cities in the world according to a UN report in 2016. These sprawling cities envelope vast territories, and yet these urban conglomerates are palimpsests of the natural systems of their recent past. Colonial legacies and mandates for nation building complicate the process of modernization in Asia while tropical and subtropical ecologies challenge urban development with "wild" and unwieldy forms of nature, necessitating new methods of managing the landscape. This panel explores critical, non-western examples of "landscape urbanism" as it exists—or may exist—in developing cities of tropical and subtropical Asia, a region that contains numerous emergent megacities in need of locally rooted yet innovative solutions for ecologically and socially appropriate urban form.

The first paper argues that modernity in colonial Hong Kong was not opposed to the idea of nature. Urban development was entangled with the promotion of the "natural" where ecology, culture and politics are intertwined. The afforestation, the drainage and water supply engineering of Hong Kong island demonstrate the co-production of urban and natural environments. Health and aesthetic concerns overlap while the construction of Hong Kong's nature helped define its colonial identity.

The second paper documents the history of Yangon's urban vegetation as a colonial legacy, and recent appropriation of these urban spaces to accommodate the city's explosive growth. It argues that challenging but provocative paradigms of nature in the city must be recognized and balanced against the political and public desires of modernization and the realities of health, sanitation, and settlement.

The third paper studies how Bangkok's recent urban expansion has altered the hydrology and ecologies of its agricultural periphery focusing on rice and shrimp production networks. The 2011 Thai floods and the subsequent rice pledging schemes reveal a precarious urban landscape on the verge of ecological and social collapse. The management of water resources and agricultural landscapes are critical to the political survival of the government and its constituents.

The fourth paper responds to a common misconception in Singapore that natural landscapes equate to poor and messy maintenance regimes, with preferences for manicured and neat landscapes over a heterogeneous and complex ecosystem of original tropical forested land. The campus at the National University of Singapore is a case study and experiment for a "rewilding" process to promote the spontaneous dynamics of urban greenery and innovative management regimes—addressing the ambitions of an environmentally sustainable city."

Bridging

Bridging Continents, Culture and Classrooms through Academic Partnerships

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Keywords: Academic Exchange, Cultural Exchange, Academic Partnerships

In efforts to foster academic and cultural exchange, expand student diversity in the classroom, and share discipline-specific knowledge, universities often establish partnership with international institutions. With the United States and China remaining two of the strongest markets for landscape architecture on the global stage, professional and academic bridges between these countries are essential to the evolution of the profession. To this end, faculty, administration, and staff established academic partnerships between Oklahoma State University, Stillwater, Oklahoma, USA and Southwest Jiaotong University, Chengdu, China and between Oklahoma State University and Northwest A&F University, Yangling, China. The specific mechanisms for facilitating academic exchange vary dependent on individual institution's resources and goals.

The purpose of this paper is to assess inputs and subsequent outcomes related to five distinctly-structured exchange programs developed between the institutions. A total of 13 offerings, each falling into one of the five categories, took place over a four-year period. Exchange programs vary in duration, location, instructor (host or visiting), academic goals, targeted participants, and resource inputs. Outputs and outcomes from the five program types were qualitatively and quantitatively documented. Comparative analysis of program structure and inputs in relation to outcomes and experiences for each academic program offering are presented.

Results identify opportunities and challenges of each program type and their unique impacts on student learning and cultural understanding. Program structure and lessons learned from these exchanges are transferrable and adaptable to other institution's ongoing and potentially new international partnerships.

Bridging the Design Disciplines: A Study of Interdisciplinary Student Engagement in A Community Planning and Design Studio

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Keywords: Experiential Learning, Landscape Architecture, Planning, Design Education, Studio, Interdisciplinary, Pedagogy, Community Engagement

"Interdisciplinary studios can cause students to feel awkward or somewhat uncomfortable due to the relatively large variety of teaching styles, terminology, and experiences. Although students report gaining many benefits from these studios (Poerschke, et al., 2010), the often-uncomfortable group work, miscommunications and complications of meeting client demands can result in some students disengaging from the class. Creating a positive experience for students can be difficult for professors when juggling the client demands, learning objectives, and communications with another faculty they are teaching with. The purpose of this research is to identify some of the issues faced by students in a recent interdisciplinary studio and develop pedagogical strategies that can enhance the interdisciplinary experience in a landscape architecture and planning urban design studio.

Through qualitative interviews with various students of each team and discipline, the research focused on what strategies were most effective for completing learning objectives in the studio and what additional strategies could be used in the future. Four planning students, three landscape architecture students and one architecture student were interviewed. Results were analyzed to identify similarities and key themes related to benefits and hindrances of their experience. Benefits of the interdisciplinary studio included:

- Managing individual and group work for a complex project (project management & organization)
- Learning to collaborate and participate in teams
- Greater discovery of their own and allied professions
- Increased awareness in the process of planning and design projects
- Opportunity to practice professional skills they have been learning in an applied setting

Hindrances to their interdisciplinary experience included:

- Misconceptions about tasks and skills used in their own and allied professions
- Relationships with clients being too involved or not involved enough
- Difficulty with communication and terminology between disciplines
- Goals of the client differing from goals of the instructors

Results suggested implications for preparing students for real world interdisciplinary experiences with community partners. We propose pedagogical strategies that may be used in similar courses to try ease some of the issues identified in interdisciplinary work. Ultimately, it is important that students get exposure to interdisciplinary, real world projects as it provides confidence and invaluable preparation for students entering professional practice."

Building Bridges between China and Aotearoa New Zealand

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Keywords: Garden Design, Park Design, China and Aotearoa New Zealand Landscape Architecture

Abstract: Building bridges creates new ground, a place which shares the characteristics of the two banks, a place from which to view, and a means of crossing back and forth. Our work builds bridges between two places which are worlds apart. China is vast country, spread out across the ancient Asian continent, and occupied by one of the world's oldest civilisations. Aotearoa New Zealand is a tiny island nation in the South Pacific, and is one of the world's most recently occupied countries. Through the development of a 'Three Brothers' Research Collaboration with Tsinghua University, Kunming University of Science and Technology and Lincoln University connections are made between diverse contexts, exchanging knowledge, exploring how polar opposites can be highly complementary:

1. From one bank: Looking to Aotearoa New Zealand from China. In July 2017 Beijing's Museum of Chinese Gardens and Landscape will host an exhibition with Lincoln University, on the development of New Zealand's National Parks. Imagining the view from China to New Zealand provides a critical perspective, questioning what in Aotearoa is a taken for granted perspective of nature conservation which positions people as intruders in ecosystem integrity. In the Chinese context people are integral within conservation sites. The exhibition provides the forum for examining how in both China and New Zealand ways social, cultural and economic value can be built through increasing biodiversity-based outcomes.
2. From the other bank: Looking to China from Aotearoa New Zealand. Viewing a familiar landscape from far away brings insights that are not always evident from close up. Reflecting on the garden of Beijing's Yuan Ming Yuan from the distant location of Christchurch provides an opportunity for imagining a future for the site. With the opportunity of researching in both Chinese and English, aspects of history and heritage are drawn into developing design and management responses for a park that has a complex history, much of which lies in ruin.
3. From the bridge: Looking in two directions at once. The process of bridging creates a common ground, and can be an opportunity to enhance both similarity and difference. The Protected Natural Areas of China's Meili Snow Mountain Park and Aotearoa New Zealand's Aoraki Mount Cook National Park are both high alpine landscapes, but with very contrasting cultural presences. Designing for the heightening of experience at these two places amplifies the universal phenomena of water, light, and air, and also the particular feelings of reverence that are associated with the two sites.
4. Bridges and banks: Crossing back and forth. Chinese gardens have traditionally resonated with the larger landscape through microcosm, where compositions and elements represent aspects of nature in miniature. Nature is made small, curated, exhibited: a rock stands for a mountain. The landscape is framed, borrowed, an objet trouve. In New Zealand, there is a sleight of hand that conceals the cultural within parks, and nature is considered pristine. The only cultural elements are perfunctory: bridges, boardwalks, signs and huts. What would it mean to bring a New Zealand perspective to Chinese gardens, to think macrocosmically, where gardens engulf and immerse visitors? Or to reverse the perspective so that a microcosmic view in New Zealand parks means a framing, and caring for elements for their cultural associations as much as their pristine qualities.

Campus Landscape as a Platform to Bridge Teaching, Research and Practice in Landscape Architecture

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Keywords: landscape architecture, campus landscape, bridge, Tsinghua University

"Founded in 1911, Tsinghua University is located in the northwest region of Beijing on the site of the original Qing Dynasty Imperial Garden Tsinghuayuan. It is one of China's top universities serving as an important institution for cultural studies and scientific research. Tsinghua University's campus presents a combination of both Eastern and Western characteristics, and was listed as one of the world's most beautiful campuses in 2010. However, it needs to be improved continuously to fulfill changing needs of students, faculties, administrators, and other campus users. During this process, the campus landscape of Tsinghua University has served as a unique platform to bridge teaching, research and practice in landscape architecture.

In terms of teaching, Tsinghua''s campus landscape has become subjects for both graduate and undergraduate investigation and design trainings. Our graduate design studio has focused on Green Campus Landscape Planning of Tsinghua University for two consecutive years, which emphasizes a sustainable and holistic vision on the campus landscape system from a large-scale point of view. At the undergraduate level, through graduation project and SRT (Student Research Training) program, students learned survey and analysis methods and incorporated public participation process into design explorations. Campus landscape has also become research topics for graduate students, including campus waterfront design from a cultural landscape point of view, renovation of dormitory landscape based on students'' behavior analysis, as well as campus hiking route and related health benefits research etc. The above-mentioned result of teaching and research activities has been successfully incorporated into actual design practice to improve and transform the campus landscape of Tsinghua University based on needs expressed from university administrators.

There are several advantages to use campus landscape as a medium for teaching and research. First of all, students have the most direct experience of the campus environment, and can access users regularly for surveys and interviews, and then make in-depth analysis and interpretation of the design site. Secondly, it is possible and convenient for students to communicate with various university departments and entities to form a synthesized understanding of needs from all related stakeholders. Furthermore, students may present their proposed design strategies to university communities for feedback and discussion, and may even participate in the construction process to see it is built. Also, as this method has been applied in American and European universities as well, how it is adapted to the distinct culture and landscape of Tsinghua University can be discussed through comparison studies. Through intentional and careful organization, the campus landscape of Tsinghua University has united teaching, research and practice in landscape architecture together, and provided students a unique learning experience."

Can Soundscape Provide a Connection Between Landscape Architecture and Other Disciplines? A Case Study from Dallas-Fort Worth Metroplex

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Keywords: Sound, Grid Method, Arcgis, Landscape Architecture, Public Open Space

"Soundscape was studied by scientists and musicians who used the human senses to study the environment. The first studies on soundscape focused on aesthetic and archive purposes. It was carried out by R. Murray Schafer in the 1960s. The improvement of soundscape was first studied through a concept of acoustic ecology (Truax, 1999). This term emphasizes that sound has a particular meaning for the different disciplines.

Landscape architecture as a planning and a design discipline aims to create high quality environments for humans and other species. As other disciplines, such as architecture and planning get assistance from human senses, landscape architecture attempts to get support in similar manners. Landscape architecture, urban design and urban & regional planning disciplines focus on visual features and pay few attentions to other senses. Humans apply all senses in order to experience the environment (Yu and Kang, 2008). Moreover, these senses have different implications on perception and all of these senses and perception may be interpreted differently. Hence, sound and its perception could be utilized in a similar direction (Yu and Kang, 2008).

There are many measuring methods have been provided for the last decades. Currently, mobile and digital state-of-the-art technologies provide more reliable and inclusive options for these purposes (Misdaris et al, 2014). Apart from measuring sound levels, analyzing and examining are also highly crucial process and they need extra consideration and technologic supports, as well. In regard to design and planning disciplines, sound measuring, sampling, and analyzing methods are developed accordingly. However, few studies applied those improvements for the soundscape and public open space studies, particularly landscape architecture. Even though there are many methods to measure sound levels, this research performed grid method technique to concentrate on Dallas-Fort Worth Metropolitan Area. The grid method contains an applying virtual grid on a map of the selected points of the grid are used for the measuring purposes. The size, distance, and shape of the grids can be changed for the associated purposes (Escobar et al, 2012).

This research provides a scope of the soundscape in public spaces by performing mobile devices in Dallas Fort-Worth Metropolitan Area. To do this, the study attempts to adopt technological instruments for sound environment in public spaces. Even though urbanized areas are tremendously increasing day by day, this situation results in many consequences. At this point, sound is “forgotten” element and it is not paid attention by urban planners, architects, landscape architects, civil engineering and many other disciplines. Currently, there are a few studies that are related to sound and soundscape approaches in the U.S. Hence, this research demonstrates a point of view for soundscape research in rapid growing urban areas. While soundscape context is mainly considered as noise abatement category in planning field, architects are more evaluating in acoustic performance of buildings. What about landscape architecture? Landscape architecture may take a role for people to select their sound environment while urban planning and architecture are considered to modify and adjust it in order to establish a “bridge” between disciplines."

Cross-Cultural Participation in Design Education: Knowledge-Sharing, Flexibility, and Creative Thinking

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Keywords: Design Education, Participation, Cross, Cultural Pedagogy

"An examination of the intersection between design scholarship in cross-cultural settings and cross-cultural participatory design scholarship suggests promising areas of interest for international design education (Hou 2010, Irazibal 2008, Nassar and Hewitt 2010). The study utilizes these promising areas of scholarship as a means of providing useful criteria capable of assessing cross-cultural participatory design in a variety of contrasting global cultural contexts. Criteria evident in the scholarly literature most relevant to such a study include: participant learning, listening openness, common purpose, action, culture, and collaboration (Giroux 1997, Friere 2000). As part of the study, four cross-cultural design classes between 30 American & Egyptian students and 20 American & Iranian students were examined to establish baseline relative cultural differences utilizing: Inglehart–Welzel cultural assessments, "political index," assessments, and "Conflict Barometer" assessments. The three combined assessment measures identified discernible cultural/political differences between the three student groups' countries.

To assess the relevance of the design participation criteria related to learning, listening openness, common purpose, action, culture, and collaboration in cross-cultural differing political contexts the American/Egyptian students and American/Iranian students were observed and surveyed concerning cultural and learning aspects of the classes. To evaluate the design participation aspects of the courses the study assessed meaningful work by the students in both classes. A list of the meaningful work included various degrees of: shared regional and local research, research related to planning for development, collaborative field work, field work for site inventory and analysis, community resident interviews and analysis, collaborative site analysis and conceptual development, presentation among the two separated groups, and presentation to the government of field work findings that included resident survey information.

Findings suggest: 1) that the greater the cultural/political differences between the students' societies/nations, the less meaningful work accomplished by the groups largely as a result of perceived and imposed participation limitations; 2) the more collaborative ways of sharing knowledge, the more flexible ways of thinking, studying and learning, the greater the influence of culture in stimulating creative thinking, and mediating between cultural/political differences."

Findings show the necessity of providing specific tools to encourage and facilitate the participation and stewardship of laypersons in the design and implementation of ecological restoration with a collaborative approach."

Denver Learning Landscapes, a Model for Reimagining Schoolyards and Building Community through Play

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Keywords: Schoolyards, Playgrounds, Public Elementary Schools, Citywide Initiative, Urban Planning, Community Planning, Strategic Planning, Active Living, Physical Activity, Pre- And Post-Occupancy Findings, Sense Of Place

The purpose of this literature review and case study on Denver's Learning Landscapes, a citywide initiative resulting in the complete redesigning and rebuilding of 96 public elementary schools from 1998-present, is to highlight this community-based process, specific conditions and site designs, planning and design strategies employed, results of research findings, and general historical events leading to today. "Learning Landscapes" is a term coined by Professor Lois A. Brink in 1998 when she first conceived of redesigning Denver schoolyards with her graduate students and school communities at two schools, Bromwell and Garden Place Elementary Schools. Over the last 18 years, every Denver Public School playground has been planned, designed, funded, and built with community input and support. Over 48 million dollars has been raised to create these civic and educational places with a variety of research supporting the merits of this initiative. In this paper, both a historical ethnographic research project and a formal literature review illuminate the complex facets of such a large-scale undertaking. Lessons learned and valuable insights into challenges with both bottom-up and top-down planning, expected and unexpected outcomes, and new ways to create synergistic effects like those in Denver will be explored. This research is important because only two cities in the United States, Denver and Boston, have successfully rebuilt all of their public-school playgrounds with community partners. Denver Learning Landscapes serves as a model for other cities wishing to pursue such an initiative.

East/West – West/East: The Intercultural Experience and Cultural Hybridity

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Keywords: Intercultural Experience, Space of Flows

Over time and during moments in history, the civilizations of China (East) and West found themselves engaged in the exchange of different types of information or knowledge. The impetus for these moments varied and occurred for a variety of purposes including institutional, religious, political and territorial – sometimes these were inter-related. These historical moments offered opportunities for cultural dissemination, as well as the transfer of technological knowledge, where essentially, a "bridge" or "space of flows" (pre-digital and digital eras) occurred. This research explores this bridge and space of flows (Castells 1996) through the lens of the "intercultural experience" (Bennett 1993) and cultural hybridity. It brings to light the types of knowledge introduced and shared. It examines ways this made an impact on the ideological and physical expression of the outdoor environment, as well as its visual representation; and touches on the arts and design disciplines. The goal of this research project is to celebrate the bridge and intercultural experience. It is neutral and not intended to assign cultural dominance as is often found in the binary, colonial or post-colonial discussion of first world/third world, industrial/industrializing, developed/developing, and so forth. It begins with the papal envoys to China circa 1250 -1350 (Arnold 1999). It touches on garden and technological knowledge and of the Yuanming Yuan imperial garden (Zhou 2011), scroll painting and the importation of axonometric drawings and use of perspective imagery and representation (Imbert 2007). Cultural, political and intellectual influences during the late Qing dynasty period, short-lived Republican era, Mao and post-Mao periods are also revealed. This research project will bring to light the importance of political contexts when societies are "open" to the world. In this context, the flow of information and knowledge are not hindered; and the notion of the inter-cultural experience is arguably celebrated. This research historically maps the East/West-West/East intercultural experience and multi-faceted context. It draws from literature on the early papal envoys, fast forwards through time covering moments in the Yuan and Qing dynasties, as well as in the 20th and 21st centuries. It discusses the agency of institutions (religious and educational), as well as the inter-relationships of politics, space (cultural, designed and natural environments) and time, as vehicles for the inter-cultural experience. It includes speculation on ways the inter-cultural experience, cultural hybridity or global space of flows inform the normative praxis and ideology in contemporary landscape architecture, especially as time moves deeper into the 21st century.

Ecosystem Surface Strategies

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Keywords: Landscape Strategy, Process, Precision, Openness, Ecosystem Surface, Bridging, Metaframework, Resilience, Adaptation

"Responding to the complexities of sustainable development and the necessary diversity of stakeholders (Mathur 2007), new public engagement methods are increasingly geared toward discourse, collaboration, and interaction that emphasize: providing understandable yet credible information targeted to the audience; integrating data and visualizations of information; employing experiential and interactive modes to engage people; employing social and peer learning (Sheppard, 2012; Moser, 2010; Holden 2008; Davis, 2008).

Providing the right information at the right time in understandable formats is important (Brody et al. 2003). Digital tools fill that need. They enable concurrent “live” consideration of multivariate and complex interdependent information, including marrying geo-spatial information (what is where) with social processes and empirical metrics (Arciniegas 2012, Talen 2011). Digital tools help lay people understand how changes made at the scale of a building might impact the neighbourhood and how neighbourhoods may affect larger urban systems such as transportation. Active engagement through hands-on workshops and design charrettes increases the diversity of viewpoints and groups participating (Lennertz et al. 2006, Brody et al. 2003) and enable discourse that improves social learning (peer-to-peer learning) and buy-in for final solutions (Innes & Booher 2004). Many planning support tools that were intended to meet these needs are expert-intensive, causing the public to be passive consumers. A new generation of tools puts users in the driver’s seat and enables interaction and collaboration (van der Laan et al. 2013, Arciniegas 2012, Salter et al. 2009). These tools are the subject of our study.

Our presentation reports on a user study that tested UD Co-Spaces (Mahyar et al., 2016), a multi-touch table with integrated data and 3D visualizations on linked displays, designed to engage the public in charrette-style urban design exercises. University students from various disciplines served as surrogates for the public. Following a five-minute lecture about principles of walkable neighbourhoods and brief instruction about the tool set, they worked in groups of four to five to design a walkable neighbourhood centre within an existing suburban neighbourhood. Control groups solved the same task using paper maps and tokens. Every team prepared a credible solution and most met basic targets for walkable neighbourhood design. Pre- and post surveys, focus groups, and video-taping provided detailed data about group processes, interactions and experiences. Preliminary findings indicate the digital tools were easy to use, very engaging, and enabled collaboration, high-level discourse about implications of urban design decisions, and both self- and peer-learning."

Expanding the Digital Continuum: Bridging the Information Gap Between Science and Design Through Computational Design Tools

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Keywords: Environmental Sensing, Digital Design, Exchange of Knowledge, Relationship between Science and Design

"In his 2003 essay, “Information Master Builders”, Branko Kolarevic uses the term digital continuum to describe an exchange of information, made possible by computational design tools, that allows for geometric data generated within a digital model to be developed simultaneously through modes of analysis and optimization, representation and communication, and manufacturing and assembly. Possibly more important than procedural efficiencies, this sharing of data has also enabled an exchange of broader forms of knowledge amongst professionals with diverse technical expertise; from designers to engineers to material scientists to fabricators. This has put into play technical areas of knowledge as starting points for design inquiry. For example, architecture has seen a proliferation of design research stemming from an interrogation of intrinsic material properties or logics of manufacturing tools.

Latent in Kolarevic’s account is the possibility that the digital continuum expands to engage the input of dynamic material processes already underway at the start of design inquiry. Over the last 10 years, several technological developments have drastically increased Landscape Architects’ access to environmental sensing tools, methods of linking the values collected from these devices directly into design models, and the ability to parametrically drive digital geometries with continuous streams of data. By revealing complex environmental phenomena, these tools prompt a deeper understanding of the underlying physical and chemical processes at work within sites while also providing a venue for scientific and technical information to directly inform decisions about materials and methods of construction in Landscape Architecture.

This paper details a design workflow that includes: 1) the use of Arduino Microcontrollers to read and respond to information collected by low cost environmental sensors, 2) the use of software programs such as Firefly or Bumblebee to import data into the Grasshopper associative modelling plugin for Rhinoceros, and 3) the use of associative (parametric) modeling to generate 3-dimensional form that is variable and dependent on inputs from an existing context. A series of examples resulting from this workflow will make the case that an expanded exchange of information—from ongoing energy cycle through the manufacture of material assemblies, provides the opportunity for novel form to emerge through a prioritization of the temporal and dynamic logics embedded in sites."

HAWAI'I 2050: Designing the Archipelago

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Keywords: Design, Symposium, Hawaii, Ecology, Urbanism

"On Earth Day this year, the Faculty of the School of Architecture at the University of Hawai'i at Mānoa convened a symposium to cast the archipelago as the primary framework for ecological, social and political discourse in the design of contemporary Hawai'i. This paper will provide a critical overview of the symposium by sharing highlights from its design competition and illustrating key positions on outcomes of working sessions that aimed toward a 2050 prospectus. The authors of this paper were involved as co-chairs of the symposium, editors of its proceedings and organizers of the design competition.

With advancing sea-level rise, dramatic acceleration in coastal erosion and projected saltwater inundation of inland freshwater systems, conventional environmental management strategies and even current discourse in green infrastructure technology fall short of prospective long-term solutions. Further complicated by overwhelming development pressure, increasing energy demand, resource depletion and consumption, amidst entrenched colonial and military infrastructure and combined with staggering rates of poverty and homelessness, the Hawaiian archipelago was evaluated as a harbinger for the future of central Pacific islands more broadly, while narrowing a focus in on applied theory and practice in a selection of key sites within Honolulu.

Underscored by its global significance and prompted by local urgency, the symposium centered ecology and culture – within the distinct coastal boundaries of the archipelago – as the basis for design in Hawai'i. Political leaders, citizens, practitioners, faculty and students have helped shape this inherited place of Hawaiian culture and learning over generations. By gathering together in the State Capitol on Earth Day, this symposium celebrated that rich common heritage, prompting a sober reflection of the present and projecting shared aspirations for the future of Hawai'i. Uniting diverse and overlapping perspectives across disciplinary and generational boundaries, the symposium cast new light on historical foundations with dynamic presentations, evaluated current models of practice through critical discussion, and proposed emerging positions through an international design competition – all in the name of speculating together about challenges ahead in this problematic and exceptional landscape.

Multiple findings emerged from the event including the dissemination of a recently developed online Statewide sustainability dashboard that provides links for near-real-time data from a range of State agencies with the general public, designers and local organizations. A set of key sites around Honolulu with severe levels of environmental degradation were also reimagined through design competition submissions from around the globe. Those awarded entries will be shared during this presentation to evidence new design applications on highly sensitive sites."

Impacts from Bridging Landscape Architecture Academia and County Extension Education

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Keywords: Collaboration, Education

"This presentation will explore the evolution and impacts from a long-term working relationship between a landscape architecture academic and an agricultural extension educator on public and professional constituencies. Working successfully for over sixteen years, this collaborative relationship highlights the value of bridging academic practice and applied extension education for multiple benefits.

What began as a happenstance membership on a county extension council by a new assistant professor as part of his service commitment, developed into a strong, meaningful relationship. Both partners embraced opportunities to network, share expertise, and embark on innovative programming as regional cities, businesses, and homeowners sought sustainable landscaping and rainwater harvesting expertise to mitigate increased stormwater runoff. This association positively influenced the extension agency's public education delivered to local natural resource constituents, traditionally comprised of homeowners and agricultural producers, and propelled their professional education for practicing landscape architects, design engineers, and municipal planners.

The relationship led to collaboration between extension and the state chapter of ASLA leadership and membership, resulting in the delivery of sustained and impactful workshops and symposia that significantly advanced the adoption and spread of installed low impact development technologies throughout the state and region. To date, a series of six workshops have provided training for dozens of university students and 248 practicing professionals from six states to study under the expert leadership of more than twenty national experts on issues related to low impact development.
Further, the reciprocal relationship resulted in landscape architects being involved in state and federal level workshops and conventions of water and soil scientists. This then established landscape architecture as a participant in the discussions on planning of water resource activities throughout the state and strengthened the potential that landscape architectural design and perspective would become a component of water related activities.

The opportunity to broaden the understanding and impact of landscape architecture and increase the value of public education programming through the cooperative extension service across the US via similar synergistic relationships is significant. Landscape architecture researchers and professionals contribute the expertise that extension imparts to residential, commercial, and municipal audiences. The authors believe the primary obstacle to overcome is proximity. Extension agents and landscape architects are generally not operating in the same circles, thus this relationship in which individuals moved out of their normal venues and committed to work with each other serves as the exemplar of bridging the gap."

Interpretative Bridge: Comprehensive Environmental Effect Evaluation of Landfills Regeneration Project

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Keywords: landscape architecture, landfill regeneration, environmental evaluation, RS, soil measurement

Over the past decades, in both developed and developing countries, brownfields issues have become hot subjects due to the severe damage they caused to both the environment and public health as well as the massive space that they occupy in urban settings. Landfill is an important type of brownfield. In consideration of transportation distance and contamination control, landfill sites are normally situated in suburban areas which stay away from the city center but are not too far. During China's fast urbanization process, many large landfills are gradually surrounded by rapidly spreading cities, facing redevelopment pressure. There have been several successful regeneration cases which transformed large landfill sites into green open space in China. Both macro and micro measures are taken to evaluate the actual environmental impact these projects have generated.

Three representative Chinese landfill regeneration cases were selected as research subjects due to their specific scales and locations, including Beijing Nanhaizi Park, Phoenix Terrace at Tangshan Nanhu Central Park and the 2015 Wuhan Garden EXPO site. In the macro scale, it is important to note that large green space regenerated from landfills not only provide outdoor activity space for people, but also become significant environmental improvement engines due to their scale and the very geographical location close to urban areas. However, most existing research in China now concentrate on the design concept and spatial configuration. Evaluation from an environmental perspective is insufficient. In this study, satellite images of each chosen case are interpreted by using RS technologies. Images are chosen at several different time representing various phases of the regeneration process. Changes of green biomass, thermal environment and micro-climate characteristics are analyzed quantitatively.

In the micro scale, soil samples are taken from each site. Measurements taken include contamination types and physical-chemical properties. Condition of vegetation growth is observed and documented. Key influential factors are identified through data analysis and correlation mechanism is established. Finally, the macro and micro analysis are synthesized to build an environmental evaluation model for large-scale landfill regeneration projects.

Comprehensive environmental evaluation bridges landscape design of large-scale landfill regeneration projects with the actual environmental impact they create and helps people understand more professionally and appreciate more the benefits such effort provides to urban settings. It will also serve as an effective method to assist the decision-making process of similar brownfields regeneration projects.

Landscape Architecture and Neuroplasticity: A Role for Design in Addressing the Impact of Early Childhood Trauma

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Keywords: Stress, Trauma, Neuroplasticity, Horticultural Therapy, Landscape Architecture

"This paper has two primary goals: first, to examine the current research on early childhood trauma, and second to bridge this research with landscape architectural design practices through deliberate, considered application of horticultural therapy. Specifically, current research on brain resiliency outlines the ways in which emotional and behavioral support can be achieved through nature-based therapies. Thus, the spatial and sensory integration practices associated with horticultural therapy connects this research to design practices.

Adverse childhood experience studies have been conducted over the last 20 years by the Centers for Disease Control and Prevention. These studies indicate that early childhood experiences with trauma adversely affect a person's health later in life. Separate studies have shown that adverse physical modifications of the brain can result from early life stress and trauma. Using this information, therapists can target specific interventions toward the underlying structural causes of emotional and behavioral disorders. Understanding how the brain can be healed through mechanisms of neuroplasticity—essentially rewiring the brain to build healthy connections—allows therapists to develop more targeted and effective interventions.

Horticultural therapy is a nature-based intervention modality that facilitates this healing process by utilizing outdoor garden spaces as part of a multidisciplinary approach focused on actively engaging clients. Because horticultural therapy interventions take place in gardens, landscape architects have the capacity to design spaces that can facilitate this kind of work if they understand the spatial and sensory needs of horticultural therapy and the brain science behind it.

In order to effectively support people who, have experienced trauma, landscape architects need to have a close understanding of how the materials and spatial compositions they select impact users. A designer’s ability to thoughtfully construct space to serve the specific needs of those seeking emotional and behavioral support will be strengthened by understanding the ways in which trauma alters the brain, the resiliency of the brain to heal through nature-based interventions and design aspects that will support this healing. To fully understand the potential landscape architects, have to positively support treatment services, it is critical that we engage in a cross-disciplinary dialogue that explores the incredible possibilities trauma-related brain science holds for our profession and develops a shared understanding on how to take the specificity of that information into account in our work."

Mapping the Evolution of American chinoiserie Landscapes (1860-1940)

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Keywords: Chinese Garden, Cultural Exchange, Chinese Influence, American Landscape, “Chinoiserie”, Exoticism

"The idea and material of gardening and designed landscape from China on America has been almost forgotten. Previous researchers outlined a clear picture of the limited Chinese influence on America prior to Civil War, due to impacts from Europe (Honour 1962, Impey 1977, Jacobson 1993, Siren 1950, Von Erdberg 1936) and direct commercial exchange with China (Lancaster 1947, 1963, Corner 1979, Goldstein 1991). Yet, a negative view has been presented about the continuality of the Chinese influence (Lancaster 1963, Corner 1979, Wichmann 1981), which, according to this study, should be attributed to the thinness of evidence collected. After years of material digging and interpretation by this researcher (Zhang 2014a, 2014b, 2015, 2016, Zhang et al 2013), it is confident to assert that Chinese influences thrived on the America designed landscapes from the 1860s to the 1940s. Rather than an incidental or isolated phenomenon, Chinese influences could be found in at least 110 cases across the country, such as public parks, civic plazas, private gardens, zoos, recreational parks, and even gas stations.

This specific study is a pictorial analysis of the evolution of Chinese inspired landscapes in the US from 1860 to 1940. The main body of this paper is a renewed list of 110 cases, out of which this researcher visited about 50, aided by a major grant. The pictorial study is summarized from about 500 historical evidences, such as architectural archives, postcards, historical pictures, and newspapers collected by the author. The 110 cases are architecturally projected and chronologically mapped. The front elevation and plan of each project are drawn at the scale of 1” = 20’-0”. By coding the structural and compositional features of these cases, sources of Chinese influences could be identified and traced to European chinoiserie, authentic Chinese landscape, current materiality and constructability, as well as designers’ creativity.

Submitted to the bridge track of CELA 2017, the study contributes to the fields of intercultural communication, landscape design history, American urban history, and Asian studies. The study entails how Chinese architecture and designed landscape, as “exotic” design ideas, were communicated, received, and materialized in the States. The understanding of both American and Chinese designed landscapes was enriched in the study."

Planning and Design of National Parks: What Does America's National Park Model Have to Offer a New Park System in China?

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Keywords: Parks, Recreation, Design, Protected Areas, Public Lands, Classification

Both the US and China have vast treasures of temperate ecosystems and natural resources, protected areas, scenic landscapes and cultural features. Today the US National Park Service, preserves unimpaired the natural and cultural resources and values of the National Park System, also called "America's Best Idea," for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world. Meanwhile China has a wide variety of significant protected areas, from Ramsar wetlands of international importance to World Heritage Sites, to provincial nature reserves, and is looking to bring many of those sites into a single National Park system. While past studies have primarily focused on the development or establishment phase of the national park system in China, here we emphasize two aspects of a national park model for consideration in the design and implementation phase of parks. First, we consider the classification of the many park unit types in the US, including their evolution, challenges, and functioning today. Second, we look at the central planning and design approach integral to the US national parks. Lastly, we discuss lessons learned, exploring how this American idea, and the plans and designs that have grown from it, might be relevant for a China National Park System under a very different socio-political context. This talk bridges knowledge on the planning of national parks for nature conservation and designs to enhance visitor experiences and human welfare across continents.

Play as a Strategy for Bridging Landscape and Human Health Through Transdisciplinary Collaboration

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Keywords: Play, Playscapes, Human Health, Body, Senses, Sensory-Engagement, Aldo Van Eyck, Interaction, Occupational Therapy, Inclusive Landscapes, Intergenerational

Play is a means of deepening one's engagement with landscape through sensory-driven interactions with outdoor environments. This point is reinforced by definitions of play from cultural theory and medicine, which serve as reminders of the more primal means by which the human body, experiences and finds meaning in the landscape. The goal of this research is to investigate the critical role of play-oriented landscapes – or playscapes - in supporting and enhancing the physical well-being of people of all ages and abilities. Shifting the focus from play as an activity or program that takes place in the landscape, such as a playground, this research investigates play as a mechanism for bridging landscape and human health. Using the case study methodology as a starting point, I examine strategies for play in different countries such as Sweden, Denmark and China. Based on this research, a series of prototype playscapes will be designed, built and analyzed in terms of their effectiveness on intergenerational human health, working in collaboration with our transdisciplinary team of health care researchers in occupational therapy, disability studies and gerontology. Using grant funding the prototypes will be built this summer with healthcare researchers hired as consultants.

The enlightened period for play occurred in the 1960's when landscape, art and play were inseparable. This period provides some early examples of what a playscape could be. During this time designer such as Isamu Noguchi, Aldo Van Eyck, Paul Friedberg and Richard Dattner were driving forces behind a movement that focused largely on the design of playgrounds for children. As seen in their work, the language of play is spoken through the exquisite sculpting of natural elements such as topography, trees and water in combination with urban structures that invite bodily engagement with the landscape. Growing concerns over safety and liability took play out of the hands of landscape architects into that of play equipment manufacturers. However, a resurgence of interest in play, fueled by healthcare advocacy as well as mandates for inclusive and intergenerational design, landscape architects have re-entered the scene. This presents an exciting opportunity for designers to move past generic modes of play toward the creation of unique spatial experiences for people of all ages and abilities.

Reconnecting the Lushan Botanical Garden and Arnold Arboretum of Harvard University - A Botanical Bridge between China and the U.S.

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Keywords: Lushan Botanical Garden, Arnold Arboretum, Botanical Bridge, Collaboration

"The collaboration between the Lushan Botanical Garden and the Arnold Arboretum of Harvard University formed a botanical bridge (Del Tredici, 2007) between China and the U.S. in the early 20th century. Founded in 1934, the Lushan Botanical Garden is China's first modern botanical garden, situated in the scenic Lushan mountain area of Jiangxi Province. The Arnold Arboretum played an important role in training the first generation of modern Chinese botanists, including the founders of the Lushan Botanical Garden. In several respects, the Arnold Arboretum, especially its extensive research collections, served as a model for the Lushan Botanical Garden. Many plants in Arnold's collection originated as seeds sent from Lushan during the 1930s and 40s (Del Tredici, 2005). However, the two institutions lost contact after China's regime change in 1949, and only re-established the connection 55 years later. Although more than a decade has passed since then, continuous and active collaboration between the two is still lacking in the present day.

This paper traces the long relationship between the Lushan Botanical Garden and the Arnold Arboretum. It celebrates their inspiring teamwork in the past, and emphasizes the importance of strengthening the bonds and carrying on the collaborative endeavor by the pioneers of Chinese botanists and their American mentors and colleagues.

The historical connections and current challenges are examined through observations, literature reviews and dialogues with the researchers at both institutions. Successful collaborations between the U.S. and Russian botanical gardens are analyzed as case studies in order to fortify long-term collaboration between the Lushan Botanical Garden and the Arnold Arboretum - a botanical bridge between China and the U.S."

Roofscapes and Stormwater of the Gowanus Canal

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Keywords: Stormwater, Green Roofs, Planning, Analysis, Infrastructure, Research and Design

"This project is an ongoing research investigation with the Gowanus Canal Conservancy to perform analysis on the roofscapes of the buildings in Brooklyn's neighborhood Gowanus. Since the introduction of the Gowanus Canal onto the National Priorities list for the EPA and its designation as a Superfund site in 2010, it has raised the public consciousness of the toxicity of the waterway and focused attention on ecological relief of this post-industrial watershed's runoff and stormwater infiltration system. Recently, much focus has been given to the water infiltration strategies within the neighborhood's street-scape and open space network, but relatively little attention has been paid to the other major contributor to stormwater runoff, the surrounding building roofs.

This project is the collaborative bridge between a Landscape Architect + and Architect/ Urban Designer, each with their own disciplinary interests and understandings of the Urban Realm. The landscape architect brings an area of expertise with stormwater, drainage, and surface materials traditionally utilized in green roofs as well as alternative practices. The architect/urban designer brings the understanding of zoning and typological building massing, with an interest in geometrically creating a formal system of buildings which can absorb a majority of the stormwater collected. The collaboration is a manner of working cleverly through zoning to find a new roof-landscape integration which incorporates more systemic uses, social program, new private built development and stormwater infrastructure.

Through intensive mapping and analysis from both disciplines we addressed the storm water contribution to the overburdened drainage infrastructure in combination with analyzing the architectural typologies. We provided both surface level material absorption strategies, retrofitting strategies, as well as new development guidelines for the neighborhood that exploit the existing zoning envelope for new building by the private sector that provides run-off in a more considered manner. Models generated data regarding the roofs including, sheet flow direction, point of deposit, quantity, contaminants, and the roof's current capacity for dealing with storm-water. Annually, the combined sewer system pours 377 million gallons of raw sewage into the canal. There is an immediate need to provide aid for the failing infrastructure and relieve the combined sewer system by implementing green infrastructure not only in the public realm.

A major premise of the presentation will showcase the research and analysis performed on the roof scape and neighborhood in the Gowanus watershed and the overlaps between the disciplines."

The Architecture of Extreme Landscapes

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Keywords: Human Ecology, Resilient Design, Extreme Environments, Interdisciplinary Learning

"The concepts and methods of human ecology found in landscape architecture offer urgently needed skills for architecture students preparing to design buildings for a world impacted by climate change. By employing these concepts and methods in the direct analysis of today's extreme natural landscapes, architecture students can unlock the design lessons latent within them and apply them to resilient design. An experiment in bridging from human ecology concepts and methods in landscape architecture to fulfill a need in architecture is currently underway at the author's university. The Architecture of Extreme Environments (AEE) is a research and teaching project that takes architecture students to today's most extreme landscapes and offers them the skills they need to analyze the ecosystems and extract lessons for resilient building design. Extreme natural landscapes already studied include Death Valley (highest temperature on Earth) and Mt. Waialeale (second highest rainfall on Earth.) Upcoming ones include Mt. Rainier (highest snowfall in North America,) and Mt. Washington (second highest winds on Earth.) These landscapes represent the most likely effects of climate change (higher temperatures and precipitation as well as storms) (NASA 2016, NOAA 2016).

But architecture students often lack the skills to analyze natural landscapes. The author's university, for example, requires no site analysis courses for its architecture students. Landscape architecture however, particularly through its theories and methods of human ecology, offers the necessary analytical tools (Steiner 2002). AEE students apply these theories and methods in the on-site analysis of extreme landscapes to derive resilient design principles for future extreme climates. For each extreme landscape studied, the students demonstrate their understanding in three ways: 1) presenting a detailed analysis of the ecological systems, 2) designing and building a shelter which they test on site in the extreme landscape, and 3) designing a prototype building and testing it for energy efficiency. These shelters and designs are then exhibited at American Institute of Architects chapter offices statewide, giving the students the opportunity to act as leaders in resilient design for their professional design community. This presentation bridges from the concepts and methods of ecosystem analysis in landscape architecture to satisfy an urgent need in architecture: to understand today's extreme landscapes and develop resilient design strategies for tomorrow's extreme climate. It explores lessons learned from the project to date, obstacles confronted, and opportunities to expand on the application of landscape analysis to architectural education."

The Construction of the Theory of " Landscape Empathy" Based on the Conception of Empathy in Psychology

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Keywords: Empathy, Landscape Empathy, Human, Environment, Landscape Architecture, Theory

"Regarding the contradiction of shortage of natural resources and urban space, the dilapidated fields in urban renewal need to be reused rationally. Therefore, landscape architecture has gradually become an important means to deal with urban problems, also, facing serious questions and challenges because of the complex relations in city spaces.

Empathy is proposed firstly as a concept of psychology by Carl Ransom Rogers, the founder of humanism, refers to the ability to understand other people's emotions and deal with problems in others' perspectives.

""Landscape empathy"" refers that the designer thinks about the design in the perspective of the users and the site. That is, the designer has to understand the users' thinking of the site and the spirit of the site. Based on it, the designer deals with the contradiction and solves the problems.

The research is to perfect the theoretical framework of landscape architecture, actively explore the greatest possibility and the best way in the integration of landscape architecture and other disciplines. This study focuses on the interpretative and instrumental research of the ""Landscape Empathy"" theory, adopting methods such as literature research, case studies, field research, interviews, etc. The theoretical framework and extended applications of empathy in psychology serves as fundamental and referential coordinates of the ""landscape empathy"" theory. In this study, the people, the environment, and the relationship between them are the three research objects. And the structures, mechanisms, processes, characteristics, results and effects of the ""landscape empathy"" theory will be explored in the dimensions of time and space.

The study on this theory will be a new attempt to guide the construction of the theoretical framework of landscape architecture with different disciplinary logics, bringing some humanistic thinking and intervention to the yet immature theoretical system. Different from the ""design with people in mind"", ""Landscape empathy"" look at the relationship between nature and people, space and needs in a more equitable and integrated perspective.

In the ""Landscape Empathy"" theory, the designer is not only the spokesperson of the sites, but also the bridge and catalyst between the humans and the environment.

The construction of ""Landscape Empathy"" theory is also of great significance for solving the actual urban problems. Landscape architectures will take more diversified perspectives with ""Landscape Empathy "". And with people and the environment as dual cores, the practice of the theory will seek for a harmonious symbiotic model among people, cities and nature."

The New Landscape Declaration: Bridging

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Keywords: Sustainability, New Landscape Declaration

In October 2016, the Landscape Architecture Foundation (LAF) released The New Landscape Declaration, a 21st century call to action for the landscape architecture discipline. The Declaration is the product of LAF's historic Summit on Landscape Architecture and the Future, which brought 700 attendees from around the world to the University of Pennsylvania in Philadelphia to discuss how landscape architecture can make its vital contribution in response to the challenges of our time.

LAF is encouraging landscape architects across the globe to sign on to this ambitious vision. The foundation is also hosting a series of discussions on how each of us in our unique role can turn the broad ideas into tangible actions.

In this panel session, LAF will present background information on The New Declaration and facilitate a discussion with the three conference co-hosts: Xiong Li of Beijing Forestry University, Rui Yang of Tsinghua University, and Kongjian Yu of Peking University. Following the conference theme of Bridging, each panelist will share his/her perspective on strategic actions that can create real-world change in support of the vision:

"As landscape architects we vow to create places that serve the higher purpose of social and ecological justice for all peoples and all species. We vow to create places that nourish our deepest needs for communion with the natural world and with one another. We vow to serve the health and well-being of all communities.

To fulfill these promises, we will work to strengthen and diversify our global capacity as a profession. We will work to cultivate a bold culture of inclusive leadership, advocacy and activism in our ranks. We will work to raise awareness of landscape architecture's vital contribution. We will work to support research and champion new practices that result in design innovation and policy transformation.

We pledge our services. We seek commitment and action from those who share our concern."

The New Urban Spaces of Commoning: Emerging Practices and Implications

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Keywords: Urban Commoning, Commons, Public Space, Community, East Asia

"Against the backdrop of privatization and neoliberalization, acts of urban commoning have emerged in cities around the world, defying the increasing enclosure of public realm (Jeffrey, et al. 2012). Defined here as the making of alternative spaces and/or social relations primarily outside state institutions and market economy (see Hardt and Negri 2009, Harvey 2012, Hess 2008), urban commoning supports community building, socializing, and alternative economies often in the seams of social and spatial hegemony. From Western Europe to North America, these cases of urban commoning have catalyzed new forms of social spaces and challenged the conventional norm of planning and design (see Bresnihan and Byrne 2015; Hou 2010). In East Asia, a variety of creative urban commons have also mushroomed in recent years. They range from self-organized activities, to institution-sponsored initiatives to activate urban sites. The emergence of urban commoning in East Asia is particularly significant as the activities are occurring in places where public space has been virtually non-existent historically, or have been controlled by the state. The new commoning initiatives have engendered new interactions among diverse urban dwellers that have few contacts previously. In other words, the initiatives are contributing to the bridging and production of new social relationships and assemblages with important implications for planning and design practices.

Using selected cases from Hong Kong, Taipei, Seoul, and Tokyo, including co-working spaces, community makerspaces, and social entrepreneurships, this paper presents a critical snapshot of the growing phenomenon of urban commoning in East Asia. Based on interviews with key organizers and site observations, the paper examines the common characteristics of these initiatives, specifically in regard to the involvement of new actors and formation of social networks and relationships. The involvement of a wide variety of individuals and social groups further suggest the role of new actors and institutions beyond governmental and professional entities and the primacy of traditional community networks and organizations. The paper argues that these commoning initiatives raise important questions concerning what constitute “community” and “design” in today’s society. Through the advent of social media and modality of sharing, new “communities” are being forged that transcend traditional bonds and boundaries. The mechanisms that facilitate the emergence and operation of the new commoning initiatives also suggest a new repertoire of planning and design instruments. The new urban spaces of commoning therefore present new opportunities and challenges for planning and design practices in the contemporary urban settings."

The Role of Landscape Architecture in Brownfield Regeneration

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Keywords: Landscape Architecture, Brownfield Regeneration, Industrial Wasteland, Integrated Values, Bridge

"With the adjustment of the national industrial structure, there appeared many brownfields in an urban center, which are now abandoned and contaminated, leading to a decrease in their values. To our knowledge, there are some theories about economic values, such as Market Comparison Approach, Cost Approach, but there appears to be no results on the integrated values, which matters a lot especially in industrial wastelands cluster. Brownfield regeneration is a way to promote the integrated values. Based on the analysis of the typical cases of brownfield regeneration, such as Detroit Works Project and IBA Emscher Park Project, this paper analyzes the experience of improving the integrated values of individual site and the cluster. The authors propose a value model that the integrated values consist of five parts: ecological values, aesthetic values, cultural values, economic values and social values. To be specific, when economic values are limited by site function, promotion of ecological, aesthetic, cultural and social values is a feasible way to enhance the integrated values. Landscape architecture provides a bridge to connect site to site, to combine different site factors, which synthesize different disciplines on technologies and thoughts, and to combine different values.

Based on the brownfield development process proposed by EPA, there are two important stages in industrial wastelands cluster regeneration process: site analysis, and planning design. Firstly, landscape architects view soil and water, as factors changing over time, which may lead to the change of spatial morphology. Therefore, by considering the two dimensions of time and space, as well as ecological, cultural and social factors, landscape architects regard brownfield as a whole site. In the case of Landschaftspark Duisburg-Nord, abandoned steel plates are regarded as cultural factors and used as materials, and densely grown plants are viewed as industrial nature and are retained. Secondly, considering all the wastelands, landscape architecture synthesizes technologies with thoughts in environmental science, ecology, water conservancy, geology, culture, economic and society, and adopts water purifying, tree planting, earthwork adjusting and other methods to promote the individual site value and so increase the value for the cluster. In the case of Detroit Works Project, connecting wasteland to wasteland, landscape architect aims to create an open space network with ecosystem continuity and full of vitality. In the whole process, landscape architecture plays a bridging role to promote the integrated values."

Film

Capturing the Royal Garden Community's sense of place

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Keywords: Community Design, Social Justice, Place-Making, Representation

This short film is the outcome of an experiment in the design studio learning environment. It combines ethnographic research, site inventory and data collection, and visual communication, film-making and drone technology. As part of due diligence, field research and site analysis for an advanced undergraduate design studio course, students were required to create a short film (2 minutes' minimum to 4 minutes' maximum) on their project site. It was also a service-learning project and they were engaged in developing design strategies (site and community scales) for a very low-income (rental-only) low-rise housing project. The site covers sixty acres, is occupied by approximately one hundred residents and is located two hundred twenty miles or approximately three and a half hours from the main campus. The learning goals for this audio-visual film assignment were varied, and primarily focused on students' gaining a deeper understanding of the site's "sense of place" (Jackson 1996), social issues and the importance of the field experience and film documentation as an ethnographic instrument (Cranz 2016), as well as demonstrate their understanding of the site's genius loci (Treib 1995). The experiment involved drone technology enabling an aerial view of the site, surrounding habitat and vegetated creek edge. Most importantly, this methodical experiment guided the students to critically examine the residential community in a comprehensive way; and the film served as both an interpretative instrument and analytical tool. The students were given full creative freedom in the creation of the documentary short film (Thurlow & Thurlow 2005). It also served as a valuable reference for the students later during their conceptualization process for the two projects: 1) outdoor gardens for individual residential units; and 2) developing design strategies and an outdoor program for a community-based park that promotes active, healthy living for the general public. The findings from this experiment in ethnographic field research drone technology and the creation of the short film sharpened the students' understanding of the social issues and site's potential, especially the vegetated riparian creek habitat that bounded the site. Film-making bolstered the students' capacity to: "see", "read" and "analyze" the site; appreciate the dynamics of documenting the site experience and their interaction with the residents. This experimental exercise confirmed: the students' resilience and enthusiasm to learn and create; capacity to improvise with the available technology (media software on their cell phones and drone deployment) and; demonstrate their motivation to independently self-learn.
https://youtu.be/-SRk8owVRPw

Digital video and the impact of landscape architecture on public well-being

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Keywords: Video, Digital Video, Communication, Landscape Architecture

Fifteen years ago Charles Waldheim discussed and speculated over the use of photography as a representational mechanism for the landscape, considering it an analytical tool that not only reveals a given condition but that also articulates possible futures [1] . Since then, opportunities for framing landscape analysis, schematization and planning have emerged from still images, and also from moving images. In the last 10 years, video, audio and moving imagery presentations have revealed innovative possibilities in landscape design and representation. Christophe Girot has highlighted the potential of video in investigating landscape temporality by recording its ever-changing -and impossible to grasp- dynamic and fluid characters. Our perception towards video has also shifted in the last decade, from a task that required specialized technology for recording and editing, to an uncomplicated activity that can be done with any smartphone. The average time that US adults spent watching video on digital devices has increased more than 250% in the last five years: from 21 minutes (0:21) per day in 2011 to almost one hour and a quarter (1:16) last year. [2]

Girot asks for a better integration and understanding of contemporary visual thinking in project development and communication [3] . Digital media offers an accessible and affordable platform for communication, that can shift from message communication or analysis into persuasion: video outcomes focus not only on telling a story, but also on finding ways to grab the attention of the viewers and hold on them long enough to deliver a message.

This video session aims to showcase student videos produced as submissions for the 2015 Wayne Grade Memorial Student Competition, a contest that challenged students to communicate the positive impacts of landscape architecture on public well-being. Students produced short videos as means to communicate what landscape architecture is, and how it impacts our lives. These experimentations with moving images included animations with simple video-editing software (“ABC of Landscape Architecture”), compositing 3D objects on video (“Landscape Architecture and Stormwater Management”), using animation as a video-game (“Stick Figure Games”) and stop-motion (“Landscape Architecture: What difference does it make?”) to explore the possibilities of short animations as means of “effectively [communicating] the vital role that landscape architects play in protecting and enhancing ‘public welfare’” [4]. None of the students were expert video editors, yet their abilities and skills found in digital video a platform that gave them opportunities to communicate, experiment and shape a message about the impact of landscape architecture on public well-being.

Link to video ‘ABC of Landscape Architecture’
https://www.youtube.com/watch?v=coJYJuA7wfg

Exploring Accessibility and Universal Design

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Keywords: ADA, Universal Design, Accessibility, Social and Behavioral Landscapes, Environmental Psychology, Environmental Factors, Human Factors, Equity, Architecture, Landscape Architecture

The purpose of this film is to showcase novel ways of engaging undergraduate students from a variety of disciplines in an investigation of the impacts of physical design on physically challenged users. In this set of brief films, undergraduate students explored and evaluated Accessibility and Universal Design principles on and off campus as part of an introductory environmental psychology course in landscape architecture. Wheelchairs, crutches, blindfolds, slings, knee braces, and other medical devices were provided for this hands-on research. These short videos showcase both successes and failures as documented in film during the spring of 2016.

"There is a great deal of overlap between what is required under the American Disabilities Act (ADA) and what would be suggested by Universal Design, but there are also differences. The ADA outlines the bare minimum necessary in order to curb discrimination against people with disabilities, while Universal Design strives to meet the best practices for design, which are always evolving and improving as we continue to learn more about how to best meet people's different needs. The ADA focuses solely on the civil rights of people with disabilities, while Universal Design is designed with everyone in mind (Universal Design website)."

Students found that buildings which were constructed after the passing of the American Disabilities Act were more likely to be easier to access. Buildings constructed within the last 10 years were found to be more likely to have universal design principles, primarily better primary entryways for full inclusion into the buildings. This research project is important because students were able to test their hypotheses directly, to explore limitations and opportunities to improve designs, and it increased empathy and sincere appreciation for those who are physically challenged in all students who participated as documented in follow up reflections and course evaluations. More research on accessibility and universal design is needed to advance inclusive design in the built environment. Projects and courses like this one, encourage college students from a variety of disciplines (engineering, landscape architecture, industrial design, architecture, business, and more) to actively work towards improved design solutions.

To see the 4 short videos please click on the following links:
https://vimeo.com/groups/2016proj5universaldesign/videos/165247288
https://vimeo.com/groups/2016proj5universaldesign/videos/165240600
https://vimeo.com/groups/2016proj5universaldesign/videos/165255228
https://vimeo.com/groups/2016proj5universaldesign/videos/165226038
(NOTE: These videos will be combined for CELA if selected. To see all videos from this 2 week project assignment please see, https://vimeo.com/groups/2016proj5universaldesign)

Foods are ideas: the formal and informal urban agriculture practices in Chinese city

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Keywords: Public Life, Food, Urban Farmer, Urbanism

Food, the utmost importance to the people according to a Chinese proverb, had been an influential factor for urban form and citizen lives in ancient cities of China. Nurturing plants and reaping the harvest，an intuitive yet civilized activity, seems unpractical and inconclusive for citizens in a central planning system in China. This situation was especially obvious from 1980s to 2000s, the most rapid urbanization in China history. However, urban farmers are changing the public life in a formal and informal way with food as medium as well as catalyst in the last ten years in China.

The authors interview three groups of people, green community activists, pioneering urban gardeners and community agriculture charities, who are committed to build a more socially and economically sustainable. Under the efforts of green community activists, the remodeling of public life has become a public issue, attracting the media and environmentalists' attentions. They are the forerunners of urban agriculture; pioneering urban gardeners play the role of practitioners. As long as there are vacant lands, they will always grow vegetables spontaneously; community agriculture charitarians set up plots in the community, allowing residents to plant for free. They provide the informal platform for urban agriculture. These three groups resort to NGO, volunteers and institutions to collaborate with government departments to streamline the procedure of public participation in shaping the neighborhoods. Such efforts are expected to provide nostrum for urban resident. Currently, Chinese are interacting with highly differentiated social roles, which leads to the degrading of traditional family and neighborhood relationship, alienating the citizens. Therefore, rebuilding the community and public space has become a critical issue in China for which ideas can produced from food production, as shown in this film.

Different from market economy of western countries, China has a different land property system and community management which generally hinder development of community’s garden. Recently, some new measures are taken in certain neighborhoods to enhance public involvement. Urban agriculture is integral to urban development strategy in China. The investigations are contextualized in such policy vicissitudes to give hints of complexities and uncertainties of food ideals.

https://www.youtube.com/watch?v=8a8h5eoNlWU&t=2s

Footsteps in Time: The Gardens of Versailles

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Keywords: Versailles, Louis XIV, Gardens, History, Physical Artifact, Cultural Artifact, Social Constructionism

The gardens of Versailles remain timeless in their ability to capture the imagination and instill a sense of awe as visitors today share a connection with those who have walked it's allées over the last three centuries. The illusive 'sense of place' that we, as landscape architects, strive for in every design is epitomized by this work of André Le Nôtre and Louis XIV. While its physical form as a landscape artifact has undergone few transformations from the original plan, its metaphorical cultural meaning and how people experience it has transformed over time. Iconic in its inception and implementation, the gardens of Versailles exemplify a cultural narrative of man's relationship with nature. The historical change in the construct of man's relationship to nature from one of control and dominance to partnership and alliance is exemplified in the garden.

The original designers saw the gardens as an expression of power and control over nature and the populace privileged to enter. His majesty took time within his reign to write a guide for how his subjects and guests were to experience the gardens (1). Subsequent generations have since been afforded the freedom to experience the gardens in new ways and to construct their own understanding and meaning. Tourists are able to explore the gardens unfettered by the social constructionism (2) that originally defined the visitor experience. The intimacy of quiet garden rooms found off the main allées are often not a part of today's experience as they are passed over by contemporary visitors in favor of the excitement of major focal points found along key axis. Children run carelessly through the allées and families jostle their way through crowds to gain a front row view of a fountain as it springs to life while classical music accompanies their footsteps.

History has shown how an individual can shape the landscape, while the landscape itself then influences and shapes the individuals who reside there (3). The movie retraces the journey through the gardens originally prescribed by Louis XIV for members of his court and guests to remind us of the journey's original intent. It highlights the choreographed movement, pauses, views, and landscape details that conveyed his message of power and control. This historical reference provides a platform to illuminate and frame the cultural palimpsest that has evolved through time in this living artifact. The movie showcases the resilience of the designed landscape to respond to changes in cultural behaviors and norms.

LA in 1: Animating Pioneers of Landscape Architecture

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Keywords: Landscape History, Pioneers of Landscape Architecture, Motion Graphics, Animation

In "bridging" ideas within landscape architecture, animation can be utilized in communicating its history. The goal of this cross-disciplinary project was to "bridge" the gap between contemporary landscape architecture and its historical pioneers. We intended to communicate history in an accessible, mainstream perspective, thus using animation to create "unique opportunities for the exchange of ideas within landscape architecture" (CELA/CLAEC). In doing so, we emphasized pioneers in the discipline and developed active learners in the process.

In using animation, students can become multimedia composers, and not just consumers (Pea, 1991). Pea asserts that multi-media objects are important foundations for conveying a student's understanding for reasons including: "(1) Multimedia communication is similar to face-to-face communication, (2) Multimedia is less restricted than written text…, (3) Multimedia can place abstract concepts in specific context…, (4) Multimedia allows for individual differences in preferred sensory channels for learning, and (5) Multimedia lets you coordinate diverse external representations for different perspectives" (p. 59).

To create a "bridge" to future generations, landscape architecture needs to be change agents using creative means of outreach. The purpose of this submission was to celebrate the historical pioneers of landscape architecture using animation "shorts." In this case, faculty members in landscape architecture and motion graphics (the creative directors and producers), worked with landscape architecture and animation students (the composers), to use the conference film track opportunity as a final project.

This project provided benefits that are rooted in adult learning theory. Rogers (1969) noted that experiential learning can be facilitated when the student participates in problem based learning and has control over its direction. In this fashion, students were asked to complete short, one-minute, films as pieces of time-based media and communicate the impact of specific pioneers in landscape architecture.

Over the semester, collaboration within the project included: introducing landscape architecture to animation students, connecting animation students with content, engaging in critiques including faculty and students from both disciplines, and requiring final products that will lead to selection for a possible conference screening. This approach included storyboarding charrettes that created an appreciation for each discipline and a shared project pride.

The importance of the submission is linking the history of landscape architecture with contemporary communication means. In this case, student composers created, "unique opportunities for the exchange of ideas within landscape architecture."

Practice and Thinking on the Course of Architectural Design foundation for Landscape Architecture Specialty aiming to develop Design Thinking

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Keywords: Landscape Architecture, Course of Architectural Design foundation, Design Thinking

Nowadays, there are many problems in the education of landscape architecture in China. A prominent problem is till the graduation design period though students can find the problems through the research of the site and raise reasonable concepts and problem-solving strategy after the analysis, they cannot come up with more complete and detailed design in the final problem-solving stage. The fundamental reason is that students can better master the preliminary analysis of research by reasoning thinking in the design process, but cannot perform well in the formation of the design results driven by imagination thinking. It seems the lack of a link between the two stages or it can be seen the students' lack of ability to stimulate the imagination of thinking on the basis of reasoning thinking to produce a creative design to solve the problem. The basic course of architectural design is an important professional basic course of landscape architecture. One of the main objectives of the course is to cultivate students' rational and effective design thinking, because design thinking is the source of all design activities. In this paper, combining the author's teaching practice in basic Course of Architectural Design for the Specialty of Landscape Architecture in the third term, the author discusses how to use the reasonable selection of topics and how to adopt scientific teaching methods to train students and make them be able to find problems, analyze the problems, stimulate the imagination thinking and further complete the design well in the course of building design.

Research on Evaluation of the Relationship of Coupling Vitality and Space in Existing Residential Areas

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Keywords: Existing Residential Areas, Space Form, Vitality, Degree of Coupling, Evaluation

During the transitional period, cites have been in drastic reconstruction. original environment can no longer meet the needs of modern peoples' lives, also weakens vitality in existing residential areas. It is necessary to study on how to enhance quality of Existing Residential Areas and adhere to sustainable development. This paper studied existing residential areas of 80,90period in Dalian, aimed space and vitality as coupling tightly, based on city space theory, collaboratively used the two assessment methods of SD and AHP method, researched the correlation mechanism of the "vitality-people-space" three elements, proposed "vitality-space" coupling modes and objective indicators based on comparative analysis case, established evaluation system on degree of coupling vitality and space based on AHP, achieved space qualitative evaluation from date factor based on SD method, which provided new ideas on post-occupancy evaluation, enhance the quality of space and spatial structure optimization.

Sharing a Drink

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Keywords: Biomimicry, Morphology, Video

PURPOSE: Sharing a drink proposes a method of capturing action to create biomimicry derived morphology for form finding and design.

BACKGROUND: This project develops a biomimetic morphological approach to design, referencing Achim Menges, Zaha Hadid, Tobias Becker (breathing skins) and others. These architects look at intricacies of animal adaptation and structures to create new structures for the built world. This project engages with the biomimicry of actions, rather than structure, of an animal. The action of drinking becomes the form of the landscape. By documenting that action in video and using those video pieces to create 3D models and from them generating form, I test a dynamic biomimicry bridging both the human and non-human users of a basic landscape resource, water.

METHODS: For the project - sharing a drink - I am installing wildlife monitoring video cameras and collecting video of animals drinking water. One will be installed at the Sevilleta National Wildlife Refuge, through a permit obtained to take video at an established wildlife drinker and another one will be at the Bosque School on a wildlife pond at the edge of the Bosque, sponsored by the BEMP (Bosque Ecological Monitoring Program, a K-12 statewide research and education program.) I am also creating video of human mouths drinking water. I am modeling the forms from the video to begin a design process looking at taking down Cochiti Dam. I use Rhino and Grasshopper to model the 3D forms, and pixel analysis in Photoshop to create image maps of the video footage. The design process will also involve mapping and quantifying the water coming into Cochiti Dam on the Rio Grande and presentation of speculative designs expressing where that water would flow and who would use it, if the dam were removed, through topography analysis and 3D modeling.

FINDINGS: This is an experimental approach to form finding, looking at how to use action in the landscape to derive form for proposals. The findings will be limited to delineating the process of deriving 3D form from an action, the software used and the process to move from the capture of movement to the development of form.

IMPORTANCE: This process is a possible way of moving beyond static observation of site and using the medium of video, usually used for presentation, as a design tool. The movement documented through video could be scaled up or down to create more input for design.

https://vimeo.com/187249858

The New Landscape Declaration [Documentary]

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On June 10-11, 2016, the Landscape Architecture Foundation (LAF) convened a diverse group of preeminent and emerging leaders for The New Landscape Declaration: A Summit on Landscape Architecture and the Future. Inspired by LAF's 1966 Declaration of Concern, the Summit featured 25 "Declarations" from key thought leaders and nine thematic panels, taking a hard look at whether the landscape architecture profession has fulfilled its promise over the last 50 years and how it can effect change looking toward the future. The Summit drew 715 attendees, coming from as far away as China, Argentina and Australia.

Through interview footage and clips from the Summit, this documentary highlights key themes from this critical, provocative, and inspirational examination of the role of landscape architecture in addressing the challenges our time and the next 50 years.

Humanism, interdependence, and concern about climate change were ideas that ran through most of the declarations and discussions. Other common themes were the increasing importance of cities; how landscape architecture can contribute to managing and preserving vital resources like water, food and biodiversity; the importance of integrating communities into the design process; and how to communicate the value of landscape architecture to the broad public.

Interviews include James Corner (James Corner Field Operations), Christophe Girot (ETH Zurich), Randy Hester (Center for Ecological Democracy), Alpa Nawre (Kansas State University), Mario Schjetnan (Grupo de Diseno Urbano/GDU), Martha Schwartz (Martha Schwartz Partners), Kongjian Yu (Peking University) and others.

Link to trailer: https://vimeo.com/182116329
Link to full documentary: https://vimeo.com/181628669

The Imperial Garden Construction of Early Qing Dynasty from The Perspective of Emperor Kangxi

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Keywords: Kangxi, Gardening, Royal Gardens, Construction

This paper describes the garden construction by Emperor Kangxi in early Qing Dynasty, enumerate the historical data of garden construction by Emperor Kangxi, proves the landscape performance of Kangxi so as to provide the basis for research gardening ideas of Kangxi.

Under the attention from the historical point of view, the imperial garden construction of early Qing dynasty from the perspective of Kangxi were very rich, including the full garden creation that Kangxi involved directly, and additional build of part of the old garden pavilion. It's pity that the relatively complete gardens Kangxi left us is just summer resort which is located in Chengde, built in Kangxi forty-two years (in 1703). The size and the pattern of summer resort had still keeping Kangxi's style, and was added a lot of new attractions after Kangxi time.

The gardening activities of Kangxi was on his avenue of governing. After unified national homeland basically and stable regime, Kangxi developed the cultural policy of governing the country. When Kangxi was just seventeen, he had declared to govern the country by Confucianism, and garden activities had become an important way of culture governing of kangxi. In the first month of Kangxi twelfth year (1673), he paraded the military capacity of the eight banners at Nanyuan, of Emperor Kangxi twenty years old began to form the basic knowledge of the function of the royal gardens. In the kangxi sixteenth year (1677), He organized the expansion of the Xiangshan（Fragrance Hill） palace, which developed into the famous "Jingyi garden"(meaning Garden of Tranquility and Pleasure) lately; And during the north tour this year, he constructed the Kara River Tun palace in the southwest of the Rehe. this is the great scene around the Rehe area, it was known as the small Jinshan in Jiangnan. So, we can conclude that Kangxi sixteenth year marked the beginning of the extraordinary garden activities of Kangxi. Seven years later, Kangxi came back to Beijing after the South tour for the first time, then he started to build the Changchun (meaning Everlasting Spring) park in western suburbs and completed it at Kangxi twenty-sixth year (1687), Changchun park became the most famous garden in northern China at that time.

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