INCITE CHANGE | CHANGE INSIGHT
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Perceiving Place through Illustration Narrative

Jennifer Britton Montana State University

*keywords: Cultural landscape, design theory, art theory*

In landscape architecture pedagogy and practice we look out onto place and learn an environment through analysis of physical, biological and cultural data. This information provides the diagnostic ground to identify constraints and opportunities in our planning and stewardship (LaGro, 2013). To further establish observations we also employ the tactic of drawing plein-air, a process of “knowing a place” (Usk, 2014) through location-art as record of time and area. Yet, these evidence based investigations overlook the designer’s role as interpreter and synthesizer (Spinn, 1998; Wallach, 2005). To fully address societal requirements and better understand locality, designers and planners must challenge themselves to authentic exegesis of landscape by revealing personal biases.

Toward elucidating perspective and enabling transition from observer/drawer to critical interpreter, this qualitative investigation looked at an alternative interpretive approach through symbolic delivery (Chandler, 2002; Sebeok, 2001). Utilizing narrative art, a visual communication device commonly referred to as illustration, this research created visual images expressing universal cultural truths and aspirations as witnessed in Montana’s landscape. Two methodologies comprised this study: 1) a literature review of illustration history and technique to discover narrative development (Eisner, 2008; Shulevitz, 1985; Sullivan, 2004), and 2) a case study of Montana’s cultural landscape in an illustrative folio format. Akin to cartoonist journalism (Hedges, 2012; Sacco, 2012), this body of work visually conveys through mixed-media an editorial of phenomenological experiences witnessed, remembered, and imagined. To accomplish a deep examination, artwork focused on illuminating the interpreter’s perception of community values, social relationships, ambiance, curiosities, fantasies, and life conditions.

This inquiry found that organizing illustrations into “short-story” single still images allowed for concise development of universal symbolic touchstones while also creating a highly condensed “place-story.” Furthermore, distilling complex values and perceptions into visual representation created an opportunity for semiotic analysis, thus allowing for veracity testing. As a final outcome this study developed a viable methodology to illuminate anecdotal information and in evaluating the quality of the interpretation.
Applications of Geodesign

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keywords: Geodesign; interdisciplinary; cartography; digital drawing; landscape representation

The relatively new term and practice of ‘geodesign’ has experienced a recent surge in its development and potential to reshape the planning and landscape architecture disciplines. Evidenced by the ongoing codification of a geodesign ontology, curricular integration and course development in existing design and planning based programs, launching of new geodesign-focused collegiate programs, increases in geodesign themed academic and professional conferences, and the proliferation of scholarly publications, geodesign is well poised to become a keystone component of the disciplines. Simply put, geodesign encompasses a method of applying systems thinking in an effort to alter geographic contexts (Wilson, 2014), or most notably, “changing geography by design (Steinitz, 2012).” Further, geodesign can be applied as a mechanism to inventory, analyze and/or project a future state of affairs for geographic space (Goodchild, 2012). This process requires collaboration amongst the design professionals, geographical sciences, information technologies, and the people of the place (Steinitz, 2012). As a result, geodesign is an inherently complex process; one that is collaborative and transdisciplinary, systems focused, multi-scalar, technologically dependent, data-driven and data productive, iterative, adaptive, evaluative, impact-based and solutions orientated. Corollary, new tools and methods for operationalizing geodesign based research and design are continually being developed to advance geodesigns reach. Examples abound, this panel highlights four distinctly different geodesign-based bodies of work that are aimed at solving key real-world issues in landscape architecture and planning, illustrates contemporary unique and innovative methodologies, and discusses cutting edge approaches to its application.
**Event-Specific High Resolution Aerial Photography: Visualizing landscape change**

**Brian Davis** Cornell University

*keywords: landscape change, aerial photography, performance, visualization*

In the last fifty years satellite and aerial photography have developed into a potent tool for analyzing landscapes. This trend has increased tremendously in the last generation with the ubiquity of these images through Google Earth, the USGS, USDA and NASA. However, the production of these powerful images largely remains in the hands of large state bureaucracies and private corporations, with their own implicit biases, assumptions, and limitations. Similarly, for decades experts in the fields of geomorphology, geography, archaeology and forestry have worked to develop ways of capturing their own aerial photography, either from small, low-flying charter planes or using kites, balloons, and recently drones, to hoist cameras into the air. This paper will present the initial results of a new, related approach coined event-specific high resolution aerial photography (ESHR).

ESHR draws on pre-existing aerial photography techniques and theory advanced by scholars such as Nigel Thrift, Emma Waterton and John-David Dewsbury who show that representations of landscape can be performative in their own right. Using lo-tech kites and balloons, the methods are finely tuned to specific conditions. Not only must the intended event itself be occurring, but the wind direction and speed, the available light, and the body of the researcher become equal participants. This paper will focus on a case study to present this ESHR approach, specifically looking at the Troy, NY Hudson River waterfront and the combined sewer overflows occurring in the urban landscape. In this case, actual plumes of sewage entering the Hudson are photographed, and these images are synthesized with more abstract data on water quality and event frequency. Comparisons of specific instances are then visualized.

Rather than a photograph being produced by an invisible satellite and then stitched into a seamless image of the world by an algorithm to be downloaded by the researcher, they must get out in the landscape, attracting kids and encouraging folks to stop by and have a conversation about landscape, the changes they undergo, and the importance of studying them in an engaged and continuous way. These images can then be synthesized with other forms of representation such as GIS and data visualization to offer a more nuanced understanding of complex landscapes. Visualization of landscape change at multiple operative scales is one powerful method for communicating complex information clearly that promises to help bridge existing divides between different technical disciplines, and specific publics affected by these dynamics.
De-Coding Temporary Gardens

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**keywords:** Temporary gardens, landscape, urbanism, art, expression

Temporary gardens are a recent phenomenon, quite unusual in earlier cultures.

In the last 15 years temporary garden festivals have provided a heterogeneous bunch of designers the possibility to express their opinion in the vast landscape debate.

In a similar time-span temporary gardens as well as other forms of temporary urbanism have opened new venues in re-thinking and strategizing urban public space.

But what are temporary gardens? Are they relevant in the debate of contemporary place making?

Combining recent garden and landscape conceptualizations with notions of temporariness, should help us defining what temporary gardens are.

Research on a number of case-studies finds that temporary gardens range from guerrilla interventions that can be as small as seed-bombs to pop-up gardens; portable, movable and nomadic landscapes; urban installations, often devoid of any type of vegetation, or using fake nature; “show” gardens displayed at garden festivals. They respond to the idea of garden or confined landscape not because they contain “natural” elements (such as rocks, vegetation, water) or because they are solidly rooted on ground and growing. Their physical lifespan is limited, but their images and concepts can last and circulate for many years, activating ideas that in turn generate contemporary spaces.

Here it is argued that we can distinguish temporary gardens from other forms of temporary interventions more for what they say – as they specifically aim to express the interaction between mankind and nature or generically the environment – rather than from what they contain or the physical form they take.

This research aims at understanding how temporary gardens contribute towards advancing contemporary landscape architecture research and practice and the emerging discipline of temporary urbanism; lastly their relevancy in the debate of contemporary urban place making.

To do so the paper dissects works implemented worldwide by various artists, landscape architects, gardeners, sociologists, grass-roots organizations, designers, and, last but not least, communities and citizens that wish to engage the public realm.

Paper claims that temporary gardens’ concepts expressed and strategies employed, which generate space, are abstracted from various sources and re-interpreted: the landscape architecture discipline; garden-art conceptualizations; Avant-garde art movements ranging from Land-Art and Earth-Art to Pop-Art and Minimalism; contemporary practices of temporary urbanism.

Temporary gardens are “hybrids”, born from a re-configuration of loose codes generated by those instances.
Sensual Landshapes: Shaping new designers for haptic landscape projections

Leonard Yui Roger Williams University

keywords: Media, Pedagogy, Design Education, Digital technology, digital media

“The optical eye merely brushes the surfaces of things. The haptic, or tactile, eye penetrates in depth, finding pleasures in texture.”
- Claude Gandelman

The methods propagated in digital media courses over emphasize the procedures of technical tools and preconceived products that burden students with rote and unnecessary information. Most critical is the minimization of joy, creativity and imagination in order to communicate tools that are rudimentary by nature. This paper shares assignments and student works based on two radical assumptions, in order to engage creativity and delight for both student and instructor, while achieving technical goals. The first is that students are already fluent in a digital literacy before beginning the course and thus require creative guidance and application, not technical details. Second is that students are already capable of engaging complex haptic experiences and thus largely require guidance on the means to digitally communicate, project and reflect on works.

Inciting change in “media” toward a more contemporary look and relevance to emerging design processes requires a challenge to the old model of teaching technology. The time saved allows an instructor to share key tools that mimic, even synergistically integrate, analog instruments that also provide more personal time to learn, trial and experiment with deeper conceptual inquiries. Such methods provide students with lasting impression about new skills, as well as an opportunity for an instructor to engage in higher level dialogs - moving from an emphasis in “how,” to “why.”

The majority of the paper describes five creative assignments for a course in landscape media to early design students that sought to translate aesthetic theories into visual prompts - allowing students to individually interpret and provide a level of conceptual rigor in their expressive responses. They learned to use the digital tools as an imaginative device for thinking, feeling and shaping their design projects. Many assignments considered the integration of analog and digital tools as part of the pedagogical process and realized a more meaningful product. Intersecting the senses of sight, sound and touch with the common architectural expressions such as diagrams and perspectives led to rethinking normative illustrations and projections of space.
Insight: New definitions of web and socially-mediated landscape architecture groups

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keywords: Social Media, Landscape Architecture, Communication, Technology

Scholarly literature examining user generated content and exchange, and the exponential growth in web-based media use associated with Web 2.0 applications during the last decade suggests new Insight into the relationship between landscape architecture, its acolytes, practitioners, and educators (Centola 2010). These new Insight originate within the networks for knowledge, data and information exchange, which are, in turn, grounded in our built environment (Gabi 2006). The knowledge exchanged through this network creates meanings, derived from the activities and values of its participating social groups (Healey 2007) Hewitt et al have described the relationship between landscape architecture related organizations, educators, and practitioners employing web-based and social media techniques as clustered, interconnected, small, close-knit groups (Hewitt, Taylor, Nassar 2011). They suggest differentiate participant topical interests and geolocations globally related to user demographics, suggesting place-based meaning formation, and optimal communication periods. Their work suggests that professional groups are defined by disproportionate mixes of similar topical interests, clustered around metropolitan geospatial contexts (Hewitt, Nassar, Brooks, Taylor 2013). No work to date, however, has examined very large data sets related to landscape architecture professional Web 2.0 applications.

This paper presents findings from web-based analytics derived from the American Society of Landscape Architecture national website and social media data, which geolocate clusters of landscape architects and other user/participants, characterize group identities, lexicographically and temporally. Six surveys were conducted over different periods of time: from yearly to quarterly, monthly, weekly, daily, and hourly data to further differentiate the millions of users, activities and topical interests according to cor relational chronologies

Preliminary findings suggest that:

• Regional professional groups have distinct identities defined by disproportionate mixes of similar topical interests.

• Professional identities in social media cluster around metropolitan geospatial groupings globally and in the United States

• Web-based and social media users identified with these groups exhibit similar “framed identities” globally and in the US.

• Web-based and social media users associated with sustainability in the US exhibit unique “framed identities,” across major metropolitan areas

The findings offer valuable Insight into geospatial and lexicographical delineation of landscape architecture related groups and their similarities and differences, suggesting educational applications related to curriculum and program development.
Visualizing Contours: Translating physical terrain models to contours through 3D scanning

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Vincent Cellucci Louisiana State University

keywords: 3D Scanning, Terrain Modeling, Site Grading, Contours, Grading Plan, Visual Communication

Access to 3D scanning technology provides a new avenue for discussing and articulating the concepts of site grading. The implications are two-fold, benefiting both academic and professional practitioners of landscape architecture.

Traditionally, this technology was difficult to obtain (primarily due to price restrictions) and prevented its incorporation into landscape curriculum and professional workflows. More recently, the precision and speed of these tools have increased while the costs have dropped significantly, and in the case of the free smartphone and web app ’123D Catch’, the cost of creating a workable digital model is almost free.

From a pedagogical standpoint, 3D scanning of terrain study models can be a valuable tool for visualizing the intricacies of grading and contours. Most courses utilize a variety of approaches--accounting for different learning methods of students--for teaching grading and hydrology concepts. The utilization of 3D scanning provides another viable approach for visually communicating information that will be incorporated into grading plans.

An example workflow would involve students creating scaled terrain models from a soft media (clay, foam, etc.) and scanning the results with a 3D scanner. The resulting digital model can be opened in a 3D modeling program (Rhinoceros, 3DS Max, Sketchup), scaled to actual size, sliced into contour lines, and exported to AutoCAD for refinement. The primary advantage of this approach for teaching purposes is the potential for students to create landforms or structures that manipulate the terrain in an informed way. This method captures students gestures contained in the analog model while they are still learning to translate them into a technical grading language. This teaching and learning method creates contours that are instantly realized after student models are scanned and contours generated (a quick process). It reveals the technical plan within the proposed study model.

From a professional standpoint, 3D scanning has potential as an emerging tool for automating the translation of study models to conceptual grading plans. Projects that involve significant sculpting of the land, and thereby multiple study models, can easily be documented and/or manipulated digitally and converted to CAD contours.

Using 3D scanners for professional and pedagogical grading applications is only one example of the larger concept of capitalizing on the new availability of this technology. Leveraging the improvements and capabilities of similar technology will influence the Landscape Architecture discipline and profession as it moves forward with innovation.
Exploring Ecological Legibility through Restoration Tourism

Andrea Galinski Louisiana State University

*keywords*: ecological restoration, legibility, visualization, tourism

The potential domain of Landscape Architecture is expanding beyond its traditional roots in garden design through pursuit of performative landscapes and ecological infrastructures. Today we face unprecedented challenges of global climate change and increasingly complex systems of environmental management. However, far too often these are left to the stratagems of scientists and engineers, when the complexity, ambiguity, and interdisciplinary nature of our challenge calls for the knowledge base and skill set afforded through design practice. In response to this disconnect, a LSU 3rd year undergraduate Landscape Architecture studio attempts to facilitate an exploratory collaboration between designers and practicing coastal scientists in order to further environmental planning efforts in Louisiana. The studio’s aim is to investigate the communication strategies that convey Louisiana’s dynamic coastal landscape, and to make more legible the impacts of innovative coastal protection and restoration activities through the design of a “Restoration Tourism” program.

This studio is being developed in partnership with Louisiana’s Coastal Protection and Restoration Authority (CPRA), the state agency dedicated to coordinating protection and restoration activities across the coast. In response to our land loss crisis, the state has invested billions of dollars to nourish our barrier islands and sustain our coastal wetland ecosystems; however, the direct results of these projects are often either located in remote areas, or will have long-term benefits that are disconnected from people’s everyday lives. Thus the studio’s goal is to create a framework for a regional program on “Restoration Tourism” in order to better communicate the large-scale landscape processes and coastal restoration activities through a curated experience demonstrating action on the ground.

The first portion of the studio focuses on creating a narrative of regional coastal change and adaptive environmental management, while the second half turns toward making legible ecologic change at the site scale. Students create didactic maps, exploratory field guides, and other visual tools that both provide a framework for the program, as well as serve as vehicles to analyze the form and function of the massive coastal engineering projects undergirding our natural and built systems.

Secondly, students investigate in greater detail various restoration and protection projects (such as marsh creation, barrier island, and hurricane protection) and create site-specific interpretive interventions and experiential datums to register the profound but often invisible landscape change.

Through the development of a “Restoration Tourism” program, the studio makes coastal processes and protection and restoration project outcomes more legible in the landscape.
Mapping Hyperobjects

Brett Milligan University of California - Davis

keywords: photography, sedimentation, anthropogenic deltas, dams, drone mapping

Timothy Morton defines hyperobjects as “massively distributed in time and space relative to humans.” Morton posits that global warming, plutonium 239 and plastic bags are hyperobjects; things we are attempting to come to terms with on terms that are not our own. Sediments stored within global dam infrastructure are here proposed as another hyperobject. Approximately one third of all sediment formerly bound for oceans is now trapped in dam reservoirs, with a sum total of 100 billion metric tons of sediment currently stored behind dams. This altered hydro-geologic migration pattern is tectonic in scale and effect.

This presentation will discuss techniques used to map and visualize spatial relationships of dam infrastructure and sedimentation. Research methods were selected based on scales ranging from the global to individual reservoirs and include the use of a variety of mapping, programming and imaging platforms, such as geographic information systems, Rhino/3DS Max, remotely piloted aircraft (RPAs/drones), aerial photography and open source coding. Visual results from the first round of these investigations will be presented, in the form of images, diagrams and maps.

At a regional scale, this research focuses on the Pacific US states, with particular emphasis on California. California has a unique sedimentary signature due to its extreme climate variability, extensive hydraulic mining that occurred during the gold rush years, and its massive system of water infrastructure. In the last 100 years, most of the excess sediment from hydraulic gold mining has since worked its way through the state, and an overall sediment deficit is anticipated due to the wide network of dams now in place. This presents a range of important design and management questions and the purpose for the study.

Early in this study it became clear that very little data currently exists on sedimentation in California’s system of reservoirs, thus prompting the search for practical techniques to assess sedimentation. The study arrived at a method that seized opportunities within the state’s current drought. With reservoir water levels at near record lows, an event-specific opportunity opened to image some of the state’s anthropogenic deltas now temporarily exposed. Drone imaging and open-source applications were used to map these normally submerged terrains. The images attempt to take stock of sedimentary volumes, but also communicate across much broader realms; those of radical landscape alteration; the sublime; vulnerability; and the emergence of a new vernacular of landscape photography.
In Motion: (Re)Imaging landscape representation

Windy Gay University of Arkansas

keywords: Representation, Motion, Film

Over the last decade, landscape architecture theory has been grappling with the notion of time and how it informs our designed and (un) designed landscapes. Many theorists assert that representational techniques will evolve through innovative and creative use of new technologies. There has been a call to explore the vast new technologies that exist, such as 3-D modeling, video, multi-media tools, and animation tools, and to incorporate them into the ideas and practice of landscape architecture. As of yet there has been little exploration of these time based mediums as tools to represent designed landscapes, neither for discovering design ideas, nor as a method of creatively expressing design intentions. This project explores the potential of time-based mediums in representing designed landscapes. This new approach does not devalue or abandon traditional methods, but expands on them.

Several important steps are taken to evaluate the potential for moving images in the representation of landscape architecture. First, a review of conventional representation reveals the advantages and disadvantages embedded in each. Second, a thorough exploration of the distinction between motion and stillness, as well as the way motion and stillness occur in landscapes, guides the formulation of ideas about the importance of motion in landscape representation. Next, investigations and analysis of current moving images found on community site, such as YouTube and Vimeo, generates substantial evidence of the power of moving images and their ability to creatively and innovatively represent landscape architecture.

The final component of the project tests these ideas using a past landscape design project, previously represented using conventional techniques (plan, section, diagram, etc). The result is a five-minute animation constructed primarily in Adobe AfterEffects. The animation successfully articulates the potential embedded in moving images. In addition, the study acknowledges the obstacles that such a shift could produce within the education and practice of landscape architecture, and offers several ways to overcome those obstacles.
Purpose: This paper describes a digital data mapping and visualization project which was developed as part of the CityLab workshop, where new design students are given the opportunity to explore and document urban landscapes. The pedagogical approach, data collection techniques, and student work that were produced as part of this project are presented for discussion, exploration, and academic review.

Background: The primary goal of this project was to test the potential of social media as a format for capturing and cataloging information about urban spaces and landscapes. Traditionally, a site visit has yielded a singular, specific set of observations and data which reflects one individual's perspective and viewpoint. In contrast, the use of social media can allow the participant to quickly collect, sort, and visualize the data, observations and experiences of several people during multiple visits to several sites.

Methods: Over 4 days, groups visited urban landscapes and used smartphones to take photographs, and document their observations and experiences. Social media apps were used to collect site-specific data such as location coordinates, date and time, and other location information. Then, each group used a workflow which allowed them to overlay their geolocated photographs on a digital map, with each photograph appearing the physical location where it was taken. These maps were presented in a discussion about each group’s physical route, experiences, and observations.

Findings: The data collection and mapping process of several groups are presented and analyzed, along with the resulting visualizations. The use of social media as a mapping tool demonstrates that commonly-found digital devices such as smartphones can be used to collect and broadcast data attached to spatial location and experience. Students who participated in the social media mapping project quickly created compelling visual arguments which suggested broad patterns of human behavior and movement, improving on prior data captured by other analysis and visualization tools.

Importance: Spatial data collection, mapping, and visualization is an important part of the landscape analysis and design process, yet it is frequently considered to be a complex workflow which requires significant digital expertise. This project demonstrates that new students are able to use commonly-used digital devices in facilitating the gathering and visualization of complex data. This workflow and its results can incite further dialogue into patterns of visitation and usage of urban landscapes, building a deep and diverse knowledge base of information to draw upon as part of the design process.
Barriers to Adoption and the Constraints of Distributed Design Education in Landscape Architecture

Benjamin H. George Utah State University

*keywords: Online education, design education, instructional technology, studio education*

Online education continues to gather pace in higher education as universities react to changing trends in society, technology, education, and administration (Christensen & Eyring, 2011; Yuan & Powell, 2013). Distributed (online) design education may provide landscape architecture programs with increased scalability, new revenue streams, and chances for pedagogical innovation (Bender & Vredevoogd, 2006; Ham & Schnable, 2011; Kvan, 2001; Radclyffe-Thomas, 2008). Despite increasing adoption in other fields, and two decades of research on virtual design studios, distributed design education in landscape architecture remains nascent (Bender & Good, 2003).

To better understand what factors account for the lack of adoption of distributed design education in landscape architecture, a national Delphi study was conducted with a panel of landscape architecture faculty to identify the critical barriers to faculty adoption of distributed design education. The results of this study suggest that the critical barriers to adoption focus on the translation of the studio to an online environment, social factors, and faculty compensation.

The results of the survey are compared to an analysis of the reported constraints of distributed design education in the literature. This analysis reveals that the existing research fails to identify many of the critical barriers to adoption, but rather has examined issues that the faculty panel considered to be of lesser importance. This disconnect suggests that much of the research on distributed design education has focused on refining a pedagogy and product that may not be palatable to most landscape architecture faculty.

The results of this study lay important groundwork for accelerating research on distributed design education by more accurately identifying the critical elements of pedagogy and technology that need to be refined or overcome. This will also enable researchers to better assess the effectiveness of distributed design education. Finally, this work will provide faculty and administrators with a more comprehensive understanding of the merits and challenges associated with distributed design education.
Building Collaboration and Communication Skills in Design Studios

Kim Douglas Philadelphia University

*keywords: interdisciplinary collaboration*

A college graduate must have the skills to excel in the workplace that extend beyond their discipline including the ability to think critically and creatively, communicate effectively with a diverse audience, and work collaboratively. We believe these skills must be explicitly taught in Landscape Architecture and one effective vehicle is service-learning studio projects. Research indicates that “Collaborative learning occurs when students and faculty work together to create knowledge...It's a pedagogy that has at its center the assumption that people make meaning together and that the process enriches and enlarges them.” (Mathews 1996, p. 101)

The purpose of the study was to define collaboration in the context of an interdisciplinary design studio and the benefits for student learning. In order to develop these skills we developed an interdisciplinary studio for 4th year landscape architecture and architecture students to provide the opportunities for collaboration in a safe academic setting. The studio included outside consultants, community members and liberal arts faculty. By broadening the context in which design decisions are made, we had the opportunity to build awareness of the kinds of collaborations that are possible across the profession, community and disciplines.

Surveys, collaboration rubrics, self-assessment, team assessment, readings and discussions were used to gauge student learning. Students also had extensive input from consultants and the client.

Methods:

1. Workshops for self-awareness and diversity training. These exercises emphasized:
   • Knowing oneself; • Communication skills, • Respecting the community’s vision

2. Instructors developed strategies to promote collaboration:
   • Developed set of guiding principles of collaboration and methods, • Team contracts, • Self-assessment questionnaires, • Assessment questionnaires of team members, • Varied interactions with professional disciplines and community members

3. Students were given opportunities for self-directed learning by working with the community and outside domain experts.

Findings:

• The studio work was enhanced by the interactions with the community and evident in the students’ passion, initiative, creative problem solving, improved communication skills, self-reflection and respect.
• The students were instrumental in educating the public about sustainable design and practices; the community was instrumental in expanding the students view of ‘designers’
• Students able to develop working relationships with outside experts and academics in other colleges
• Students gained the ability to think beyond traditional academic disciplines
• Collaborative activities such as peer critiques, discussion and skill sharing were successful due in part to our emphasis on ‘we’ not ‘I’.
• Physical space for collaboration critical
[processing] Resilience: Shifting orientations in design studio pedagogy

Julie Johnson University of Washington
Ken Yocom University of Washington

keywords: resilience, studio pedagogy

Over the past decade, resilience has emerged as a fundamental concept for directing the future of the allied design and planning professions. Furthering the paradigm of sustainability, resilience argues for a more proactive engagement of design and planning processes in the reality of complex and changing conditions, and positions responses to maintain and promote desired functions (Walker and Salt 2006). Most commonly associated with jurisdictional programming for climate action responses, the concept of resilience, in building the capacity to accommodate change, has even wider applicability and potential to alter many of the conceptual approaches and practices of our profession (Boswell et al. 2012; Calthorpe 2011). Scholars on the concept have laid the intellectual groundwork for developing strategies for resilient design, establishing rules and guidelines (Hester 2006).

Effective pedagogical approaches that engage concepts of resilience and strategies for practice through Landscape Architecture design studios need to be identified, tested and evaluated. This critical context draws upon pedagogical models for ecologically-focused design studios that address the ambiguous and adaptive studio learning environment and incorporate concepts and processes, temporal and spatial scales (Poole et al. 2002). We argue the pedagogical challenges for understanding the concept of resilience, and what it means to the way we teach and learn design, often stem from an inherent form-based orientation to design in early coursework, and that the nascent practice of design requires inclusion of a process-based orientation that is temporally framed and dynamic. How do we develop curricula that provide the foundations for the profession’s breadth while embracing and challenging its nebulous intellectual boundaries and rapidly encroaching future?

This paper identifies pedagogical approaches addressing resilience and its translation into design through evolving approaches tested over the past five years that incorporate theoretical explorations in seminar and lecture-based courses with practiced engagements in an introductory design studio. While the studio projects represent common practices, specific objectives include understanding the concept of resilience through temporally-based design actions, rethinking relations in socio-ecological conditions, and cultivating an aesthetic of resilience.

Reflecting upon the studio work, student evaluations and discussions, we find that appreciation for these core objectives has increased, but comprehension as demonstrated through student work remains mixed. This review has fostered development of other pedagogical approaches, to test a more explicit focus towards resilience in students’ design process and representations. We wish to engage session participants in discussing resilience-directed pedagogical shifts and outcomes in other Landscape Architecture programs.
Inciting Changes to Geodesign Education in Landscape Architecture – An Ongoing Case at Cal Poly Pomona

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*keywords*: Geodesign, Education, Landscape Architecture

Continuous advancement in geospatial technologies has increasingly attracted attention in landscape architecture toward geodesign. In recent years, efforts have been launched toward filling the theoretical, methodological and empirical gaps in geodesign research and practice (McElvaney, 2012; Steiniz, 2012). However, inciting real change to address latest development of geodesign somewhat falls behind in academic programs. Many old curricula in lack of up-to-date geospatial infrastructure bring challenges to educate students with latest geodesign skills to effectively support systematic design processes needed to solve complicated environmental and social issues.

This paper aims to provide practical experience and empirical evidence on what prioritized changes that academic programs can make in terms of geospatial infrastructure and curricula design in order to better prepare students for their future career in the big data era.

First, the authors conduct case study to investigate the gaps between geodesign experience offered by traditional academic programs, e.g., BSLA and MLA programs at Cal Poly Pomona and other academic programs, and latest geodesign practices such as those presented in the annual Geodesign Summit. Levels of geodesign preparation in academic programs are evaluated based on curricula design, faculty composition, facility and technology support, integrated design studio practice and other areas of pedagogy.

Second, the paper introduces the ongoing geodesign efforts at Cal Poly Pomona. A comprehensive geodesign agenda is supported through seeking funding, building geospatial information and technology infrastructure, transforming curricula at both undergraduate and graduate programs, constructing a big data environment, adopting multiple modes, i.e., face-to-face, hybrid and online, of instruction and learning, integrating research findings in design studios and strengthening community service and outreach efforts that highlight geodesign.

Third, the authors examine the preliminary impacts of different aspects of Cal Poly Pomona’s geodesign efforts on educating students in GIS, geodesign and traditional planning and design studios and improving students’ overall learning experience in landscape architecture. Course evaluations and social survey are conducted to collect data to measure participants’ preference among students who take advantages of relevant changes. Based on results of qualitative and statistical analyses, the authors expect to answer which changes should be prioritized in landscape architecture programs toward strengthening geodesign components in landscape architecture education. The authors end with discussion on challenges and obstacles involved in initiating such changes and point out future direction of geodesign education in landscape architecture and next steps of the study to provide longitudinal findings to further answer the research question.
A Rubric of Indicators for Assessing the Performance of Landscape Architecture Faculty

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Liska Chan  University of Oregon

Keywords: faculty, merit evaluation, performance standards, assessment

The performance of landscape architecture faculty can be particularly difficult to assess due to the wide scope and diverse activities of the profession. Faculty may contribute to the profession in many ways traditionally expected in professional schools, and/or they may engage in one or more modes of teaching, scholarship and service in the manner of academic artists, humanities scholars, natural scientists and/or social scientists. Applicable standards of performance can be drawn from anywhere in the academy. The assessment of merit does not as readily fit into any one of the clearer and relatively simpler conventional models of performance accountability employed by the mainstay disciplines of the liberal arts and sciences. Landscape architecture faculty members may seem to “write their own ticket” in a self-referential, adaptive case-by-case ways that can be seen as unaccountable to widely recognized and understood expectations of academic excellence. Such “free-form” or “ad-hoc” standards of performance can make personnel decisions difficult for Deans and Provosts and give faculty from other disciplines an impression that landscape architecture is a weak field without standards of excellence or where any activity might be valid evidence of achievement. This potential perception is part of the profession’s search for clear standing and stronger academic legitimacy (Chenoweth, 1992; LaGro, 1999) via stronger and better-articulated modes and expectations of scholarship (Christensen & Michael, 2014; Deming & Swaffield, 2011; Milburn et al. 2003).

In 2014 a new labor contract required our department to articulate comprehensive clear indicators for determining merit pay increases. The aim was to define readily measurable indicators to promote fairness and minimize capricious judgments by the Head. These do not apply to promotion evaluations but might bear upon promotion appeals. Our department had never undertaken this task because of the challenging, contentious and complex issues of vital interest to diverse faculty members.

We will present and discuss our adopted indicator lists for teaching, service and research scholarship and creative activity (RSCA). Within these categories we wrote separate lists of indicators for “does not meet expectations,” “meets expectations,” “exceeds expectations,” and “highest expectations.” For teaching, within each of these performance levels we listed indicators for demonstrated teaching success, curriculum development, course quality and student accessibility. For service, the common indicator categories were participation, leadership, committees, advising, and professional and community service. The RSCA categories were research accomplishments, creative accomplishments, awards and competitions, grants and other funding, conference presentations and published work.
Out of the Classroom, Onto the Roof: A panel discussion of five LA programs’ use of green roofs for research and teaching

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Mark Boyer University of Arkansas
Bruce Dvorak Texas A&M University
Lee R. Skabelund Kansas State University
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keywords: green roof, vegetated roof, green infrastructure, design education

Vegetated roof (green roof) pilot projects have been implemented on university campuses in response to faculty entrepreneurship, student interest in real projects and campus sustainability initiatives. Green roof design touches and breaks down the boundaries between landscape architecture, architecture, engineering, construction, marketing, ecology, and horticulture. These boundaries were the type which the Erasing Boundaries Symposium and subsequent publication (Angotti et al 2012) addressed. In particular the design-build approach to teaching landscape architecture uses the concept of “actionable research” (Haas and Springer 1998). If actionable research is “viewed as a reflective process of designing and implementing projects that address important issues in the local community” (Skabelund & Gabbard 2010) then green roof education and research can be considered part of a much longer tradition of active learning in design programs. Campus green roofs have the potential to educate practitioners, administrators, and the public along with our students.

ASTM standards have recently been established for vegetated roof design in the United States. What do these standards portend in landscape architecture education? Landscape architects are part of interdisciplinary professional teams implementing green roofs. Are we educating our students for their role? This panel discussion will examine the state-of-the-art for the five universities represented in terms of green roof education for graduates and necessary expertise as an area of practice. It is organized to address the following questions about the current status of green roof education in the represented landscape architecture programs:

1. What are the areas of knowledge i.e. design/implementation/maintenance needed in professional practice? Should landscape architecture programs attempt to meet ASTM or other guidelines to build expertise?

2. How can university-based research knowledge such as is represented in the panelists’ programs best be incorporated into green roof design?

3. Does university-centered green roof design, implementation, monitoring and maintenance build competitive competency for our graduates?

4. Should programs formally incorporate green roof education and if so, how?

5. How should we evaluate the green roof knowledge base that our students have acquired thus far to determine its usefulness for future graduates?
Landscape Architecture is a STEM Discipline

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Sean Rotar Purdue University

**keywords**: STEM and Landscape Architecture

“By all accounts, landscape architecture is a mature, distinct profession, closely allied with other licensed professions. Landscape architecture is a technically involved profession, affecting both basic environmental systems and complex systems in the built environment. Just as there is a need for functional highways and buildings in the built environment, there is a growing demand and recognition of the need for a safe and functional inter-modal transportation system, for safe playgrounds, for effective rehabilitation of disturbed ground, for land management that conserves water and reduces fire hazards, and an extended list of landscape architectural services affecting public safety and the security of property and financial investments. Increasingly, the profession of landscape architecture performs critical technical and management roles in the development and maintenance of the built environment. (Schatz, p.89)”

Despite this clear professional profile, on Federal lists critical to the advancement of landscape architecture education, research, and practice, landscape architecture is not considered a STEM (Science, Technology, Engineering, Math) discipline.

The ASLA Committee on Education (COE) is currently advancing the effort to ascertain ways to have landscape architecture recognized as a STEM discipline. This listing of STEM disciplines is managed by the Immigration and Customs Enforcement Division of the Department of Homeland Security, which periodically reviews proposals for additions to the STEM listing.

This paper will provide the preliminary rationale, professional history, and contemporary practices overview for making a case that landscape architecture is inherently involved in science, technology, engineering and math, and should be considered for this Federal registry of STEM disciplines. Factors to be presented include descriptors falling under the rubric, “Landscape Architecture is a STEM discipline because” which review aspects of current practice, professional education, and research.

For background to this assertion of STEM expertise, a brief history of how landscape architecture has evolved as a professional endeavor which has always used science, math, and engineering as a foundation will also be presented.

Contemporary examples of landscape architecture research and practice which fall within the realm of STEM will complete this review of important components necessary to advance this effort to have landscape architecture appropriately listed among the STEM disciplines. The metrics involved in the Landscape Architecture Registration Exam, the Sustainable Sites Initiative, and the Landscape Architecture Foundation’s Case Study Initiatives (CSI) are additional contributors in the development of this STEM initiative.
Is STEM Funding Leading the Profession Down a Slippery Slope?

Brian LaHaie University of Georgia

**keywords:** STEM Discipline, Humanities, Higher Education, Landscape Architecture

Purpose: The intention of this paper presentation is to highlight/expose the current national trend that encourages disciplines and curricula to define themselves as STEM-(Science, Technology, Engineering and Mathematics) based, and to assess the potentially negative impact that such a system imposes on landscape architectural education.

Background: The STEM to STEAM (adding the Arts) debate rages on. The pressure to find funding for academic programs is at an all-time high as state funding for higher education reaches an all-time low. But redefining our discipline, and our curriculum in hopes of federal funding may lead to a slippery slope.

Methods: A thorough literature search on the topic of STEM designation, federal incentives, and professional policies and positions including any position papers issued by ASLA, CELA or LAAB will be reviewed.

Findings and Importance: Alternative opinions would suggest that the discipline is one that relies heavily on innovation and creativity and that an arts and humanities-based education (as opposed to science and mathematics) is a better approach. Many of today’s most important writers and futurists would suggest that disciplines of all kinds need the creative abilities to adjust to changing conditions, to make creative realignments and to seek innovative solutions. This is the role of the artist, the architect, the landscape architect, the designer. No amount of funding incentives should rob us of our full creative potential and relevance.
The Whys, Dos, and Don’ts of Social Media in Design Education

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Matthew James  South Dakota State University
Benjamin H. George  Utah State University
Preston Parker  Utah State University

keywords: Social media, Collaboration, Communication, Technology

Social media has quickly established a pervasive presence in our inter-connected society. This extends to the contemporary classroom, where students are increasingly using new forms of social media in ever changing ways. While social media has been used as an educational tool in fields as diverse as math, history, and urban planning, it has often been used primarily as an experimental or exploratory device, rather than expressly used as a valuable pedagogical instrument (Jensen, Caswell, Ball, Duffin & Barton, 2010; Haller & Höffken, 2010). Student familiarity with these tools has been shown to facilitate better inquiry-based and collaborative learning (Boyd & Ellison, 2007; Katz, 2008).

Several instances of social media use in landscape architecture education have been documented in previous CELA conferences (Bussiere, 2013; George, 2013; James, 2013; George & James, 2014). In these cases, social media was closely integrated into design activities and tied to measurable learning outcomes. These cases also demonstrated the value and viability of social media as an education and communication tool.

Despite the promise of integrating social media into the classroom, it can be a challenging proposition fraught with pitfalls and inefficiencies. With the multiplying social media platforms available to educators, it is challenging to evaluate and select the correct social media platform that will engage students and facilitate learning without becoming a distraction or hindrance. Beyond being familiar with existing social media options, educators need a working knowledge of digital communication theories, such as media-synchronicity theory, in order to best select and apply social media in an educational setting (Dennis & Valacich, 1999).

This panel will discuss specific techniques and application of theories regarding the use of social media in teaching and communication, potential benefits to student learning and collaboration from incorporating social media, measured impacts of social media, and best practices for when educators might use social media in the classroom or in a project. At the conclusion of the panel discussion, attendees should be able to recognize studio and classroom settings that would benefit from social media use, properly select social media platforms based on educational/project needs, and effectively assess the pros and cons of using social media in their pedagogy.
Factors Impacting Students’ Decisions to Stay or Leave the Design Studio: A national study

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Simon Bussiere Ball State University

keywords: Design studio, Studio use, Learner participation

It has been suggested in recent years that student studio culture has experienced significant changes, and that contemporary design students generally spend less time in studio than their predecessors (Vowles, Low, & Doron, 2012; AIAS, 2004). What factors have been driving these changing attitudes? What role do generational characteristics play, and are modern students less willing to spend long hours in the studio because of the changing values and learning styles their generation shares (Howe & Strauss, 2009; Furlong, 2013)? Has the introduction of new technologies, which have facilitated mobile learning, collaboration, and design at previously unseen levels, contributed to declining studio use?

In order to preserve the value and legacy of the studio in landscape architecture education, it is important to identify what factors students consider in determining their use of the studio. To address this question, the authors conducted a survey of students at accredited North American graduate and undergraduate landscape architecture programs to identify and correlate social, spatial, pedagogical, temporal, and accessibility factors that contribute to a student’s decision to stay or leave the academic design studio.

The survey questions were generated through preliminary research utilizing student focus groups and faculty interviews at two accredited landscape architecture programs. The authors solicited student participation from every accredited program in the United States, and received a total of 190 completed responses from undergraduate and graduate students, including responses from over 20 states.

Several important findings resulted from the survey, including the existence of different motivating factors for studio use by non-traditional students, male vs. female students, and BLA vs. MLA students. Several initial assumptions were validated in the course of analyzing the responses. Technology access and instructor feedback during desk critiques, along with temporal factors, such as approaching deadlines, are critical factors for being present in the studio for the majority of students. The survey results also show that student ownership of individual space in the studio and the fostering of a sense of community are highly correlated to students’ decision to stay in studio. Because the study takes a student-centric perspective, it provides instructors and administrators with the likely consequences that may arise from social, spatial, pedagogical, temporal, and accessibility factors related to planning the studio environment.
How Did They Get Here? A National Survey on Student Recruitment

Michael Seymour Mississippi State University
Matt Powers Clemson University

*keywords: Recruiting, Students, Education*

Administrators, faculty and even students are being called upon to play a larger role in recruiting to the profession of landscape architecture. With limited budgets and many reports of falling student numbers, accurate information about effective recruiting techniques is essential to ensure a sound future for our profession. This presentation will explore recruiting from a student perspective via results of a national survey of current landscape architecture students. The survey examines how students learned about the profession, what attracted them, what factors influenced them to choose a particular program, what tools they used to learn about the program and profession, what obstacles they see to recruiting new students and how important rankings were in influencing their decisions. This data will be presented with a focus on information that programs can use to get results with limited time and money.

A prior regional survey was sent to eleven landscape architecture programs in the southeast region and results were presented at the 2014 conference. This prior pilot study suggested that students were often attracted by the creative aspect of the profession, that students usually visited the department and university website before making a decision but that university and program rankings were not highly influential upon their choices. The survey also suggested that costs were a major factor; students often mentioned in-state tuition as an issue that affected their decisions. But because this prior study was limited to programs in the southeast, the national survey is necessary to provide more conclusive evidence and to gain a more in-depth understanding of how best to recruit new landscape architecture students. The national survey will be disseminated early in the fall of 2014. Presentation of the survey data will focus upon the recommendation of best practices and actionable items for programs to consider in recruiting.
As the world grows more interconnected it becomes increasingly important for American and Chinese design faculty to understand the forces shaping design education, and resulting education changes, in each other’s country. These forces include the increasing interconnectedness and globalization of cultures, the growing number of design professionals engaged in international work, and the recent large increase in Chinese students attending American universities (1, 2) Most important, however, are the immense environmental and social problems that will confront current students in their careers and that their education must help prepare them to address.

This paper compares and contrasts American and Chinese landscape architecture studios at the University of Washington, USA and Huazhong University of Science & Technology, China and the experience of the authors who have co-taught as faculty and visiting scholars at each other’s institutions.

The case studies use student work from co-taught studios and seminars; student reflections; communications between students and faculty; in-class observations; and student interviews to examine how environmental problems, societal needs, cultural interactions, markets for professional services, new technological tools, and education philosophies and practices, etc. are reshaping contemporary design education in China and America. The paper draws general conclusions from the American and Chinese case studies about appropriate and responsible studio pedagogy.
Can Student Success in a Landscape Architecture Curriculum be Effectively Predicted?

Ryan Hargrove University of Kentucky
Ned Crankshaw University of Kentucky

keywords: Student performance, entrance examination, creative thinking

The undergraduate program in Landscape Architecture at the University of Kentucky (UKLA) uses an entrance examination to predict student success and limit enrollment. Exam administration began in 1975 and continues to the present. It includes three sections: (1) portions of the Architecture School Aptitude Test, (2) Differential Aptitude Tests for Abstract Reasoning and Space Relations, and (3) the Watson-Glaser Critical Thinking Appraisal. Reconsidering the program’s trust in the predictive ability of the exam and of its usefulness as an enrollment limiter led to a larger question: of the student data available, which indicators are most predictive of UKLA student success?

A range of student performance data before and after admission to UKLA was available. Pre-admission information included standardized college admissions test scores, high school GPA, and the department’s entrance exam scores. Post-admission data included completion or non-completion of the program, composite GPA, design studio GPA, and implementation sequence GPA. The department developed data records for 400 students beginning with students scheduled to enter the design studio sequence in 2004. Complete data records are available for 111 students who began the studio in 2004 up through those who graduated in May 2014. This corresponds with the graduating classes of 2008 – 14.

A Pearson product-moment correlation coefficient was computed to assess relationships between all available data sets. A correlation for the data revealed that high school GPA not the entrance exam was most strongly correlated with student success as measured by all three cumulative GPA measures (composite, studio and implementation).

Secondly, entrance exam scores were entered simultaneously with high school GPA and the standardized college admissions test scores in a multiple regression using both studio and implementation GPA as dependent variables. In both cases the entrance exam did not add significant unique variance.

High school GPA, because it is the product of multiple schools, was not expected to be the strongest predictor of student success and the results bring into question the value of the UKLA exam. Questions for department policy and research include the following. Are there processes beyond ranking students by high school GPA that will serve the admissions process? Should focus shift to a battery of creative thinking tests measuring both divergent and convergent thinking? Is high school GPA an indicator of intrinsic motivation and grit? Should the department value creative thinking, grit, or other measures?
Teaching Planting Design for Change

Ethan McGory  The Ohio State University

keywords: planting design, herbaceous perennials, planting resources

Through the history of landscape architecture, the bulk of plant material used by landscape architects has been relatively static and predictable in nature, generally existing with relatively little change in physical nature throughout the season: typically leaf out, blooming, fruiting, and fall color change at most. Planting design among landscape architects has traditionally leaned upon plants with fairly predictable habit throughout the year.

Environmental and financial concerns have led to a search for new approaches to planting design that require less maintenance (Dunnett and Hitchmough 2004) and replicate natural processes and habitat, leading to the use of native plants and naturalistic plantings. This in turn has spurred the use of a wide range of herbaceous perennial plants that were until recently rarely utilized or even available in the nursery trade. These plants often go through wide changes throughout a season. Plants may lie dormant for much of the season, change drastically in height and color, bloom for long or short periods. There is also a wide range in habit, color, and texture that change throughout a particular season. In order for the student or practitioner to make informed use of this new plan palette new resources and information are necessary. References that deal with plants as static objects w/ fixed heights, color, texture, etc. do not adequately provide the information needed to make fully informed design decisions. The student and practitioner often finds themselves stuck between resources and methods based on static, highly controlled plants and a demand for highly changeable plant material. If this knowledge is left only to the prairie or wetland specialist, the landscape architect loses the opportunity to fully explore the design possibilities inherent in these new plant palettes. Current technologies offer the opportunity to catalogue and disseminate a wide range of visual information that could greatly aid design professionals. This paper examines existing literature on planting design method and existing planting design resources and suggests additional resources and methods needed to fill the demands of contemporary landscape architects.
Design Education and the Brain: Examining the design studio through the lens of neuroscience

Ethan McGory The Ohio State University

keywords: Studio Pedagogy, Design Studio, Neuroscience

The design studio is the cornerstone of most architecture and landscape architecture programs in the US. This method of instruction has been admired and emulated by other disciplines for its ability to approach complex and open ended problems, encourage criticism and dialogue, examine and absorb precedent work, navigate heterogeneous issues, and explore the use of varied media (Kuhn 2001). The studio method has also been criticized for encouraging unhealthy work habits, excluding students from other disciplines, and defining success in a subjective relation to an instructor or juror’s world view (Koch et al. 2002). Because of its central role in design education, it is important to continuously re-examine the studio as a pedagogical method. Current research into the relation of neurology and learning are changing the way education is understood and practiced. Research in neuroscience offers a lens to examine the strengths and weaknesses of the studio method and point to new possibilities in design education. This study examines the design studio in landscape architecture and architecture education in light of new research in neuroscience and learning. The study reviews existing literature on studio pedagogy in light of the Annenberg Foundation’s report Neuroscience and the Classroom (2012) and concludes with a list of issues to consider in the teaching of studios and in the design of studio courses, points out strengths and weaknesses in the studio method from a neurological standpoint, and suggests alternative formats and methods for studio teaching that take advantage of current research in neuroscience. While wide variety exists in the implementation and organization of studio education, this study looks at studio education primarily as a problem/project based method that includes both one on one feedback from studio instructors, and group feedback from peers, and outside professional. The study also explores alternative studio models, and how they might better suit modern understandings of learning and neuroscience. The study looks specifically at the implications of neural network formation, emotional relevance, scaffolding, context, and imitation on design studio pedagogy. These topics have implications on the role of the instructor, the degree and delivery method of feedback offered, and project length and schedule.
Design Competition Pedagogy: Approaches and outcomes from the EPA Campus Rainworks Challenge

Mary Pat Mattson University of Illinois
Jessica L. Canfield Kansas State University

keywords: student design competition, epa campus rainworks challenge, design pedagogy, interdisciplinary collaboration

The purpose of the session is to share pedagogical approaches for integrating a design competition into studio teaching, and to describe the learning outcomes of that process.

Design competitions have had an historic, albeit controversial, role in professional design practices, but have played a less formal role in design education. However, a recent student design competition sponsored by the U.S. EPA, requiring academic advisors and interdisciplinary collaboration, presents a unique opportunity to provide pedagogical oversight and integration of formal learning processes into the development of design submissions. During its two year history, the Campus Rainworks Challenge, a campus green infrastructure design competition, has received over 300 submissions from design programs across the country. Given the high percentage of participation and great emphasis on the role of the academic advisor, there is an opportunity to examine the pedagogical impact of this particular competition.

Advisors of winning teams observed that the competition is playing an important role in expanding learning experiences; allowing for applied applications of design curricula to real sites, namely their home university campuses; providing a means to engage in current discourse on multifunctional landscapes and best management practices for stormwater, and forging dialog and collaboration among academic units across universities, an often desired but rarely executed practice. In addition they will address the impact the design competition has had on their respective programs including the promotion of student work and of the profession outside the program. They will discuss the teaching strategies supported by participation in the competition, how these strategies were shaped by contemporary pedagogical approaches, and how the competition generated some new experiments in design teaching and learning. Examples of key landscape pedagogical themes that authors will address include: the campus as a learning laboratory, application of environmental responsibility and stewardship, integration of landscape performance research, and interdisciplinary teaching.
Increasing the Availability of Natural Loose Elements for Young Children's Cognitive Play Behavior Stimulation and Enjoyment in Outdoor Preschool Environments

Zahra Zamani North Carolina State University

**keywords:** cognitive play, outdoor preschool, natural loose, behavior mapping, interview, young children

Previous studies have mostly compared the play value of manufactured structures, playground design, or indoor classroom features for children. While natural environments play a critical role in children's development, health, and learning, designers and educational policy makers often neglect including natural elements in outdoor play environments. Further research is required to compare the cognitive play opportunities of outdoor play environments on a smaller scale, including natural loose, natural fixed, manufactured fixed, and manufactured loose elements. Often neglected as an essential element to be included in the outdoor play, this research focused on the cognitive play value of natural loose elements for young children.

A unique outdoor preschool was selected that included diverse natural and manufactured, loose and fixed elements. In 12 observation sessions, 36 children aged four or five years were coded for cognitive play behaviors and the elements interacted during play. Sixteen rounds of observation were conducted in each zone, resulting in 6,801 data points. Rather than making inferences based on observations, 21 children were also asked about their play experiences.

The behavior mapping indicated that almost half of children's interactions with natural loose elements were dramatic play. Further, natural loose elements mostly supported constructive, exploratory, and dramatic play, compared to other elements. The mapping of children's interaction within the outdoor preschool illustrates the importance of including natural settings in an outdoor preschool to provide natural loose props, such as sticks, dirt, sand, and logs. Children mostly favored natural loose elements compared to other categories for their constructive, exploratory dramatic, and games with rules play opportunities.

This insight contributes landscape architects' decisions to incorporate economically and environmentally design solutions that develop children's cognitive abilities in early stages of life. The results suggest that including trees, bushes, groundcovers, sand, soil, or water encourages higher levels of cognitive play for children.
Landscape Architecture Programs in the People’s Republic of China: A preliminary inquiry

Mary G. Padua Clemson University
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Keywords: China, landscape architecture education

In 2011, the State Council of the People’s Republic of China (PRC) raised the status of landscape architecture to be the equivalent of architecture, urban and rural planning, and engineering; all are now considered in parity -- the so-called First Grade Academic Discipline. China’s urban experiment, fever and hyper-rapid urbanization since Deng Xiaoping’s reforms influenced today’s surge of nearly two hundred landscape architecture programs throughout the PRC’s higher institutions of education (Padua 2003; Yu and Padua 2007; Jost 2013). This research, while preliminary in nature, defines the variety of landscape architecture programs and types of awarded degrees. It is descriptive and essentially an exposé. Research methods include informal interviews and literature review. It describes the complex system of the PRC’s higher institutions of learning and where landscape architecture programs are currently “situated”; generally speaking these can be found in the following types of institutions: 1) with architecture in a comprehensive university; 2) in agriculture and forestry universities; and 3) in fine art academies. To help frame landscape architecture programs in the PRC today, it discusses the traditional “top” programs largely accepted by Chinese educators in landscape architecture; touches on the PRC’s top architecture programs, the so-called “old eight” (Wang 2003, corresp). The work also presents the most current ranking of the PRC’s landscape architecture programs (Ministry of Education 2012). A brief discussion about the top architecture programs is included as a way to frame design education in the PRC. As the first overview of Chinese landscape architecture education today, the work is preliminary and revelatory in nature, and a work in progress. It provides a fundamental understanding of the PRC’s system of higher institutions of learning and a “snapshot” of current types of landscape architecture programs and degrees offered there. As the first inventory and investigation of the PRC’s landscape architecture programs, it serves as a benchmark for future research. The work intends to provoke further dialogue from scholars interested in landscape architecture education in the PRC. The work also has the potential to inform or guide landscape architecture programs and their respective admissions committees in the USA who may be considering applicants with degrees from the PRC.
The LENSES Framework: A pedagogy for regenerative urban design

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keywords: urban, design, lenses, regenerative, biophilic, pedagogy, studio

Much recent work in the fields of urban design and landscape urbanism has been focused on the reclamation of natural areas and ecological systems from the deleterious effects of urban sprawl. While such efforts have demonstrable and sustainable benefits for the environment, questions arise as to the long-term suitability of this approach in reconciling the often conflicting interests of the social, economic and environmental systems at work in cities. In an effort to bridge these gaps and move beyond sustainability towards a more regenerative model for urban design and community planning that considers not only social and economic concerns, but also natural and environmental systems, the Institute for the Built Environment (IBE) at Colorado State University (CSU) has created the Living Environments in Natural, Social and Economic Systems (LENSES) Framework, which lays out a set of guiding principles for a more holistic approach to urban design and development projects. Still in its infancy, the framework had not yet been employed in a comprehensive urban design exercise in the fall of 2013.

In collaboration with the IBE, City of Fort Collins development officials, CSU faculty and staff and other stakeholders, the graduate students of CSU’s landscape architecture program took up the challenge in an early test case of the applicability of the LENSES Framework to a real-world urban design challenge. This paper will detail the pedagogy and outcomes of that introductory urban design studio, a core curriculum course for second-year graduate students that was built around the LENSES Framework and funded by a seed grant from the School of Global Environmental Sustainability (SoGES) at CSU. For the course documented in the following pages, the students considered the role of urban design in the Mason Street Corridor and its revitalization as an important corridor for transit, culture and economy.

The studio’s pedagogy was centered on the development of a design methodology and graphic metric based upon the LENSES Framework and situated within the context of the history and lineage of urban design. The analysis, design and evaluation of proposals developed by the students for the Mason Corridor were measured and tested against this metric at each stage and compared over time, resulting in a much more holistic thought process and approach to the urban design of the district.
Landscape Architecture Education in Turkey

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keywords: Landscape Architecture, Profession and education in Turkey

Turkey, which is a bridge between Asia and Europe, is one of the countries which has significant natural, cultural, and landscape features owing to its geographical location. Landscape architects have an important role in sustaining these features with their planning and design. Parallel to the developments in the world, the basics of landscape architecture in Turkey have started to form between 1930-1940.

In Turkey, landscape architecture education has started in 1968 in the College of Agriculture at Ankara University. Since then, studies in landscape architecture have been offered and advanced in several other universities under the colleges of “Agriculture”, “Forestry”, “Architecture”, “Fine Arts, Design and Architecture” and “Fine Arts”. Moreover, it is also taught in some vocational schools for a two-year certificate for landscape design technicians & draftsman.

During the progress and advancement stage of the profession after 1968, the graduates of the landscape architecture in different departments have developed different professional and occupational viewpoints. Therefore, the main aim of PEMAT (Landscape Architecture Academic Society), in which academicians discuss the discipline problems and course programmes of landscape architecture in Turkey, is to determine the mutual points in the landscape architecture education and define the future goals and policies.

The paper summarizes the emergence, progress, and advancement of landscape architecture professional discipline in Turkey. The curricula in the landscape architecture departments in Turkey have been evaluated and the current situation of the landscape architecture education is described. The purpose of the paper is to determine the differences between the landscape architecture in Turkey and in European countries and America. Why it is different from foreign universities; how it is different; and why it has to be different in Turkey will be discussed. In the process of globalization, what should be the future of landscape architecture discipline in Turkey is questioned. In other words, the landscape architecture, education and application and organization relationships and types will be discussed.
Defining Creative Project in MLA Education

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keywords: Design epistemology, design pedagogy, knowledge communication, MLA education, creative project

This study seeks to define creative project in MLA education in terms of its values, characteristics, and types. Currently, especially when MLA degree has become more comparable to a BLA degree, a great number of MLA programs in U.S. recognize creative project as a master level conclusive project approach, equivalent to a traditional thesis approach. However, the creative project approach faces two dilemmas. First, while both requesting reasoning and academic writing, the knowledge-application process that drives a creative project differs greatly from, or even contradicts with a scientific inquiry process that features a thesis research. This difference has been generating confusions among not only students developing creative projects but also faculties advising. Secondly, a fundamental question about creative project development, which is “what makes a creative project different from a normal studio project?”, has not been well answered. Neither research method textbooks expounding purely scientific research procedure, nor design method books assuming a linear knowledge application process, shed much light on these two dilemmas. Using logical argument as the major research method, this study constructs a model that explains the communication of design knowledge and design project. It argues that the characteristics of a creative project are spotlighted by aspects of intellectual autonomy, theory engagement, design process documentation and examination, new vision exploration, and research method embedment. This study prescribes four basic types of creative projects, which are (a) knowledge projective design, (b) strategic design for a complex site, (c) Utopian/visionary design, and (d) exemplary application of emerging techniques. These four types are exampled by the MLA projects previously advised by the author. This study not only aids students and faculties perfecting a creative project, but also informs the discussion of knowledge creation and knowledge communication in design disciplines.
Hybrid Landscapes: Transforming Philadelphia’s urban vacancies

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keywords: urban vacancy, student/agency collaboration, regeneration, civic engagement, reclamation, urban forestry, sustainability, stormwater design

The urban fabric of North American cities has been radically altered over the past few decades due to dispersed settlement patterns, economic downturns, political shifts, rapid suburbanization, and deindustrialization which has led to an excess of abandoned space in urban cores. The issues of urban vacancies and the processes that created them have been well documented in such seminal work as Stalking Detroit and Shrinking Cities. Much of this ‘leftover’ land is now in various states of decay and in need of reclamation; the time is ripe for creative and sustainable reclamation efforts. The economic realities of urban reclamation strongly suggests that today’s solutions to the vacant land problem must be resilient and phased over time; the cost of regenerating vast acreages of vacant land and the public’s desire to see immediate progress indicates that interventions must be carefully crafted, embraced by the public, and cost-effective.

As in many east coast cities, Philadelphia’s fortunes fell with the decline of industrial manufacturing after World War II. Exacerbated by Federal highway development and Federal housing policies that encouraged new development outside the city, as well as racial and political unrest inside the city, large areas of Philadelphia fell into disrepair. Today Philadelphia has one of the highest per capita vacancy rates in the country.

This paper will describe multiple innovative approaches to resolving Philadelphia’s urban vacancy problem through the work of landscape architecture students from the Pennsylvania State University and the work of several Philadelphia agencies and institutions such as Philadelphia Redevelopment Authority, Philadelphia Parks and Recreation, Pennsylvania Horticultural Society, Franklin’s Paine Skatepark Fund, and City Parks Association of Philadelphia. The work presented ranges broadly in scope and scale from the work of the City Parks Association that has acted as a catalyst for change by advancing visionary thinking about natural resources and open space in the urban community since the 19th century to the Penn State students’ site-specific proposals for reclamation through urban agriculture and forestry-based interventions. The common thread that binds these approaches is the act of combining ecological performance with open space programming resulting in hybrid landscapes that will be both productive and well suited for human habitation and interaction, in other words, hybrid landscapes.
Teaching Drawing and Design Process: Inciting neuroscience and psychological research

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keywords: Teaching, drawing, neuroscience, psychology, landscape architecture education

The new discoveries in brain functions that are taking place bring depth of understanding for professor and student of drawing. Thinking of drawing education as an interactive activity of brain and hand aids in the restructuring of exercises exploring how students might develop their drawing skills over time. This paper summarizes the areas of new research literature in Neuroscience and Psychology and offers the author’s reflection and insight on evolving examples of drawing exercises, theories, and applicable situations that he has undertaken when teaching landscape architecture drawing and design studios.

The last two decades has seen much research being done on the brain and made advancement around previous myths and misconceptions of how it functions. The fields of Neuroscience and Psychology are advancing their research through the help of fMRI technology and current brain scanning equipment to see the brain in action. They are researching conflicted situations ranging from Alzheimer’s to fighting anxiety. The equipment captures images of the brain displaying activated neurons and patterns participating to inform our body in producing certain behavior. In 1971, the psychologist Betty Edwards, wrote Drawing on the Right Side of the Brain. It became a best selling book selling sold more than 2.5 million books and introduced students to draw using a brain based method for acquiring drawing skills. Edward's significant success is in giving us insight into modifying the brain when learning to draw and acknowledging that the drawer’s mental perceptions had to be intervened in order to advance drawing skills.

More recently, scientists like Maryanne Wolf, Ph.D., Dr. Daniel G. Amen, and investigative journalists are publishing information about these discoveries explaining the management of the brain’s inner functions to get certain results. The literature is invaluable in acknowledging how the brain functions in learning offering vital options for the education of a landscape architect and a different strategy for teaching drawing and design classes.
Virtual Teams: Explorations in online studio collaboration

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keywords: Virtual Teams, Collaboration, Online, Face-to-face, Studio, Service Learning, Study Abroad

Both domestic and international design projects today commonly involve collaboration of professionals from multiple cities, if not multiple countries. Collaboration using online technologies can provide great cost savings as compared to travel expenses, but these technologies may also present some significant challenges for the participants. Because students will face these challenges as they enter the market place, introducing students to online collaborations while in school can better prepare them to succeed professionally.

In our experience, students tend to dislike team projects with classmates and we posit the following questions: What happens when they have to work in teams that are not all physically located in the same city, state or country? What are the opportunities and pitfalls for students working in virtual teams? In what ways are team dynamics affected by online limitations and what team building and communication skills are needed? What modes of communication do students prefer, and what modes are most effective? When virtual teams present to clients, is a fully online presentation delivery more satisfactory than at least some of the team being physically present?

In 2012, an initial online collaboration between a University of Georgia College of Environment and Design (CED) fourth year studio in Athens, Georgia and a fourth year CED studio in Monteverde, Costa Rica was conducted. A repeat of the collaboration was conducted in 2014. In both cases, teams composed of students from both locations developed design solutions for a site design project in Costa Rica. Each team developed its own structure, served a Costa Rican client, and self-assessed team performance. Team participants were generally satisfied with the experience, but specific concerns emerged: large team management, leadership models, communication method/effectiveness, and workload equity perceptions.

To assess preference for presentation delivery, third-year students served as surrogate clients for the team presentations. Half of the students observed the presentations in a mixed format: face-to-face with the Athens design team members but online with their Costa Rica team members. The remaining students were sequestered and observed the presentations of all team members fully online. While there initially appeared to be a slight preference for the fully on-line presentations, there was no statistically significant difference found between the two groups in 2012. This finding is consistent with other studies examining online versus face-to-face course delivery. Results from the 2014 presentations are in preparation and will be compared and discussed.
Assessing the Impact of a Study Abroad Experience on the Creative Abilities of Design Students

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Art Rice  North Carolina State University

keywords:

Researchers in the field have defined creativity as the ability to generate novel and useful ideas or solutions to everyday problems (Amabile, 1996; Sternberg, 1999). The development of an individual’s creativity is arguably one of the most important elements of design education. Research has also begun to explore the relationship of an individual’s creativity to an individual’s the diversity of cultural experiences. In the past individuals interested in becoming designers have taken “the grand tour”. More recently the concept of formalized study abroad programs have grown up in universities around the world and in the last few years the impact of exposure to other cultures on an individual’s intellectual and creative development has begun to be addressed by the research community. This paper reports on the results of a research project into the impact of extended design related study abroad experiences on aspects of student cognitive abilities and personality traits that have been shown to influence creative thinking abilities.

The study used a pre and post survey data to detect changes in cognitive and personality traits linked to creativity. All participates (sample size, n= 56) in this study were undergraduate and graduate students in a variety of design majors attending a major U.S. university. The students in the treatment participated in a design related study abroad experiences. The control group was randomly selected from students in the same disciplines who did not participate in a study abroad programs. A survey method was used to collect data. There were two correlated surveys. The first (pre-test) was finished before the students depart to their study abroad destination. The other (post-test) was completed at the end of the program before the students returned to the U.S. The pre and post test surveys both included four sections, background information (name, age, major, previous cross-cultural experiences. etc.), a section designed to measure convergent thinking (evaluated by Remote Associate Test), a section that measured divergent thinking (evaluated by Similarity Test) and a section that measured one of the NEO PI personality factors that has been shown to correlate with an individuals creative ability. Study findings identify the nature of the impact of the study abroad experience on specific creativity attributes.
The Value of Precision: Research and documentation of cultural landscapes

Matthew Traucht The Cultural Landscape Foundation

Keywords: cultural landscape, documentation, research, photography, values, historic preservation, landscape architect, landscape architecture, placemaking

As the field and scope of landscape architecture is growing at an unprecedented rate, broad and effective communication about the significance of cultural landscapes is increasingly warranted. The Cultural Landscape Foundation (TCLF), founded in 1998, endeavors to broaden the visibility of significant landscapes through diverse programming including documentation, outreach, and advocacy. Based on TCLF’s mission of stewardship through education, these initiatives benefit from a feedback loop that engages collegiate students as both generators and users of original, thought-provoking documentation that is the foundation of our What’s Out There program. Through university partnerships, TCLF engages faculty and students to research and document statewide, regional, and local cultural landscapes through detailed study of design trends and designers. Utilizing various resources including local repositories, literature review, and fieldwork students write about and photograph extant landscapes including designed spaces, historic sites, and vernacular examples. This documentation is then vetted by TCLF and shared with the public through online and printed material that is subsequently utilized by other educational institutions and students of design, urban planning, and historic preservation.

Drawing upon our experiences working with various university landscape architecture departments, TCLF is adapting ways that the built environment is studied and discussed. Documentation found in TCLF’s online and printed material, and disseminated through a diversity of outreach tools, broadens the understanding of placemaking and city-shaping to include historical uses of any given site, design trends that might have influenced designers and developers, the interconnectedness of landscapes across time and space, and current conditions of historic landscapes. University partnerships allow TCLF to engage educators and students as they develop their personal interests and encourage them to understand and appreciate the legacy that precedes them as they segue from the learning environment to the professional world.

TCLF’s university partnership program teaches students “how to see” their surroundings and think critically about the historical and physical context of any given site. The framework provides students in the design field opportunities to research and write about places from an informed position to engender deeper understanding. In many design programs, these opportunities are not currently explored or developed. TCLF’s university partnerships program provides a critical bridge between the past and the present while allowing students to improve their communication skills as they move into the future.
Awareness and Attitude of Landscape Professionals Towards Design for Human Health in China

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keywords: design for human health, professionals, awareness, attitude

In China, the increasing prevalence in obesity and other chronic diseases is alarming (Cheng, 2011; Shen, Goyal, & Sperling, 2011). As a result, Chinese government and planning professions have started to pay attention toward building ‘Healthy City’ (Fu, 2009). However, the levels of awareness and acceptance among landscape professionals are unclear.

We are unable to effectively translate knowledge into practice unless we understand to what extent professionals are aware of the health benefits of planning and design, and to what extent they are willing to incorporate health solutions in their practice, We also miss the opportunity to provide guidance and education to designers to create places where people thrive. Therefore, this study aims to examine landscape professionals’ attitude towards the concept design for human health, and their experiences and approaches to achieve this goal.

The study used an online self-administered survey with 25 Likert scale questions and 5 open-ended questions. The questions were in four categories: demographics and professional group, awareness of health benefits of design, attitude of design for health, experiences implementing design techniques to promote health, and perceived challenges and barriers. 130 participants including landscape planners and designers, landscape managers, conservationists, ecologists from public and private practices took the survey. To show the overall awareness and acceptance, descriptive statistics were conducted using SPSS and R. ANOVA and subsequent Tukey’s HSD test were used to examine whether the attitude varies across different practice groups or education levels. Answers to open-ended questions were examined using content analysis.

The result shows that the general awareness of design for human health is high, but the techniques actually used in practice is limited to several categories including green infrastructure and therapeutic landscape. The awareness and level of acceptance differ across practice groups, and professionals have concerns about whether the implementation and maintenance issues, as well as the general acceptance of the concept among clients.

This study provides insights into the Chinese professional’s perspective, opportunities, and challenges in understanding and promoting design for human health. The findings suggest that a comprehensive national policy framework toward design for human health would help the general acceptance. Educational opportunities on the skill sets specially designed for a variety of types of landscape practice would help move the idea forward.
Integrated Project Experiences and Student Perception

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keywords: pedagogy, skills perception

Professional projects in landscape architecture require a broad spectrum of knowledge and skills for their successful execution. In particular, design theory, sociology, grading and drainage, plant materials, and construction are vitally interrelated in the creation of successful spaces.

Realizing students’ struggle to integrate knowledge from these several sources within the confines of a typical curricular structure, the authors have embarked on an innovative strategy to foster the connection of knowledge areas. Beginning in 2012, faculty at Purdue University began to address the shortcomings of a traditionally structured curriculum by leading juniors in an integrated project experience: the integration of several course topics in our junior-level curriculum through a single, encompassing, iterative project. This single problem asks students to integrate knowledge from four different technical and creative areas—design studio, grading and stormwater design, plant material, and construction documentation—to create a project that is a seamless whole, replicating the complete project process and iterative nature of a professional office setting.

The pedagogical literature has indicated the potential for an integrated project approach to address some of these concerns and to assist in the achievement of student learning outcomes (Levy 1980, Steinitz 1990). Furthermore, the project process seemed to have the potential to present and encourage student work habits and design processes that more closely mirror the expectations of professional offices.

The authors have measured the degree to which this method is effective in producing better student outcomes. A trial study measuring student preferences and response to the integrated project process (Rotar, Barbarash, et.al. 2014) showed promising trends; this more complete study’s results indicate a statistically significant increase in student perception of their abilities to integrate these four topics into stronger design solutions.

This paper reviews the project process and presents the results of our study of student responses to that process. Furthermore, we will reflect on the successes and challenges encountered during the project and discuss next steps in determining whether or not actual improvements in student learning outcomes are measurable.
Do We Teach What We Think We Teach?

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keywords:

For the past seven years data has been collected with regard to student perceptions as the “most important thing they learned” in a graduate landscape architecture design studio. The goal of this study has been to identify what students feel they have learned with regard to what the faculty have intended to teach. This has not been a typical end of the semester class evaluation but rather an on going effort to record student reflections on what they learned for each project as they move through the semester. In addition, it became a way to identify how students think about design education and how what they value changes as they move through the course of semester.

The studio was a Master of Landscape Architecture graduate studio intended to be the first studio for students without a landscape architecture background. Given the introductory nature of the studio the learning objectives ranged from introducing students to design thinking and processes to introducing them to the variety of media used to develop and depict design solutions. Over the six years each incoming class went through the same sequence of projects. Each semester the same faculty taught the studio but teaching assistants varied. At the conclusion of each project’s final review students were asked to reflect and write down the three most important things they learned over the course of the project. These reflections were emailed to a teaching assistant coded and recorded.

An analysis of the data collected from 2006 to 2012 revealed a number of interesting findings. First of all even when there was no specific efforts to teach graphic skills more than 25% of all responses identified learning graphic and representational skills as the most important thing. In addition, when scale and dimension was felt by the instructors to be emphasized in every project students identifying this as a most important thing learned only six to four percent of the time for the first two projects. However, this perception increased by almost four hundred present on the last project that involved students building a physical model of their designs. Overall the findings were specific to this one class and set of instructors but they also revealed some interesting trends related to learning outcomes and project type, timing, and sequence.
Campus Landscapes: An opportunity to educate students and administrators on performance metrics

Mary Myers Temple University

**keywords**: landscape performance, education, campus

Purpose: This presentation describes the structure, implementation and outcomes of a seminar course centered on measuring performance of a campus landscape. Its purpose is to present a process for teaching metrics through practical application using a “real project”. Campuses are ideal settings for measuring as they can be visited and monitored in real time over multiple semesters and years.

Background: Assessing and monitoring a landscape’s environmental and social services is becoming increasingly important to our discipline and society. (Neckar and Pitt, Hill 2009). Yet most landscape architectural programs do not yet offer formal courses in metrics. To this end, the Landscape Architecture Foundation (LAF) launched an initiative to ”accelerate the adoption of landscape performance in education (Burgess, 2013).”

Structure: The overarching goal was to educate students on the value of metrics to design. This was accomplished through research of computer modeling tools and first hand application of those tools on a campus site. The university architect was introduced to the concept of landscape performance through student presentations and reports.

Implementation: The seminar was divided into two parts. The first half was devoted to researching and vetting tools from the LAF toolkit. The second half was spent in using the tools to measure campus base line conditions for biodiversity (using eBird and PSJ); carbon sequestration (using i-Tree); and pedestrian environmental quality (using PEQI). On site data were also collected.

Product: The final product was a comprehensive report describing the background, strengths and limitations of the tools; data results; on-site data collection; and implications for developing a longterm monitoring plan.

Conclusion: The campus seminar model is replicable across campuses and across time. University campuses (or parts of them) are ideal foci for teaching and assessing landscape performance due to their convenient location and longevity. Focusing on a single site over time allows comparison between projected and actual performance.
Landscape architecture’s humanistic foundations and unique disciplinary tendency to blend ‘art’ and ‘science’ risks losing its toehold as its leaders work to position the discipline as a positivistic science privileging companion modes of knowledge creation and data-driven design upheld by ‘evidence,’ ‘metrics,’ and ‘performance.’ The bias towards positivistic science risks crowding out the very things that draw many students, particularly those who’ve taken degrees in other disciplines, to landscape architecture in the first place: the resistance to binary divisions between ‘science’ and ‘art,’ a passion for the incontrovertible thingness of the world, the materials and senses of real places, and a belief in the capacity of landscape design to help ‘put the pieces back together,’ to paraphrase Ian McHarg.

The authors of this paper argue that a radically different tack in design teaching is needed to reclaim and recover landscape architecture’s humanistic references and navigation pathways. They believe that landscape design consists, not in simple disengaged amalgamation of ‘facts,’ but in the assimilation of those ‘facts’ by the engaged self, a self marked not by ethical detachment and dispassion, but by their opposites: passion, care, investment, values, even love. And it begins out there, in the fall into the world, into the paradoxical multisensory reality of places. It is out there, in those first chaotic moments of encounter with material, when the rational mind is momentarily set aside. It is out there, without categories, preconceptions and handholds, that the seeds of design confidence are sown. Everything depends on the approach—and the landing.

To understand and harness the nascent and aspiring designer’s initial landscape encounter the authors offer their approaches-landings design process or method informed by relevant theory and literature on landscape (Spirn, 1998) place (Casey, 1993; Tuan, 1974), phenomenology (Heidegger, 1996), creativity (Csikszentmihalyi, 1990), narrative (Potteiger & Purinton, 1998) and design method (Girot, 1999) to name a few. Approaches-landings derives from the authors’ teaching experience and the real practices and ‘landing stories’ of students and practitioners. Each approach-landing involves being “thrown” down into a landscape and having to make sense—quickly—of one’s surroundings and is meant to help students to prepare for, record, and translate their experiences into generators of design ideas. Such approaches-landings as unlearning to fly, falling, slowness, and attending determine the entire subsequent design process, and the capacity for engagement and care that are the source of design confidence.
A Learning Framework for Design Process in Landscape Architecture

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keywords: Design process, learning guide, project interface

Design process in landscape architecture can be defined as the approach taken in search for formal answers to design questions. It is a process of envisioning and weighing possibilities (Lynch, 1984), aimed at proposing intentional change (Steinitz, 1995). Design process is a larger umbrella term that can refer to the overall approach to design, with two sub-components: design thinking, encapsulating the mental attitude and cognitive techniques necessary for creative problem solving and productivity, and design methods, which usually refer to the actual steps or actions taken to produce a given output (Ertas, 1993, Lawson, 2006).

This study reviews design approaches by Sasaki (1951), RIBA (1990), Lynch and Hack (1964), Toth (1974), Simonds (1983), LaGro Jr. (2001), Lawson (2006), and others in search for common principles. These approaches are then incorporated into an integrated design process framework, with the steps categorized under the following broad headings: generate, develop, evaluate, and communicate. This framework provides the basic structure for a proposed Learning Guide to assist landscape architecture students. Through an interface supported by this learning guide, a student can navigate the recently established USU Library Archives created with multiple project documents from the firm Design Workshop. This interface will allow access to specific documents and will help students explore documents for evidence of different aspects of the design process.

In practice, design process is not neatly separated into a clear, linear steps. Instead, the process is messy, cyclical and iterative. The complexities of the design process in practice include different types of interactions, such as discussions, negotiations, or contextual changes with impact in the subsequent parts of the process. This complexity is often difficult to convey in design education. A conceptual integrative framework applied to organize a student’s interaction with the DWArchives documents can be a useful tool to deliver and discover the embedded knowledge in a project documentation; can create a window into the process through specific evidence; can establish foundational groundwork for the future growth and expansion of design archives; and can provide the basis of a management system and an educational tool applicable to multiple landscape architecture and environmental planning courses.
The roots of planting design; biomes, and ecoregions

Cheryl Mihalko Oklahoma State University

keywords: Planting design, Biome and ecoregion design, Regional design

This paper will briefly discuss the pedagogical history of planting design courses in the landscape architecture curriculum and the current trends in planting design education that include the theory and methods for regional based planting design solutions. Further it will outline teaching goals and objectives, and present studio problems and student solutions completed in a planting design course at Oklahoma State University that seeks to provide aesthetic solutions that combine an understanding both plant communities, biomes, and ecotones at a regional scale, and the design vocabulary of the principles and elements of composition as defined by the world of fine art. The course introduces the concepts and practices of planting design; specifically the selection and arrangement of plants using of sound ecology and horticultural practice and the principles of composition extracted from first hand observation of plant communities within local biomes.

The paper presents student work that is a result of an approach to planting design that begins with defining the spatial and aesthetic characteristics of plants within a specific biome. Beginning with the principles and elements of composition as defined by the world of fine art—Balance, Contrast, Emphasis/Dominance/Focal Point, Harmony/Unity, Proportion/Scale, Repetition/Pattern, Variety, and Movement/Rhythm, and the five elements of Color, Form/Volume, Line, Texture, Value/Gradation.

Students are not asked to value or accept the aesthetic that is present at the regional scale but rather to examine and document a specific set of places at various times of day and over a seasonal span. Field drawing is assigned along with analysis note taking to isolate the characteristics represented in the vocabulary of fine art principles and elements.

Student Outcomes
The introduction of aesthetics along with fundamental ecological understanding of plant functionality and spatiality provides students with a basis for combining plants in ways that are not arbitrary. The result has been to witness a strengthening of an independent land ethic, and confidence in finding a starting point for planting design schemes.
Made for LA: Games to create difference

Christopher Marlow  Ball State University

keywords: design, make, games, environment, education, awareness, LABOK

This paper aims to present a compelling case for (1) game-making to enhance landscape architecture (LA) and higher education, and (2) using student-designed games to promote LA to prospective students. It features an ongoing study on game-making in an immersive [graduate and undergraduate] LA elective course to foster good contemporary learning, challenge LA education to embrace games to inspire teaching and learning, and contribute to the general lack of investigation on games in environmental design education.

Higher education should be in the innovation business, encouraging students to invent things, rather than simply receiving goods or services. Many universities offer a more student-centered product through online programs and de-emphasizing lecture-based education. But, among the most important attributes of student-centered experiences are: (1) technology & media – using and adapting to what students already know, (2) strengthening connections between classrooms and real life, and (3) interdisciplinary hands-on learning. The big idea: higher education must provide students with a more personalized pathway through their education, one that emphasizes adaptive and competency-based experiences (learning to DO) and experiential research projects (daily collaboration/teamwork on meaningful projects). Enter GAMES.

Good games can hold our attention like little else, while always teaching us SOMETHING. They’re fun, media-rich, sticky, persuasive, and able to unite ways of knowing, doing, being, and caring. Serious games are designed to enhance learning, where learning has value outside the game. They’re arguably best when they communicate convincing messages while achieving learning objectives. Such games can allow learners to experience the ways a discipline considers and solves problems, so learners are able to think like someone in the discipline. Designing games in/for LA has great potential to develop several key competencies identified in the 2004 LABOK study – interdisciplinary design/problem-solving experiences; programming, analysis, and conceptual design; graphic, oral, and written communication; and review/critique of peers’ work. Educators and students should focus on these and other SOMETHINGs that give games learning value…and then MAKE them.

Designing and making games has amazing potential to incite change in two key places – (1) environmental design classrooms, where pedagogies seem relatively unchanged for decades, and (2) K-12 audiences, where awareness is critical for growing our vital profession. This presentation highlights contemporary literature, challenges with LA education, game prototypes celebrating environmental design themes, before-and-after survey data that show educational promise, and future implications that games can create positive difference and change our insights on how people learn about LA.
Creativity Exercise Round-Up

Jeremy Merrill University of Nebraska-Lincoln

keywords: creativity, exercises, inventory, analysis

Within design education, “creativity” is emphasized in problem statements, mission statements, and design critiques. Prospective employers often ask for “creativity” as a characteristic of an ideal employee. Creativity exercises have been used in tandem with established curriculum as a way to increase creativity (Karpova, E., Marcketti, S. B., and Barker, J. 2011; Hargrove, 2007; Merrill, 2014; Torrance, 1972). Many pre-packaged creativity exercise programs and packages are available to educators who would like to nurture creativity in their students, but such products need to be fully assessed to determine their application to the field of landscape architecture education. Currently there are creativity programs in circulation that take forms as diverse as online apps, cards, books, or physical puzzles. Some exercises focus on linguistic creativity, such as being able to select a single word answer, others use logical deduction word problems. Additionally, some programs make claims that they are based on neuroscience, like Lumosity® (Ng, N. F., Sternberg D. A., Katz B., Hardy, J.L., Scanlon, M., 2013).

Scott, Leritz, & Mumford found from a meta-analysis of 70 studies, that successful creativity training programs, “were likely to focus on development of cognitive skills and the heuristics involved in skill application, using realistic exercises appropriate to the domain at hand” (2004), thus creativity exercises will be most beneficial to landscape architects if the exercises focus on the specific cognitive processes appropriate to our own discipline and domain. Maslyn identified in her study of creative landscape architects, “…participants revealed that landscape architecture is unlike other creative professions” (2002). Because of landscape architects’ unique position among creative professionals, educators in landscape architecture would benefit from a systematic inventory and analysis of existing creativity exercises which would allow them to better select creativity exercises that would work well with their specific course format or objectives.

This research comprises the development of an inventory of existing creativity exercises and categorization informed by the Merrill Model of Creativity in Design (Merrill, 2014). A major component of the utility of this research will be the identification of exercises that directly address the needs of landscape architecture. Exercises will be organized into categories based on: targeted cognitive mechanisms, metacognitive effects, delivery method, appropriate level of student expertise, and whether or not exercises are supported by research. The analysis of these exercises will result in a typology of appropriate, existing, ready-to-use creativity exercises and programs for use in landscape architecture education.
Novel Systems and Design Education: Pedagogical perspectives on applied research, experiential learning, and studio

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Ken Yocom University of Washington
Jamie Vanucchi SUNY-ESF

 keywords: novelty; novel ecosystems; design education; design research

As an emerging science, the paradigms that support ecological understanding continue to evolve (Scheffer 2009). In recent years, the concept of novelty in the ecological context has begun to influence the way that scientists and restoration practitioners understand the shifting dynamics of ecological processes in disturbed landscapes (Chapin and Starfield 1997). In this context, novelty is expressed as ecosystems that support combinations and abundances of species that have not occurred previously within a given biome (Hobbs et al. 2006). While detailed understanding for how these shifts contextually impact ecosystem processes and services are, in many cases, still forthcoming, the allied design and planning disciplines have the opportunity to engage with the ecological sciences to develop potential design and management strategies to further the understanding of ecosystem complexity and dynamics (Johnson and Hill 2002).

The proposed panel will examine novelty from an ecological context and explore the pedagogical influences of the concept in design and planning education. In particular, the panel will focus on defining the concept, outlining contemporary approaches to landscape management, identify potential gaps and needs, and discuss the integration of these issues into pedagogical models for applied research, experiential learning, and design studio.

Sarah Dooling will draw from research conducted by a graduate-level seminar class that used novel systems as the organizing framework for identifying tree species considered ecologically viable and managerially feasible for the short- and long-term future of the urban forest in Austin, Texas. Ken Yocom will discuss the learning objectives and findings of integrating the concept of novelty into a field immersion, experientially-based course examining the shifting cultural perspectives and ecological dynamics of the Elwha River in Washington State during dam removal. Jamie Vanucchi will explore the novelty concept through a framework of experimental studio learning that focuses on designed ecological processes for supporting a broader understanding of the conceptual relationships between management, performance and health.

As an exploratory panel, following the brief individual presentations, the participants will discuss and frame the conversation with audience inclusion around the core questions: 1. How can the concept of novelty be more fully integrated into design education and research? , and 2. What are the pedagogical implications for such integration in design curricula?
Drawing as a Method of Inquiry: Initiating new competencies

Daniel Ortega  University of Nevada Las Vegas
Jonathon Anderson  University of Nevada Las Vegas

*keywords:* Critical Inquiry, Drawing, Representation, Studio Pedagogy

The premise of this conference lies in a challenge to consider the relationship between changing insights and, how in return, change might incite. This invitation offers itself as a fertile opportunity to explore how the pivotal skillset of drawing can be used as a form of expression and a form of critical thinking that offers insight into the milieu of complexities that inform the discourse of landscape architecture. It is our intention to illustrate how the role of drawing in landscape architecture design studios can be used to both change insights and incite change in the teaching and learning processes.

We suggest that the critical challenge of drawing is not only to communicate ideas, but also analyze, respond to, and envision past, present, and future tenses of complex, natural, technical, spatial, phenomenological, and cultural conditions via graphical facsimiles of those circumstances. Drawing serves a practical means for communicating these scenarios while uncovering the “poetic potential…to create new associations…to become vehicles for discovery.” (Bowring and Swaffield, 2010, 144)

This paper will document how drawing, as an iterative activity rooted in the act of making, can be used to promote a visual based method of inquiry that moved beyond a representational field of propositions. Thus reversing the typical notion that suggests drawings are used to convey graphic representations of solutions or problems. With these ideas in mind, we will document a triangulated methodology of drawing/making assignments and use a survey to formulate an indication of when and how the drawing/making process instigates a level of inquiry. We are hoping to see where the student’s ability to formulate pertinent questions related to the assignment(s) becomes the focus of the work.

We propose that the triangulated methodology mentioned above can work to create a learning environment where we promote “the practice of better questioning [that] helps produce better answers and, therefore, new competencies.” (Deming, 2009, VI) As such, we hope that this work will offer insight that can have the potential to incite change as it relates to the discourse of drawing in the design studio.
Writing Matters: Inciting inspiring insight

Joni Palmer  University of New Mexico
Rebecca Fish Ewan  Arizona State University
Patrick McGirr  University of Massachusetts
Thomas Oles  Edinburgh School of Architecture and Landscape Architecture

*keywords: education, pedagogy, writing*

Writing is not a perfunctory communication exercise but rather a means of enacting change and gaining insight. As such, writing offers opportunities to discover a deep knowledge of place. Four panelists present their examination of writing as a student experience and as a means to enrich the profession.

“HERE an ars poetica for landscape architecture”

To encourage students—as future practitioners—to enact positive change in the world, I ask them to articulate a stance by which they envision engaging in the practice. As such, students write an Ars poetica for landscape architecture in the tradition of Horace and Archibald MacLeish. These Ars poetica help students establish a personal sense of the discipline. I will discuss pedagogical imperatives of this writing exercise, from initial drafts to final broadsides.

“WALK WRITE exercises in the field”

To further the discipline, it’s essential to write about place, but equally for students to learn to write in place…and to write while walking. My students have explored field writing and engaged in walking exercises to help them connect to place. The intent was to encourage students to “walk like a camel, which is said to be the only beast which ruminates when walking” (Thoreau). I will discuss research that supports walking’s benefits to the creative process and field writing as integral to a landscape architect’s recognition of the genius loci.

“In 400 words or less”

Critical thinking about landscapes should reach beyond the discipline, and university general education classes offer one way to inspire students to be thoughtful observers of their environments. I used a sequence of writing assignments to help students make real-world observations and connect them to classroom materials in which landscapes are examined as visual, physical, and social constructions. I will discuss pedagogical strategies of short directed papers and assignments that focus students on critical landscape observations and analysis.

“On a certain dis-ease in landscape architecture (and its cure)”

Students of landscape architecture are rarely encouraged to write, and often encouraged not to. Why should this be so, when language is perhaps the most accessible way to communicate the experience of landscape? This paper seeks an answer to this question in the history of the profession itself. Drawing on the writings of Peirce, Panofsky, and Weber, it argues that contemporary attitudes toward writing in landscape architecture are closely linked to dis-ease about the legitimacy of the profession relative to other disciplines.
There is a long standing aphorism that is routinely applied to the design professions: The architectures are neither science nor art, they are both. Like all such distillations there is both truth and confusion in this perceived characteristic. In the past century of growth we as designers were able to ride the rising tide with such ambiguous statements that asserted authority in both the sciences and the arts and gained us a degree of relevancy within civilization. Utilizing the popularized characterization of the design process, Design Thinking, we explore the need to differentiate design as a third-facet of human activity, distinct from the sciences and arts.

Design Thinking is defined by the processes through which methods are employed in the cause of resolving a human need. Design Thinking is by its very nature an intentional undertaking, standing in stark contrast to other human developed modes of operation. We will explore the existing tensions between Science, Art, and Design. For example, the scientific method is by virtue of its reductive methods a process that is passive in its deployment even when the end goal is an actionable knowledge. As such, the scientific method results in discoveries, the great hallmarks of the scientific narrative. In contrast, design results in creation and depends on three discrete levels of knowing—experienced knowing (re-affirmable truths, rationality, the fruits of the scientific method), conscious knowing (collective understandings that may require proofing through experience, aka applying the scientific method), and unconscious knowing (those aspects of the former that are not yet articulable).

Through an examination of the literature on Design Thinking and an analysis of the Design Futures II conference workshop proceedings (University of Minnesota—Crookston, July 2014), we seek to define the primary components of Design Thinking and offer a framework for their dissemination within a design pedagogy.
Critical Mapping in Design Studio

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Jason Brody Kansas State University
Howard Hahn Kansas State University

keywords: critical mapping, critical thinking, mapping, design studio, site analysis, design strategy

Developing students’ critical thinking is a primary goal of design studio teaching. Most landscape architecture students and professionals engage complex projects with many variables and a range of actors. It is therefore important for students to build the capacity for developing design strategies that address multiple interrelated dilemmas and opportunities. The intent of this paper is to present Critical Mapping, a research and design method aimed at teaching students to quickly identify, synthesize, prioritize, and evaluate critical information in generating design strategy.

Traditional methods of site inventory and analysis often involve data collection and analysis as discrete activities that precede design. To encourage critical thinking and to integrate design into early phases of a project, Critical Mapping involves rapid design iterations guided by a series of evolving research questions. Highly choreographed with a strict sequence of deadlines, the method demands weekly production of three sequential maps: a truth map, an evaluation map, and a strategy map (adapted from Ramage et al 2010). Maps combine a declarative title, written text, diagrams, infographics, and other illustrations to answer a stated research inquiry. The procedure is repeated weekly for the first half of the semester, resulting in a diverse repository of information and design strategies for the studio to build upon.

The authors first implemented Critical Mapping in 2009 through teaching an intensive mid-level studio, Community Planning and Design, required each summer. Significant refinements have been made over this time. This paper presents Critical Mapping through a review of teaching methods and course outcomes for the six years the authors have taught Community Planning and Design. We discuss the aims and method of Critical Mapping, review how it has changed over time, and evaluate its strengths and limitations. We assess its strengths in terms of process and format. Directed and heuristic, Critical Mapping allows for focused inquiry while remaining open to unanticipated discoveries. It encourages students to make critical decisions in formulating research inquiries, identifying appropriate methods of investigation, in making connections between evidence, evaluations, and strategies, and in mining the most important information. The strictures placed on the map template focus students’ attention on making choices regarding the format of the map field, extracts, and juxtapositions (adapted from Corner 1999) that are most critical for their design inquiry. Based on six years of studio outcomes, we find that Critical Mapping is a promising method of developing students’ capacities for critical thought.
Studio Synecdoche: A multi-scalar collaborative approach to design education

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Keywords: multi-scalar, collaborative, design, scale

The capstone studio model of traditional landscape architecture curricula places an emphasis on a culminating experience, marrying of project scale to project typology. Landscape architecture is practiced at widely varying scales, from region, to landscape, to site, down to the smallest detail. Project typologies vary widely as well, from intimate gardens to open space plans. Some studio projects have a predetermined scale or typology, to serve a particular learning objective. For instance, they may establish a typology (ex. community recreation) leaving the scale, location, or specific program to be determined by the student. Due to the complexity of our profession, multi-scalar, multidisciplinary, and collaborative approaches to design pedagogy have been argued for. We set out to develop a studio approach that permitted students to discover scale and typology through a collaborative process.

Applying a figure of speech as analogy and inspiration, Studio Synecdoche was conceived. Synecdoche is defined as “a figure of speech by which a part is put for the whole, the whole for a part, the species for the genus, the genus for the species, or the name of the material for the thing made.” The term is used where the part describes a larger construction, and where the larger construction describes the part(s). By applying the idea of synecdoche to this capstone studio, which we co-taught in Spring 2014, we were able to explore design from two perspectives; simultaneously a forest and a tree. The idea behind Studio Synecdoche was to structure a project that fosters collaborative design where students engage in simultaneous and parallel investigations into systems and sites.

The studio was composed of 31 undergraduate students, who organized themselves into groups based on common interests in existing systems in the Phoenix Metropolitan Area. The self-selected systems included transportation infrastructure, rivers, drainage networks, open space systems, and water distribution canals. Students further aligned themselves by scale, forming smaller groups; each group containing at least one student working at the system scale, and at least one dedicated to site-scale interventions. Eventually 14 teams were formed. Within each group, students approached their design from the opposite end of the scalar spectrum, while simultaneously negotiating concept, goal-setting and decision-making to ensure that their efforts complimented and informed one other. Emphasis was placed on the development of a singular concept that unified multiple scales, while also focusing on the ability of place to positively impact community.
Same Song, Third Verse: Academic planting design surveys and professional interviews provide insight for change

Judy Brittenum University of Arkansas

*keywords*: Landscape architecture, plant-related curriculum, professional interviews

When the public hears the name Landscape Architect, most likely the image of plants and planting design tasks emerge. While the assumption that plant-related work is central to professional practice yet may be untrue for all practitioners, marketing plant skills strengthens the perception and may be a shrewd strategy for landscape architecture firms. In 2012-2013 a series of investigative surveys of accredited schools and interviews with twenty-two professionals were performed in order to determine if plant identification and planting design were still essential to landscape architecture practice and landscape architecture education. The initial results of these two studies were published in 2014, but further analysis of the interviews has provided additional insight into the heart of today’s professional practice regarding plants and thus the needs of education to serve the profession.

This paper will provide the final, extensive exploration into not only the interview data initially collected, but also the interpretation of greater themes within those commentaries. By using a qualitative method whereby topical data is clustered to find discrete major theme sets, data is more easily isolated and further distilled. These major themes, patterns of data, implied meaning, and topic subsets provide a clearer, more robust understanding of the interview findings as well as a means to strengthen and manage the search for meaningful, plant-related curriculum content. Both professionals and academics interviewed expressed their hope that both parties might agree about core elements for teaching plant-related objectives. Evidence found in this final analysis of the three-year study will reveal what core elements should be embraced in a vigorous set of plant-related educational objectives.
Re-building the Coast: Fabricating the Wax Lake Delta

Shelby Elizabeth Doyle Louisiana State University

keywords: Mississippi River Delta, Gulf Coast, Louisiana, Inter-disciplinary Design, Modeling

ARCH 4993 is a graduate level Architecture and Landscape Architecture elective at the Louisiana State University (LSU) College of Art + Design. The course explored digital drawing, modeling and fabrication as methods for producing interactive models of Louisiana’s riparian and deltaic environments. These models contribute to our understanding of the Gulf Coast’s dynamic landscape.

Wax Lake served as a site and case study: an artificial channel that was created by the United States Army Corps of Engineers in 1942. The outlet is located near Morgan City, Louisiana and diverts 30 percent of the flow from the Atchafalaya River to the Gulf of Mexico and reduces flood stages. The Wax Lake Delta was formed by rapid deposition of sediment following the creation of the outlet and it provides a unique case study in deltaic formation.

The work of ARCH 4993 is a joint effort with the LSU Coastal Sustainability Studio (CSS), LA 4001 a LSU Landscape Architecture studio (see abstract Holzman) and ID 4751 a LSU Interior Design course (see abstract Dunn). Collectively this work serves as research and prototyping for the Design Development phase of the 16,000 square foot Coastal Protection and Restoration Authority’s (CPRA) Expanded Small Scale Physical Model Exhibition Space, a 10,000 square foot physical model of the Lower Mississippi River Basin used to test sediment flows, distribution, and land building, a flagship project of the Baton Rouge Water Campus (see panel proposal Carney).

Beginning with research, topographic data, and imagery, collected and produced by the LSU Coastal Sustainability Studio Visualization Team (see abstract Mitchell) students constructed prototypes of exhibition content using the Design School’s wood shop as well as available digital fabrication technologies including CNC Routing, CNC Milling, 3D Printing, and Laser Cutting. Work was done iteratively, individually and in small groups. The students use provided visualization content to design the pieces and relationships between: projection, interactive screen, text, physical models, and static images. This was supplemented the integration of interactive sensing technology, primarily Arduino, and projections of dynamic analysis and videos augmenting the physical models. Production of the models and machine time are funded through the industry partnership with CPRA creating a connection between academic work, political agency, and professional influence.
A Green Design Academy? What is it and what can be achieved in a one week non-residential summer program for high school students?

Will Green University of Rhode Island

keywords: summer design program, landscape architecture, green design, and sustainability

This presentation is about a one-week summer program offered through a university transportation center intended to provide high school students, grades 10 – 12 with the opportunity to learn about a career in landscape architecture. By 2010, the center had established 3 academies (engineering, business and construction) and looked to expand its programs to include one on Green Design and Landscape Architecture. The “Green Design Academy” (GDA), was established through a Civil Rights grant and funded with Federal and State DOT funds. The program has run for four consecutive years.

The presenter will describe the one-week program that introduces students to the career of landscape architecture and the theme of sustainability and design. The author will describe the academy’s mission, objectives, structure for delivering the one-week curriculum, and methods for selecting students and leaders. Activities will be described that are intended to achieve program objectives. These include short lectures and campus walks, drawing assignments and two model building exercises; field trips to a nursery and a landscape architect’s residential landscape, exploration on a bike trail and a visit to an urban center by train to explore landscapes from the eighteenth through the twenty-first centuries. The activities were interwoven with discussion on topics of design, sustainability and green infrastructure and choices that we make on a daily basis.

To evaluate the success of the program, and gauge the likelihood that students might pursue a career in landscape architecture or sustainability, the leaders developed and administered both entrance and exit surveys. The surveys indicated that the high school students had gained greater awareness of terms and issues associated with focusing on sustainability and seemed interested in introducing more sustainable behaviors into their lives and at home. While it will be difficult to learn whether these students select landscape architecture as their career choice or whether the GDA played a role in their choice, the enthusiasm of the students and the importance of the subject makes us determined to continue offering the program and improving the curriculum. The presenter will conclude by making a few suggestions for improving the GDA.
Teaching Technology Through Integrated Technical Modules

Dereatha Cross Kansas State University

*keywords*: landscape architecture technology education, technical modules, teaching digital technology, curriculum integration, landscape information modeling, alternative textbooks

Over the last three decades, digital technology has permeated nearly all aspects of landscape architecture education and professional practice. It has enabled accelerated data collection, mapping, and analysis, iterative design and visualization, and efficient production of 2D/3D “hardcopy” documentation. Creation of electronic text and graphics can be transmitted anywhere in the world for collaboration. Nevertheless, many challenges exist for students, faculty, and practitioners: complex software takes time to learn and efficiently apply, and software skills quickly atrophy without continual updating. Students must learn the diverse realms of landscape architecture, balance intensive studio demands, and often learn digital technology with little faculty support.

University landscape architecture departments take different approaches in teaching technology (Marlow et al. 2010; Watson 2010). Since many faculty members are not current or proficient at using technology, much student learning is self-directed using online tutorials and videos. Without understanding what specifics are required to support coursework, technology learning is not integrated, comprehensive, or lacks sufficient depth beyond “button-pushing”. The intent of this paper is to present one approach which has overcome some of these challenges. Over the last eight years, Kansas State University has developed a tightly integrated six module sequence of technology courses that are progressive and directed toward specific learning outcomes built around Landscape Information Modeling (LIM) concepts. This paper focuses on how these Technical Module (TM) courses are organized, developed, delivered, and supported.

Initially, the six TM courses matched specific studio courses as a means to teach software to facilitate assignment and project completion. Within the last two years, reorganized modules center on LIM concepts and are well integrated across the curriculum to promote holistic thinking and problem solving. Major TM course themes include “TM1-Introduction to LIM”, “TM2-Digital Terrain Modeling”, “TM3-Materials, Textures, Planting Design, and 3D Modeling”, “TM4-Story Telling and Event Modeling”, “TM5-5D Modeling and Problem Solving”, and “TM6-Investigative Research”. These six themes are further sub-divided into 19 mini-modules. Faculty members of various abilities assume the role of “Learner”, “Organizer/Grader”, and “Deliverer”. “Alternative Textbooks” are delivered through live demonstrations, custom developed written and video tutorials, and on-going access to resources posted on the web.
GIS Pedagogy: An analysis of cartographic concepts in GIS coursework

Sahoko Yui University of California Davis

*keywords: GIS, pedagogy, cartography*

Geographic Information Systems (GIS) programs are now widely used by engineers, planners, designers, and social scientists in academic and private sectors. The widespread use and popularity of GIS makes it important for current educators of GIS to reflect on their pedagogical approach. Because of the availability of spatial data and the ability of GIS to do complex spatial analysis, GIS courses focus on technical skills. Important cartographic concepts such as ethical, social and political implications of map-making have become secondary to the technical how-to of GIS. As a result, students have used GIS to create maps that are biased or poor representations of analysis and propagates misleading or inaccurate information. The issue is not with the program, but the users.

The purpose of this study is to determine the influence and impact of cartographic concepts in current GIS curriculum of landscape architecture programs. This paper will include an overview of current GIS courses in landscape architecture programs across California, comparing readings, assignments, and applications in studio assignments. In addition to comparisons of readings and assignments, GIS professors/instructors and students will be interviewed to assess the conceptual and technical skills reviewed in their classes. In addition, there will be a comparison of student work between courses that have a focus on cartographic concepts versus technical skills.
Data-Driven Visualization: Coastal monitoring and adaptive management strategies for large-scale coastal restoration

Justine Holzman  Louisiana State University

**keywords:** Data Visualization, Adaptive Management, Real-time Monitoring, Inter-disciplinary Design, Mississippi River Delta

LA 4001 is an advanced undergraduate Landscape Architecture Design Studio focused landscape planning and design from regional to site scale situated within coastal Louisiana to research regional planning, coastal ecology, ecological restoration, large-scale water management and infrastructure, and the complex relationships formed between settlement and ecology over time. The course investigates the Coast Wide Monitoring System as a critical component for developing the visualization methodology, an extensive and existing coastal monitoring system, as both generator of data and device for interpreting the landscape. The individual devices and the composite monitoring system play a critical role in establishing the science used for determining restoration projects and as a metric for the adaptive management component of the plan. Students will use the data and logic of the monitoring system to design methods for perceiving, interpreting, simulating, and manipulating the landscape through data-driven visualizations.

The course supports contemporary landscape architectural theory for the design and management of large scale indeterminate and ecologically minded landscapes capable of sustaining the demands of contemporary settlement put forth by Jane Amidon, Kristina Hill, Chris Reed, and Nina-Marie Lister, while building upon arguments influenced by Bradley Cantrell and Andrea Hansen for data-driven design, adaptively monitored and facilitated by real-time sensing networks. Data visualization is seen as a technological design and management tool, evolved from methods such as the overlay map, diagrammatic mappings of systems and networks, and models of succession.

Along with an Architecture Seminar (Shelby Doyle) and Interior Design course (Matthew Dunn), the pedagogy facilitates interdisciplinary collaboration with academics and professionals in related fields of ecology, engineering, and coastal sciences and access to extensive and current research through the LSU Coastal Sustainability Studio (CSS), an environmental think-tank, to research, design, and prototype for the Design Development phase of the 16,000 square foot Coastal Protection and Restoration Authority’s (CPRA) Expanded Small Scale Physical Model Exhibition Space, the flagship project of the Baton Rouge Water Campus (see panel proposal Carney). The building houses a 10,000 square foot physical model of the Lower Mississippi River Basin to test future scenarios and sediment diversions. In addition to the design of the physical Exhibition Space, the CSS is developing the visual content and a series of interactive tools to communicate the geologic and anthropogenic history of the region, the exigent issues facing the coast, and the objectives of the CPRA as they develop and release the 2017 Coastal Master Plan.
A Model for Summer Internships: Real-world learning using a structured office model

Will Green University of Rhode Island

keywords: summer internship, professional practice, service, collaboration

A review of CELA and EDRA abstracts and articles published in Landscape Journal and LAM indicates that over the past twenty-five plus years, service-learning in design programs has become common practice at institutions of higher education. Its value to students, faculty and clients/communities is well documented. While considerable attention is paid to service-learning, which often occurs in design studios, independent study projects and internships can provide other valuable opportunities and benefits for students, which includes being supervised by a faculty member. In addition, faculty benefit through professional work conducted for non-profit organizations, which might not otherwise be able afford preliminary design services.

The author presents a professional office-model within a university setting, where interns are employed by faculty, funded, work within a studio setting, and adhere to standard office protocols. Student interns are treated like professionals. They are given tasks, schedules, and deadlines and are responsible for communications, reporting, production and public presentations. The objectives are to provide students a professional work experience, clients with a meaningful service and faculty with opportunities for professional and academic development.

For this model, a faculty member is an independent center who is be tasked with finding appropriate clients, projects, funding sources, and student workers; developing, managing, and coordinating relationships; and with justifying the considerable time needed to run, oversee, administer and produce the projects with student workers. Students gain valuable professional experience while developing and refining their skills. Non-profit partners and funding agencies are actively involved in the projects and benefit through the service and leadership provided. The benefits for faculty are derived through professional engagement, involvement with current issues, and in supervising design students as they develop professional skills. A case study will be used for illustration that pertains to a twenty-five acre historic landmark property located in a vulnerable coastal environment. This presentation will include a discussion of the process followed and distinct roles that faculty may play while supervising undergraduate interns for non-profit and public sector clients. It will include a discussion of the challenges facing faculty, who seek to maintain professional involvements in local issues from within the academy and cautionary notes pertaining to sensitive issues, which may arise during faculty-client, faculty-student and faculty-administrator interactions. The author will conclude with an assessment of the model in comparison to similar models.
Hierarchy Theory and the “Powerful Summary,” a Visual Approach for Urban and Landscape Analysis in Design Education

Matthew Gordy  Iowa State University

keywords: Hierarchy, Visual Cognition, Ecology Theory, Pattern Recognition, Analysis

...(we) are all awash in data. The hard part is seeing through the walls of data to achieve a powerful summary.” –Timothy F.H. Allen, Toward a Unified Ecology

This paper emerged out of a search for an innovative teaching approach to improve the quality, clarity, and usefulness/utility of analytical work done by students in upper-level landscape architecture and urban design studios. In general, students were confounded most often and most intensely by three barriers: data deluge, complexity, and multiple scales.

What follows examines the pedagogic potential of an analytical technique to overcome these barriers that grafts together two seemingly unrelated intellectual discourses: hierarchy theory in ecology (Allen & Hoekstra, 1992; Allen & Ahl, 1996) and visual cognition theory (Arnheim, 1969; Moore, 2010; Corner, 1998, 1992; Latour, 1985.) This hybrid technique provides concrete methods for organizing data at appropriate scale(s) and optimal amount of detail using visual perception as the primary tool for evaluation. In the simplest terms the technique is about pattern recognition, with attention to properties like grain, extent, internal consistency, frequency, magnitude and criteria for observation.

This proposal is rooted in the philosophical tradition of pragmatism, explicitly articulated by Moore (2010) whereby perception (in particular the visual) is not merely a conduit to intelligence, but is intelligence in-itself, and Allen & Hoekstra’s (1992) positioning of hierarchy theory not as “esoteric speculations about ontological reality,” but rather a “hard-nosed protocol for observing complexity without confusion.” In this way students strive to construct potent analysis of urban and landscape systems through the powerful summary, whereby relevance emerges as the union of the perceptual, cognitive and representational. In no way is this directed toward the formulation of absolute truths, instead it is a way to construct a critical and interpretive set of possibilities that open up relationships between the level (system) in question, the level below which provides mechanisms, and the level above that provides context and role.

Part I describes the foundations of these two discourses and the ways they have been adapted and joined together in this approach, supplemented with illustrative examples used in comparative analysis. Part II offers examples of student work utilizing these techniques along with their own reflections on the process. The conclusion argues for the pedagogic potential of a “visual hierarchy approach” to improve the quality of analytical production through the powerful summary, drawn from the conceptual and perceptual strengths of design and ecology.
Change Insight: Creating community capacity in Appalachia in the wake of mine disaster “An Artist’s Reflection on Community-Design Build Projects in Two Northern West Virginia Mining Communities”

Ashley Kyber West Virginia University
Peter Butler West Virginia University

keywords:

When we engage communities in design outreach, our purpose is multilayered. We intend to incite change on several scales- from the building of community capacity to instilling community design methods and skills-building in the students that we teach. In impoverished communities, creating new sources of economic development in post-industrial communities is at the core of our work. The viability of the projects is tied to the transformation (tangible and intangible) of communities via design outreach. Regardless of investment by faculty-student teams, community members and project funders, project outcomes are a reflection of the diversity of initial community capacity in the project and growth of that capacity.

The Landscape Architecture and Environmental Design Program at West Virginia University has been working in two communities, Everettville and Osage, in the Northern West Virginia coalfields. Each community project followed the same model- 1. Engagement in the design of a community park in a sophomore landscape architecture studio (spring semester). 2. Community comment periods and faculty facilitation (summer). 3. An independent study studio for re-design of the park (fall semester) and 4. A design-build studio for small scale installation of designed park elements (fall semester). Each of the community projects included partnership with a supportive community-driven non-profit; similar site scales (~10 acres); consistent community needs in programming and design components; and cultural heritage, including sites of mine disasters in the early 1900s.

Differing outcomes in the two projects demand reflection. Engagement in Everettville is driven by an individual. In contrast, Osage has a broad membership in its non-profit community organization including: a diligent set of community elders and engaged citizens. Progress in Everettville includes the design of the park and a design-build project. Osage, as a more ‘complete’ community has demonstrated more capacity for change, reflected in their progress from design to implementation of several complex built works and community initiatives.

The differences in observed tangible and intangible change in these two communities is overwhelmingly evident. In the case of Osage, where the continuum for engagement has been active for only two years substantial change has occurred. In the seven years of working with Everettville change has been limited. Reflections on the varying levels of success of the two projects serves to inform future outreach efforts in developing more impactful community engagement.
Beyond Project Description: Writing in design studios

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*keywords:* Communication, academic writing, writing, design

In Landscape Architecture design studios, writing has little resemblance to the traditional or term paper from other disciplines like composition, literature and other English courses. While the design studios outcomes emphasize the creativity and design ability of a project, writing is reduced to an unchecked box in the submission requirements list. In other disciplines like economics, instructors agree that students produce writings that are “mediocre, regurgitative and uninspired” [1] with no evidence of writing and critical thinking.

This presentation will report on collaboration with a writing instructor to implement three strategies to improve students’ writing (and thinking) process: assignment design, clarification of the appropriate audience for the paper and responding to student writing.

Assignment design highlights similarities between the writing process and the design process: both have series of steps that for classification purposes are taught as series of discrete linear steps. Experienced writers write in a recursive approach [2], and the design process also moves freely back and forth among its. Nevertheless students approach the writing process in a linear sequence presuming that after each step is completed they can move on the next one without ever returning to the previous ones. Additionally, in most of the cases the writing component of a final presentation in a design studio is poorly listed as a description or summary of the design concept. Assignment [re]design asks for a recursive and revisable process that turns “shitty first drafts” into “terrific third drafts” [3], in addition to specific instructions that shift from description into argumentation, from listing of parts into justification of ideas.

Students also face difficulties when there is no apparent audience for whom they are writing: it is assumed that student’s writing informs a reader who is generally less knowledgeable, and in fact students are writing for an instructor that is certainly more knowledgeable, placing the student in a fictitious and problematic situation. Expert writers “think about audience early in the writing process whereas novices don’t” [4], so an early definition of audience will assist students in defining the genre and purpose of their writing.

Finally, the feedback from instructors is the tool that students use to improve their thinking and writing, and students need also an opportunity to rewrite. Generally these opportunities are not given or the instructor emphasizes surface errors instead of focusing of argument and analytical issues.
The Design Lab as a Learning Community

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Patrick Miller Virginia Tech

**keywords:** rashin

Design Lab in School of Architecture + Design at Virginia Tech has the major role in student’s education and helping them to become a member of the design professions. The author selected the design lab as a place to find out how learning occurs and how the members learn from the environment, interactions, and experiences to establish their identity and become design professionals. In contrast to a normal classroom, the design lab is a learning community that is defined based on activities and relationships among its members beyond the normal/common activities and assignments. This study uses concepts from both community of practice and socio-cultural frameworks, to highlight the process of socialization through ‘apprenticeship’ that includes more than learning skills and knowledge. It also involves the appropriation of a particular socio-cultural worldview and shared understandings that mostly operate on a tacit level, rather than being consciously taught or learned.

The community of practice (CoP) is a type of situational learning based on partnership among peers in which sharing knowledge is more highlighted than doing a project. The mutual relationships among the members, the joint enterprise that not only binds the students together but also aligns their actions based on a unifying goal, and the continual development and maintenance of a shared repertoire of procedures, techniques, actions, concepts bring about the unique culture and values for the community. The CoP of the design lab is qualitatively studied through three different approaches. First, the relevant documents about the philosophy, missions, concepts, principles and pedagogy of Foundation design are analyzed to provide a clear and holistic picture of the environment. Then, in addition to the field observations of the community through social constructivist perspective, the study employed in-depth interviews with five lab students and five instructors.

The findings of this research are presented under the four categories of Wenger’s (1998) theory of CoP: identity, meaning, practice, and community. As a result, design studio is not merely a community of interest, rather in which, the members develop a shared repertoire of resources through mutual engagement over time. Members of this community share a great deal of history, knowledge, and experience that create an exclusive cohesiveness from an outsider’s perspective and increase the sense of unity and commitment.
Teaching Sustainable Landscape Design in an Architecture Course

Daryl Carrington Temple University

Keywords: sustainable site, architecture

Background: Sustainable Landscape Design is a module in a three credit lecture course entitled ‘Sustainable Architecture’. Students are in their third or fourth year, and site module is the first time they are presented the science of site design. The site module has five lecture classes, and a field trip.

Learning Objectives:
• Understand basic principles and goals for creating sustainable sites
• Understand and apply sustainable landscape practices
• Understand and apply ecological service metrics to an existing site.
• Visit one or more sites with sustainable landscape features

Methods: The Sustainable Site module advances the basic scientific understanding of the impacts buildings have on the site. Topics include, plant communities, habitat, native species (Tallamy), environmental and plant stewardship, water cycle (Pachett), and ecological services (Myers). Concepts of sustainable design are presented, such as, ecological building services, green infrastructure, plants and indoor air quality (Nedlaw, Meattle), and landscape performance assessment (Myers). Practice topics include native plant communities, BMPs, green infrastructure.

Visiting Lecturer: Visiting lecturers from academia or practice provide insights into the profession of landscape architecture, the contribution the profession makes to sustainability, and how landscape architects and architects can work together to enhance sustainability.

Fieldtrip: Students visit a sustainable site or sites to see sustainable practices, and understand the close integration of landscape and building in sustainable design.

Learning Metrics: Tests are designed to illustrate the student’s ability to choose appropriate practices for a site on campus, and to predict results from the practices and their use in combination.

Outcomes: This course seeks to expand the student knowledge of site design as fundamental to sustainability, and, simultaneously, to good building design. While more architecture instructors are becoming concerned with the relationship between building and site, Sustainable Site Design remains a small effort in the larger architectural curriculum.

Future Research: What level of knowledge of sustainable landscape design practice do architecture students require? Would architecture students benefit from vertical integration of similar site design modules paralleling design studios?
DESIGN IMPLEMENTATION
Low Impact Development for Impervious Surface Connectivity Mitigation: Assessment of Directly Connected Impervious Area (DCIA) in the Energy Corridor District, Houston, TX

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**keywords**: impervious surface connectivity, directly connected impervious area (DCIA), Low Impact Development (LID), the Energy Corridor District

Houston, the largest metropolitan area in Texas, has experienced rapid urbanization during the past decades. Such rapid growth has worsened the environmental quality. For example, increasing impervious surface in San Jacinto River basin has accelerated direct wastewater/stormwater discharge into water bodies causing urban stream degradation. Decreased groundwater recharge consequently has resulted in land subsidence. Some ground levels in the Houston-Galveston Metropolitan Statistical Area could sink almost ten feet in the next century. To tackle this problem, a Low Impact Development (LID) approach appears to be a promising alternative to maximize on-site infiltration and reduce direct runoff discharge to the stormwater pipelines.

Although recent studies emphasize the benefits and performance of LID, the impact of LID on impervious surface connectivity to downstream drainage has not yet been fully investigated by using quantitative measurements. In previous studies, changes in directly connected impervious area (DCIA) and discharged stormwater volume were measured. Unlike the total impervious area (TIA), DCIA is a fraction of the impervious area that is hydraulically connected to downstream drainage by the piped route. Several studies have documented that DCIA is a more accurate predictor of urban development impact on stream ecosystems than TIA.

This study measured the DCIA of urban watersheds and prioritized land use types based on the contribution of hypothetically implemented LID facilities to DCIA reduction for each land use. The study area is the 4,060-acre Energy Corridor District located in Houston, TX. Nine sub-catchments were selected and each sub-catchment represented a different land use and density: undeveloped, single-family residential, multi-family residential, big box retail, and scattered small-scale retail areas. Stormwater infrastructure and impervious cover data were primarily analyzed by using Geographic Information Systems. Sutherland’s equations taken from Sutherland, R.C. (1995) were utilized to calculate DCIA at the parcel level.

The presentation will deliver 1) a greater value of DCIA in commercial areas than that in residential areas (single family houses 40%, multi-family houses 64%, big box retails 77%, scattered small-scale retails 71%); 2) a significant reduction of DCIA for all land uses after hypothetically implementing LID applications; and 3) a greater change of DCIA in big box retail areas with LID applications. The results will contribute to decision making in determining which land use type is of higher priority to implement source-control stormwater infrastructure and providing local governments with a better index to calculate drainage fees, which are currently imposed on property owners based on TIA data.
Living Walls in Hot Climates: Lessons learned from three student led installations

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Keywords: Living Wall, Plant Viability, Moisture, Maintenance

During the late 1990’s, living walls become known after French botanist and artist Patrick Blanc developed large-scale hydroponic vertical gardens in Europe (Blanc 2008). Since the late 2000’s, vendors in North America began marketing similar type affordable living wall systems for mass production. These mass produced systems are thought to attain multiple benefits; however, there is limited research on their performance benefits (Perini, 2013) or guidelines for plant selection (Dunnett 2004). Since 2013, faculty and students at the Texas A&M University have worked with living walls on campus to investigate micro-climate differences and plant viability of the three living wall systems.

Study methods include 1) plant investigations and selection, 2) layout and implementation of the systems, and 3) evaluation of plant survival and maintenance observations. Under the direction of faculty, students installed three different 100 square foot living wall systems on identical south facing walls on the 5-story rooftop of the Langford Architecture building at Texas A&M University (located in a subtropical climate). Students investigated and selected vegetation, ordered plants, established plants in green houses, installed the living wall and irrigation systems. Each living wall system has different characteristics including plant attachment and angle of repose, soil mass and retention capacity, moisture delivery and retention methods, drainage characteristics and attachment methods to hang on the wall. Living wall #1 has 1’ x 1’ x 4” plastic modular boxes hung on a metal hanger. Each module has 8 soil pockets for individual plants that hold 52.3 cu. in. of media and retains 25 cu in. of water. Living wall #2 has thick felt pockets mounted on 32” x 24” boards, and 12 pockets. Each pocket holds about 90.4 cu. in. of media per plant and water drains through fabric to pocket below. Living wall #3 is a hung plastic crate with a soil bag inside and each plant has access to 1469.0 cu. in. of media. Water freely drains from each create. All three systems had drip irrigation connected to automatic control valves that ran for 30 minutes every other day for walls 1 & 3 and daily for wall 2. Growing media for all systems was a lightweight green roof intensive media mix by Rooflite®. Through the end of the 2014 growing season, living wall #1 had three of ten species adapt, living wall #2 had seven of thirteen species adapt, and living wall #3 had four of eight species adapt.
Suburban greenfield developments load public reservoirs with sediment and nutrients perpetuating the need for stormwater controls that are both functional and acceptable to community residents (Li et al. 2010). In geographic locations where evaporation is high, stormwater best management practices tend not to be implemented with hydrophilic vegetation, instead drought tolerant vegetation is common.

The uses of sand and pervious engineered growing media provide effective stormwater storage and filtration, but create dry, often nutrient limited, conditions in bioretention cells. Four projects in three Oklahoma watersheds provide examples of a dryland approach to rain garden design. Trailwoods Greenstreet, (Norman, OK), Bioretention Cells (Grove, OK) Carrington Lakes (Norman, OK) and Deerfield Estates (Oklahoma City, OK) utilize dry-adapted rain garden vegetation to improve stormwater quality while providing a range of garden aesthetics.

Influenced by the dryland prairies and riparian forests of the region, the various projects contain palettes of native and non-native drought tolerant species planted under different themes and uses. Dryland plants include grasses, perennials, shrubs and trees. Little Blue Stem, Russian Sage, Artemisia, Elm, Daylily and Mexican Primrose are few of the observed species.

During the establishment period maintenance regimes varied. Several gardens were stewarded for weeding and pruning, while others were left to naturalize. The authors describe the various palettes employed and their evolution during establishment using NDVI measurements, in-field visitation, and photo documentation. The data collected and presented in this study provides educators and scholars examining arid bioretention (Li et al. 2011) and selecting plants for professionals and the public (Vander Veen 2014) additional resources for conceptualization and performance alternatives in bioretention and rain garden infrastructure.
HISTORY AND THEORY
In this paper, I would like to attempt to develop a project that uses a methodology similar to what we can call an “Archaeology of Space”, in the way seeking to trace the ancient pathways that connected people and cultures that no longer exists. In this sense, the “cubas” are a virtuous entity of study since they establish a strong connotation with the landscape through the spiritual, military, commercial and transhumance pathways that spread through the ancient Iberia.

The “cubas” - small constructions located both in the Islamic-influenced Iberia and in Northern Africa, which are characterized by their domes painted with whitewash - are still a source of debate among Medieval scholars, raising questions such as: what were their function and purpose? How were the locations of construction chosen?

In this ongoing PhD dissertation, I will focus on this very specific type of construction ordinarily called “cubas” located on the south of Portugal, in order to study the relationship they share with the surrounding landscape.

Two aims are subjected out of this paper. First, analysing the correlation that exists between these buildings and the landscape in which they are located. By using a map of the South of Portugal, in which to introduce historical information (the location of Roman roads, ancient pathways of pilgrimage, trade and transhumance), geographical data (topography, rocky outcrops, vegetation and streams), and, finally, the location of the “cubas”, in search of clarifying their function and purpose. Finally, focusing on the “cubas” themselves, through the survey both architectural and photographic, emphasizing the articulation of the building with the immediate surroundings and the morphological, constructive and metric features in order to address the fundamental question of their purpose: are they strictly religious buildings, or do they have also an administrative and/or military purpose?
Inciting Touristic Change and Changing Landscape Insight

Herbert Gottfried  Cornell University

keywords: travel, tourism, landscape, guides, view books

The paper explains the historical relationship between representations of the American landscape and the development of touring and tourism. The key is a visual culture that promotes scenery and the production of printed guides and view book souvenirs.

Beginning in the 1820s, touring—a social project for a certain class—centered on taking in scenery. It quickly became prescriptive by recommending particular sights and views appropriate to a proper tour of spas and scenery. Upstate New York was the first area to offer a touring circuit. The focus on landscape experience expanded to other regions, and the landscape scene became the primary currency of touring. The scene is reproduced in visually oriented travel guides and souvenirs. Touring was an international. In travel writing the “English and French described the landscape in terms of pictorial composition.” European travelers privileged the eye, and travel writing produced “the rest of the world” for European readership. “What is brought into view is boundless scenery . . . [of] seemingly ‘uninscribed’ land that in colonial discourse is available for exploitation.” American pictures suggest that land is “uninscribed.” Publications related to travel took inscription for granted, because tourist sites were made of layers of inscription accumulated over time.

The method entails analyzing: the history of tourism through historical and critical texts; the history of landscape representation through an analysis of paintings and photographs; the content of printed guides and view books.

Touristic site development contributed to an emerging visual culture that relied on landscape representation, which included: picturesque scenes in paintings and prints, and developments in printing that integrated written text and images and technical advancements in printing photographs including photo-lithography. Scenes could be compiled by subject categories: Thomas Cole’s paintings and his essay on nature are the critical texts for landscape subjects; photograph categories promote discovery and documentation, and the tourism industry promotes places. Pictures seemingly approved land transformation, suggesting such images were as natural as those of untransformed lands. The integration of nature with culture accommodates much of what happened in everyday America, through landscape development.

American society learns from these transformations: to accept change in landscapes, to create landscapes dependent on human agency, to invest in managed views and landscape commentary, and to recognize the scene as the basis for landscape change and “scenic habits” as a cultural basis for landscape experience, and to anticipate travel.
Modularity: Ecology, technology, and the production of landscape

Richard Hindle University of California Berkeley

keywords: Modularity, ecology, technology, landscape, fabrication, complex systems, cultural production

“Modularity abounds in nature. Moreover, human art and engineering, as well as mathematics, crucially rely on modular design principles in their constructions”
- Callebaut, Werner.

This presentation explores concepts of modularity in the design of ecological and material systems, and within the field of Landscape Architecture more broadly. Modularity in its simplest form is the “attempt to understand systems as integrations of partially independent and interacting units”. The concept finds its origins in the Scientific Revolution and now permeates fields as diverse as ecology, industrial design, physiology, genetics, art, engineering, chemistry, economics, evolutionary biology, architecture, computer sciences, and other disciplines concerned with the design and study of complex systems. Landscape Architecture’s renewed agency in the design of complex systems make theories of modularity relevant to the discipline, as well as to the production of the physical landscape. This presentation offers a speculative point of departure for a discussion of modularity within Landscape Architecture and a historical overview of points of intersection.

Theories of modularity have surprising cross-disciplinary resilience, and can be applied similarly to the description of community structures, evolution of species, and design rules that govern building and industrial processes, making it particularly salient to Landscape Architecture at the nexus of complex natural, material, and social systems. The presentation will begin with a discussion of the general principle of modularity, and proceed with an exploration of the relationship between industrial processes, architecture, and modularity, as it relates to Landscape Architecture. A similar discussion will explore modularity in ecological theory and biological systems. Emphasis will be given to the potential interstices of industrial ‘things’ and the fabrication of ecological ‘systems’, a salient discussion in the context of contemporary landscape architectural praxis. An investigation of modularity and systems theory will also help establish a framework for a discussion of prototyping as a primary form of experimentation with deep ties to the scientific method, industrial process, and the production of landscape. Primary references for this presentation borrow from architecture (Walter Gropius, Stanford Kwinter), systems theory (Herbert Simon, Christopher Alexander), ecology and biology (Ernst Mayr, Charles Darwin), and will include precedents from industrial design, prefabricated architecture, ecological engineering, landscape architecture, and its allied disciplines.
An Infrastructure of Innovation: Levees, patents, and the Department of Interior 1849-1925

Richard Hindle University of California Berkeley

keywords: levees, patents, innovation, department of interior, USPTO, flood control, landscape infrastructure

This presentation explores advances in levee design in the late 19th and early 20th century, and the legal, cultural, and technical ‘infrastructure’ that supported innovation in large-scale landscape ‘infrastructural’ systems during the period from 1849-1925 when the United States Patent and Trademark Office (USPTO) operated within the Department of Interior. An important objective of this research is to highlight historical precedent for design innovation in regional landscape systems and a mechanism for diffusion and adoption of new technology, a subject with relevance to contemporary Landscape Architecture as the profession addresses issues of infrastructural design and technological innovation across a range of scales. Primary sources include early patents for levee design, expert testimony to congress, promotional materials boosting regional infrastructure, policies that consolidated federal engineering projects, and the relationship of these factors to the extant levee systems of the San Joaquin and Mississippi river deltas. Special attention will be given to unrealized and innovative levee designs, and their potential impact on the American Landscape.

The history of levees infrastructure in the United States is well documented, yet the technical aspects of levee design and construction where by no means a foregone conclusion in the early decades of the 20th century. The relative lack of precedent in regional scale landscape infrastructure providing fertile ground for innovative solutions to emerge within existing legal and institutional frameworks of the patent system. The search for reliable flood control methods catalyzed innovations in levee design and the iterative process of revision is clearly chronicled in the U.S. patent archive. Individual inventors of the era posited levee designs with the USPTO in an attempt to provide technological solutions to flooding and river control while disclosing and describing their inventions through established legal mechanisms. This increase in levee patents coincides with a period of unparalleled growth in national infrastructure and with the USPTO operating under the auspices of the Department of the Interior whose primary charter intersected with domestic and land related issues. Patents from the era chronicle a flurry of innovation in landscape infrastructure, providing insights into early bioengineering techniques, hydrologic design, and the mechanization of American landscapes. Although the methods for this presentation are primarily historiographical, a subtext to this presentation is the potential for new landscape technologies and innovative processes to transcend scales and impact ecological and regional systems which may provide important precedent for contemporary landscape architecture in an era of expanding professional scope.
Landscape Architecture History and Design in the Anthropocene

Anita Bakshi Rutgers University

keywords: Anthropocene, Climate Change, Nature and Culture, the Three Natures, Smithson

In what some have termed the Anthropocene era it is uncommon to speak of a nature anywhere on the globe that remains pure or untouched by the actions of man. We witness the anxiety about the possible or imminent irretrievable loss of nature, as we have understood it, expressed in various fields, including literature, ecopoetics, the writing of environmental histories, and political movements in Latin America that have legally recognized “Rights for Nature.” Yet this anxiety has not yet managed to migrate into landscape architectural design or history approaches in a significant way. Why has this not occurred? In order to understand the lack of movement in this direction, this paper will look to the changes in understandings of the relationship between nature and culture, and the Three Natures. Since contemporary significant changes to the climate, environment, and weather invite, indeed necessitate, an adequate design response, I want to question what necessary steps must be taken in order to allow such a design language to emerge: a language that can appropriately mark the changes to nature and can draw attention to causes of environmental change.

I will argue that such a move can be encouraged by revisiting a key moment in the 1960s-70s in the work of Robert Smithson. Smithson’s earthworks, films, photographs, and theoretical essays engaged seriously with exploring a ‘nature’ that incorporated the wastes of industry and emphasized the hand of man: a radical proposal akin to the new ‘Third Nature’ that emerged in the Renaissance, where the interaction of nature and culture was both a “natural artifice” and an “artificial nature.” While this did find its way into certain land art projects, this has rarely been embraced in the design fields. Thereby, landscape and architecture have missed the opportunity to play a major mediating role as a means to understand the relationship between natural and social systems in this period of accelerated environmental change. This paper argues that revisiting Smithson’s ideas could be useful at this juncture, in which a critical re-articulation of the relationship between nature and culture is called for. It explores several contemporary examples that illustrate this ‘marking of absence’ that could perhaps serve as pointers toward a new category of what we might term a ‘Fourth Nature,’ and the implications of this for history, theory, and design education.
Contemporary Shanshui - Expanding from the Chinese Picturesque: I.M. Pei’s garden at the Suzhou Museum

Padua Mary Clemson University

keywords: contemporary design, China

This work is an exercise in interpretative design theory and design critique. It examines I.M. Pei’s garden at the Suzhou Museum located in historic Suzhou, Jiangsu province, through the lens of contemporary shanshui (Fisher 2011). Shanshui literally means mountain water in the Chinese language. However, it is also known as a traditional genre in the Chinese classical art of painting that is somewhat abstract; an individual would have a transformational experience and feel connected and dominated by a “constructed” nature. In this case, historical shanshui painting was not about the representation of an accurate rendition of a particular landscape. It was also heavily influenced by Taoism, where humans were dominated by nature and a typical shanshui painting would depict a peasant or monk on a foot path dominated by a mountainscape and water feature (Barnhart 1997). For garden historians, the traditional Chinese garden or Chinese Picturesque genre (Padua 2006), largely draws from scenery manipulation, e.g. framing the view, borrowing the view, etc. and ways of experiencing the garden: from stationary points or in motion. Through a case study analysis of I.M. Pei’s garden at Suzhou museum, this work will demonstrate ways that Pei employed principles of the Chinese picturesque tradition to create a three dimensional contemporary shanshui experience.
Reconstructing Paradise: The early design history of Pardisan Park

Kathleen John-Alder Rutgers University

keywords: McHarg, Environmentalism, Tehran, Modernization

In March of 1975, the land planning and landscape architecture firm Wallace, McHarg, Roberts and Todd delivered a report to the Iranian Department of Environment titled Pardisan: Plan for an Environmental Park in Tehran. According to the document, Pardisan would be an international symbol of enlightened stewardship that would outshine all other environmental parks. Nationally, it would integrate ecology into Iran’s modernization schemes, and thus showcase the progressive vision of its Imperial Government. Not surprisingly, given these ambitions, Pardisan was also seen as a means for Iran to regain its position as one of the world’s intellectual leaders.

Project records indicate that Pardisan’s conservation, education, and recreation mandate reflected the modernization vision of Farah Diba-Pahlavi, the Empress and consort of Mohammed Reza Pahlavi the Shah of Iran, even though its implementation required the financial backing of the Shah. To this end, the design embraced an anti-modern sentiment that made reference to ancient Persian architecture, Islamic spiritualism and traditional custom. While clearly intended to garner political and financial support, this stance also reflected a growing sense among the Iranian design-elite (a belief shared with environmentalists in the United States) that technological progress was no longer adequate — that it had somehow caused people to lose contact with their surroundings and with each other. That Iranian society, in other words, was somehow the beneficiary and victim of modernization. Further complicating this argument, was the equally strong desire by Iran’s burgeoning middle class for all the accoutrements that technology provided.

In this sense, Pardisan was as much about personal interests and motivations as it was about Iran’s modernization agenda. To capture this elusive but critical aspect of the design, this presentation draws upon archival resources, project reports and interviews in order to let the words and actions of the project’s key players — Eskandar Firouz, the Director of the Department of Environment in Iran; Ian McHarg, the project designer; and Nader Ardalan, who sought to infuse the architecture with spiritual meaning — speak for themselves as they developed the plan and sought support for its implementation. In so doing, this presentation reveals the intersection of aspirations, ambitions, and politics that ultimately shaped the design. Equally important, by recovering the scattered pieces of Pardisan’s early history this presentation captures an important moment in mid-twentieth century landscape design when regionally inspired conservation strategies became global in scope and entwined with post-colonial modernization agendas.
The Hot Air of Geysers

Michael Alexander King University of Illinois at Urbana-Champaign

*keywords*: Authorship, Canonization, Professionalism, National Parks, Vernacular

A boardwalk juts out towards Sunset Lake in Yellowstone National Park, guiding intrepid pedestrians into the ephemeral steam emanating from a geyser and enshrouding them. Boardwalks (or decks) are one of the standard structures of landscape architecture, for which a construction drawing is sometimes required and tested on the Landscape Architecture Registration Exam (LARE) and therefore of concern to those striving to become professional landscape architects. As such, the Sunset Lake boardwalk is a work of professionalized landscape architecture, one that transforms Sunset Lake from space into place. It is also a structure that presages Diller Scofidio + Renfro’s Blur Building and predates the fleeting fog sculptures of artist Fujiko Nakaya. Whereas the attributions for the Blur Building and Nakaya’s fog installations are quite clear and evident, the attribution of design for the Sunset Lake boardwalk is itself foggy and mysterious. Using the Sunset Lake boardwalk structure as a foundation, this paper will consider attribution, canonization, and professionalism as themselves nebulous concepts—swirls as ephemeral as steam clouds.

While an attempt will be made to identify who designed the boardwalk and when, to say nothing of who maintains the structure now, which is its own claim to authorship and ownership, the thrust of the paper is not to “de-mystify” such concepts, but rather to attempt to define the various cloud forms of authorship—maintenance worker, user, project manager, engineer, client, and landscape architect, in no particular order.

However, each of the above forms are themselves swirling and nebulous entities—each one a cloud of microbes, brimming with as many microorganisms as the geyser at Sunset Lake is stewing with thermophiles. Revising what it means to be human means revisioning the concepts of authorship and professionalism and entails moving away from the clarity of autonomy into the imbroglio of heteronomy. The ramification of this is not a dissolution of the “author” and “architect,” but rather an explosion of “authors” and “architects.” Whether this makes the profession of landscape history nonsensical remains to be seen, but hopefully such a paper will lead to a revaluation of who and what is involved in the production of space—humans, non-humans, vibrant material, inert material.
Material use always reflects culture. In turn, designers have sometimes sought to shape cultural attitudes through experimentation with and creative application of materials. If topography and planting provide structure for designed landscapes, then materials give them their character. High quality, durable materials are not only essential to a landscape’s longevity, they also have the power to delight and inspire. This paper explores innovation and convention in landscape material use from Modernism to the present. Garrett Eckbo’s 1959 Alcoa Forecast Garden was created through a symbiotic relationship between manufacturer and designer resulting in much needed publicity for the designer and increased sales of a new product for the manufacturer. This cyclical borrowing of materials from other fields corresponds to the periods of innovation while those periods of least innovation correspond to more insular times in which designers failed to engage other fields for material information. Industrial designer Raymond Loewy designed the Sears Coldspot refrigerator with aluminum, a material he knew well from his experience in aerospace design. Loewy’s idea of cross-pollination in design, the free exchange of material knowledge among all designers, has particular resonance today for those who seek to advance material knowledge. The use of new industrial materials by landscape architects helped to define a distinct Modern style as one that consisted of more than just plants. Landscape Modernism became tangible and accessible through this new approach to materiality. Eckbo’s use of aluminum and Robert Royston’s use of colored concrete in the 1950s, Dean Cardasis and Martha Schwartz’s use of acrylic and George Hargreaves’ curvilinear gabions and solid stone for seating in the 1980s, Peter Walker’s fiberglass glowing stones and stainless steel pavement in the 1990s, and the 21st century use of plastics and fiber reinforced concrete by Ken Smith and Adriaan Geuze respectively, represent high points of innovation in landscape materiality that contrast sharply with intervening periods that were much less inventive in material expression. This paper will provide an understanding of the factors that played a role in encouraging material innovation or lack thereof, primarily in the field of landscape architecture, and how it helped to define the field in the years after Modernism.
Exploring a Sustainable Urban Design Approach with Chinese Characteristics - the Shan-Shui City Theory

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Yang Yizhao  University of Oregon

*keywords*: Shan-Shui City Theory, sustainable urban development, place-making, China

Various aesthetic principles have been used to control place-making in China for thousands of years. The Shan-Shui City theory governed the relationship of a human settlement to major landform features (mountain and water), and worked with other rules controlling a city’s physical layout to create many well-known Chinese cities such as Beijing, Hangzhou, Suzhou, Chengdu, etc.

The fundamental principles of Shan-shui City theory, a vernacular approach to place-making, derive from Chinese ideas of promoting a harmonious and mutually nurturing relationship between man and nature. Applications of these principles have long manifested through the aesthetic prescription of classic Chinese garden and landscape design (Fu, 2002). The Shan-Shui city idea often resonates strongly with local communities because of its deep roots in Chinese aesthetic values and environmental philosophy (Rowe and Wu, 2002).

Using archive research and content analysis, this paper traces the origin of the Shan-Shui city theory and its practices through ancient China, as well as its re-inception in contemporary China. This paper presents a historical narrative of the evaluation of the Shan-Shui City theory in guiding urban planning and design in China. Using case studies of ancient Chinese cities and large-scale contemporary urban projects to illustrate the applications of the Shan-Shui City theory, this paper provides a theoretic discourse about how urban design strategies based on the Shan-Shui city theory could generate desirable cognitive, affective, and behavioral outcomes through way finding, cultural resonance, and place identity.

This paper argues that the environmental attitudes underlying the “Shan-Shui” concept and the spatial design strategies informed by the “Shan-Shui” city theory make this place-making approach appealing and effective for achieving urban sustainability in China. As China strives to direct its urbanization in a more sustainable direction, an important challenge facing designers is how China’s urban development can successfully accommodate the fastest rate of urbanization in the world while maintaining elements of Chinese identity in modifying and creating urban environments? An answer to this question will have significant impacts on the continuous evolution of cities in China as the country enters a new stage of urbanization and urban development (Sit, 2010).
**Primetime Landscapes = Image Making + Mass Media + Visual Marketing**

Mira Engler  Iowa State University

*keywords: image making; mass media; visual marketing; consumer culture*

Over the past three centuries, landscapes have performed as idealized commodities through mass media, for mass audiences, via attractive images. This paper explores the agency of image making and visual marketing in promoting and popularizing landscape design to both professional and lay audiences. Media-savvy figures, not necessarily trained as landscape architects, have had immense influence on the design of landscapes and have garnered massive popularity, not to mention a nice paycheck. These figures include the eighteenth-century landscape gardener Humphry Repton; the nineteenth-century landscape architect Frederick Law Olmsted; the postwar architectural draftsman Gordon Cullen; the landscape planner Ian McHarg; and the contemporary horticulturalist and landscape designer Jamie Durie, to name a few.

I study the production modes, representational systems, and marketing strategies of three figures—Repton and his handcrafted and printed Red Books, Cullen and his Townscape publications, and Durie and his HGTV outdoor room series. The paper considers the degrees of similarity and difference in the work of each figure within the individual’s career and time period and collectively over the long haul. Drawing on primary and secondary sources, I show that each packaged and “sold” their landscape “merchandise” in the most persuasive way and produced a new understanding of landscape, one that is located decidedly within human experience and that is sensory-laden and immersive. The drive for broad public appeal led all three to borrow and mix pictorial devises from a number of high- and low-brow art genres—painting, theater, magic, and/or film—and to privilege the perspective technique over others. They also used everyday visual precedents, colloquial verbal prescriptions, and a step-by-step “how-to” approach to reach an increasingly diverse audience. To market their products they borrowed advertising strategies and invented interactive reader/viewer practices. These designers, though different in their messages and significance appealed to a growing consumer market that fit in the particular logic of the economy and media technology of their time. By looking at these figures the paper helps shed light on how landscape architects can better use current digital media and marketing strategies in pursuits of broader and more diverse audience and thus greater influence.
Data or Art? A Proposed Method for Analysis of Historic Landscape Photos

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Peter Summerlin Mississippi State University

keywords: Landscape history, photography, methodology

Historic photographs are becoming more and more accessible as libraries, archives and museums post entire collections of digital images online. While old photos are compelling and used as illustrations alongside the text of many landscape history studies, researchers have been hesitant to draw conclusions from the images themselves. A quick review of the literature on visual research methods or historic photography is enough to make any researcher cautious. Even proponents have acknowledged the medium’s limitations with strong statements, such as “all photos lie” (Goldstein 2007), “a good photograph is not necessarily good data” (Collier 2001) and “photographs…have many interpretations” (Margolis n.d.).

On the other hand, historic photographs are the only record of some built environments of the late nineteenth and early twentieth centuries. In particular, early photographers recorded some vernacular residential landscapes and early urban environments that lack the more extensive documentation of more renowned residences, gardens and cityscapes. So how can landscape historians make use of photographs to improve understanding of these environments while avoiding the pitfalls of photographs as works of art?

There is growing consensus among photography researchers that the key to using photographs in historical research is context. Essentially, this approach involves learning “as much as possible” (Borchert 1982) about the images and their social, physical and historical setting. While this approach makes obvious sense, it lacks specificity both in terms of photo analysis and in regard to the particular information necessary to arrive at an understanding of a landscape. This presentation will propose a more detailed method for analyzing and providing context for early photographs. The method is intended to force the reviewer to inventory and analyze the photograph in separate stages, thereby making the viewer’s review of the image explicit. Additionally, the method requires location of the viewpoint of the photograph.

In order to demonstrate the approach, the authors will present examinations of two residential landscapes that no longer exist: the Von Seutter residence in Jackson, Mississippi and the Lytle residence in Baton Rouge, Louisiana. In each case, the photographs are key to arriving at an understanding of these individual sites, but also useful for improving our general understanding of the evolution of Southern residential landscapes. The presentation will conclude with a frank discussion of the limitations of the approach and how it might be improved for use in additional studies.
Denaturing the Korean DMZ: Representations and uses of “The Environment”

Katherine E. Bennett The Ohio State University

*keywords*: environmental ethics, ecology, nature, wildlife conservation, landscape theory

The South Korean village of Yangji-ri, home to 79 families, is known as “North Village” for its proximity to Korea’s Demilitarized Zone (DMZ), two miles away. Yangji-ri’s other nickname, “Village of Migratory Birds,” also owes to its location near the guarded DMZ, which has become an abundant and bio-diverse wildlife corridor since its creation by the 1953 Armistice Agreement suspending the Korean War (Brady 2008, Healy 2007, Kim, K. 1997, Miura and Bak 2011). Forested mountain foothills wrapping the village (“ri”) and the adjacent Togyo Lake reservoir connect it to the DMZ corridor. The foothills, reservoir and DMZ provide crucial winter habitat to endangered migratory birds.

The birds bring birdwatchers, and the biodiversity brings scientists, augmenting Yangji-ri’s declining population and economy. In 2010, Yangji-ri applied for and received a redevelopment grant to establish the village as a destination for ecotourism. Begun under a previous presidential administration, the “Bird Village” design and construction project has encountered funding delays since completion of its schematic design in late 2011.

This presentation examines the Bird Village’s planning and design as it represents bigger plans to redevelop the DMZ’s border, and ultimately the DMZ. I will compare the Bird Village with two higher profile, also unbuilt projects: a cross-border wildlife and “Peace Park” proposed inside the DMZ, and a design competition entry for quite a different environment, Yongsan Park in the South Korean capital Seoul.

Despite their differences, the three projects relate in subscribing to a redevelopment trend that “greens” political and capital interests in economic growth (Reimer 2010). The projects share a representational language that valorizes their political, economic and environmental motives in ecological terms. Their eco-logical rhetoric combines words and images that denature and naturalize the material environments they produce (Derrida 1992). Even when promoting a sincere, factual and exigent environmentalism, as these projects do, their representational language lends to objectification and exploitation of the environments it represents.

My conceptual study of landscape architecture as figuring a representational language that performatively materializes environments draws from Jacques Derrida’s theorization of writing, spacing and erasure (Derrida 1997). I turn also to a device of Korean landscape art, “yobek,” the unpainted space of paintings traditionally representing air and water, and structuring the spaces of the representations themselves (Lee 2007). In common use, “yobek” refers to unprinted space surrounding printed text. It thus compares to Derrida’s concept of spacing as a structural and meaningful device in language.
Roberto Burle Marx and the Conservation of the Brazilian Forest

Catherine Seavitt Nordenson The City College of New York

keywords: Roberto Burle Marx, Lúcio Costa, Brazil, deforestation, culture, conservation

In 1951, the Brazilian architect Lúcio Costa published an essay entitled “Testimony of a Carioca Architect: Concrete, Sun, and Vegetation,” adapted from his letter to Gustavo Capanema, the cultural minister, in support of the establishment of the Ministério da Educação e Saúde building of 1937-42 as an historical and cultural landmark—indeed, as a national monument—of Brazilian modernism. After describing the inventive use of concrete developed by Brazilian structural engineers, Costa adds two additional elements essential to this unique synthesis of brasilidade: climate and plant material, with “nature itself invited to be part of the plan.” Interestingly, Costa identifies the significant contribution of Roberto Burle Marx in the development of modernist architecture. While Burle Marx’s public landscape projects are well known, by the late 1960s he attained an effective political platform from which to develop and promote a robust strategy for the protection and conservation of the Brazilian landscape, specifically the forest. As an appointed Counselor to the Brazilian Conselho Federal de Cultura (Federal Council of Culture), he described the extent of deforestation and development witnessed throughout his travels in Brazil over the course of over forty years of professional life. Like Costa’s earlier initiatives to protect cultural landmarks within the built environment, Burle Marx now sought to protect the natural landscapes throughout Brazil that had provided both inspiration and plant materials for his garden designs. For Burle Marx, this ecological conservation of the forest was a national cultural project, a position that still resonates with environmentalists today. In July 1967, Burle Marx delivered the first of thirteen testimonies in his role as counselor. Entitled “The Brazilian Landscape,” this speech was addressed to both the plenary session of the Conselho Federal de Cultura and the Câmara do Patrimônio Histórico e Artístico National (Chamber of National Historic and Artistic Heritage). Burle Marx states his ambition as counselor: to prevent the continuing deforestation observed over the course of his career, which had led to the extinction of hardwood species and an increase in erosion and mudslides. He notes the observable change in the climate that deforestation seems to have provoked. Burle Marx argued that the definition of national culture needed to include the Brazilian forest, the mata, and its diversity of flora. The “culture” of the forest, like the legacy of modernist buildings, was to be understood as an aspect of Brazilian national heritage, deserving of both definition and protection.
How Capitalism Makes Place: The Silicon Valley as an entrepreneurial landscape

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Keywords: suburbs, office parks, Silicon Valley, corporate landscapes

The Silicon Valley is world renowned, yet as a place its physical reality is diffuse, decentralized, and notably lacking in visual distinction. The emergence of new forms of corporate structures, the culture of research and development formed in established companies of the eastern United States in the 1940s, and the volatile business cycle of innovation technology corporations all shaped the metropolitan landscape of the Silicon Valley. The office park dominated the business landscape of the Silicon Valley, a suburban form invented by developers in the periphery of cities in the eastern United States where individual buildings surrounded by parking lots are knit together by sinuous verges of landscape, just enough to convey the idea of suburbanity. The office park proved to be especially adaptable to the hurly-burly of Silicon Valley’s innovation and venture capital that created abbreviated cycles of boom, bust, start-up, fizzle, and chugging along; office parks allowed tech companies to occupy, expand, contract, and abandon buildings as need be. Five decades along, the titans of the Silicon Valley are now attempting to transform their corporate headquarters into media icons of design, as explicit means of corporate representation. Cash-rich and at the top of its game, Apple is planning an immense singular building, of over a half-mile diameter, placed within an expansive, aesthetically articulated landscape. Similarly Facebook and Google, once content to occupy the interchangeable buildings of yet another office park are embarking on major capital investments, hiring designers of international repute, and generating the attention of east coast design critics. These new corporate headquarter designs seek distinction within the diffuse visual field of the Silicon Valley, articulate a self-consciously discrete corporate identity, and respond to the increasingly urbane tastes of their workforces. These spare-no-expense idylls fly in the face of the Valley’s typical prudence yet can be seen as part of an age-hold quest for lasting imprint on the landscape and on the mind, more about Versailles than virtual reality.
A Desire to Overlook: Pagodas in U.S. parks during City Beautiful Movement period

Bo Zhang Oklahoma State University

keywords: chinoserie, city beautiful movement, pagoda, exoticism, parks in U.S.

Pagoda building in urban parks throughout United States has been an unnoticed area when City Beautiful movement is examined. With historical archives accumulated from previous five years, this study uncovered this phenomenon by knitting together a series of cases ranging from 1980s to 1930s. Among, four cases are studied with details: two existing ones, in Garfield Park at Indianapolis and Patterson Pak at Baltimore; and two demolished ones, used to exist in Garfield Park at Chicago and Floral Park, New York. This study argues several significances of the pagoda in urban open space during City Beautiful period. Pagoda constituted a fine model combining a landmark drawing romantic city outlines and organize city spatial order, and a recreation accommodating people’s need to overlook in large suburb parks. The pagoda construction in U.S. during this era showed contrasting features because of influences from two distinct sources, Europe chinoserie across Atlantic and authentic Chinese and Japanese across Pacific, largely due to the advanced international communication. While the industrialization enabled urban landscape practitioners to pursuit this hedonistic, functional and exotic form with powerful building techniques, the theories of authenticity, originality, legitimacy and were diminished at the same time. The widely use of iron and steel products rendered this exotic form with some zest of Americana. Currently, on-going research still explores textual materials that can better explain the motivation of exotic form adoption.
With the increasing attentions and interests in the historical, cultural, and social life of the Chinese immigrants, many scholarships have been dedicated to examining the spatial practices of the dominant White society and its impact on the formation and evolution of the Chinese community (Anderson 1991, Laguerre 2000). However, within this emerging and growing scholarship, the sites of Chinese cemeteries have been long ignored and their importance as a physical space inscribing the complex cultural and social meanings of Chinese American history has been understated. As Richard E. Meyer indicates, ‘cemeteries are far more than merely elements of space sectioned off and set aside for the burial of the dead: they are, in effect, open cultural texts, there to be read and appreciated by anyone who takes the time to learn a bit of their special language’ (Meyer 1993, p. 3). Thus cemeteries are important sites for us to understand the cultural structures and social patterns of ethnic groups in the United States.

Chinese ethnic expressions and ritual practices regarding death are significantly distinct from Western traditions. Historically excluded from the U.S. national categories and marked as “alien” and “others,” Chinese immigrants were underrepresented in the public discourses, and consequently, the Chinese cemeteries received very little public and scholarly attention. Drawn on two preservation projects dedicated to the preservation of historic Chinese cemeteries—the nineteenth-century Chinese Memorial Shrine in Los Angeles, California, and Concordia Chinese Cemetery located in El Paso, Texas—this study examines the recent acknowledgment of the historic value of Chinese American cemeteries by the U.S. government, the general public, and Chinese American communities. Both cemeteries, similar to many other Chinese American cemeteries, have confronted several challenges, including segregation and alienation due to historic racist practices; ignorance and vandalism that result from a general lack of understanding of the particular cultural history and practices of the ethnic group. The recent preservation efforts have managed to overcome some of these challenges, but at the same time, the lure of tourism and the claims of the descendant community led to a series of efforts to shape the interpretation and reproduce the past. The issue of how a landscape of death should be represented and interpreted as societies change and new forms of identity politics emerge is a crucial matter.
Leading a Change to Conserve the Cultural and Natural Heritage: A case study of International Workshops for Historic Urban Landscape (HUL) Program of UNESCO

Artunc Sadik Mississippi State University

keywords: International Workshop, HUL, Historic and Cultural Heritage

Landscape architects wear many hats to practice their knowledge, skills and abilities. One of these hats is to lead a change toward conservation of cultural and natural heritage at home and abroad. Often desired changes are initiated through workshops to create a common community vision and action plan.

Workshops are useful to build basic understanding, teaching key concepts and generating successful participation and collaboration by allowing practice of some useful knowledge, skills and abilities. Workshops should be planned as workbooks not as textbooks. The real genius of most workshops are their ability to take a complex topic and make it understandable and useful rather than to give in-depth coverage or to display workshop leaders’ command and mastery of a topic. Workshop leaders should build participants’ confidence by being approachable and giving them respect.

Running a successful workshop in a setting where all participants have same cultural and professional backgrounds and speak the same language takes a lot of advance preparation and planning. But running a workshop abroad where participants have a diverse background and speak a foreign language further complicate planning and running a successful workshop. These complications may include learning cultural or local attitudes, behavior and taboos, political conditions, access or availability of technical support for simultaneous translation, audio visuals, GIS, drafting equipment/supplies, and reproduction of generated materials, etc. Although these considerations are taken granted in the U.S.A., they may become even more important for workshops by limiting effectiveness of delivery and participation.

This presentation will share experiences of the author who organized and led two workshops for the UNESCO Historic Urban Landscapes Program. These workshops organized contribution of multi-disciplinary planning-design professionals from five countries and enabled local professionals and community to develop a common vision and action plan toward generating an application for the UNESCO Historic Urban Landscapes Pilot Program. The presentation will share a step by step process to run a successful workshop for the U.S.A. and abroad based on lessons learned (professional and cultural) from successes and failures experienced.

This presentation is timely and relevant for this conference at a time where practice of landscape architecture is become more global and educational institutions are observing a higher numbers of international students. Therefore, it is important for educators to develop a global awareness and effectively incorporate implications of global needs into their teaching, research and scholarly endeavors, and actively provide scholarly service at home and abroad.
Indiana State Parks and the Exhibitionary Complex

Steve Burows University of Illinois at Urbana-Champaign

keywords: State Parks, Indiana Culture, Exhibitionary Complex

In its broadest sense, the Indiana State Park system grew out of a set of Progressive Era environmental conservation initiatives aimed at mediating the physical changes to the American landscape brought about by the process of industrialization. This paper, however, is primarily concerned with the role of Indiana’s state parks as part of a more localized cultural narrative between 1916—the year the first Indiana state park was designated—and the end of World War II. It speculates on the role of the Hoosier landscape in the creation and performance of institutional authority in Indiana during the first half of the 20th century. Through an examination of official publications of the Indiana Department of Conservation and its affiliated Bureau of Education, as well as selected newspapers, travel guides, and contemporary ephemera, I trace how the physical and conceptual space of the burgeoning park system reflected shifting pedagogical initiatives driven by state institutions during an era of pronounced social changes at both the local and national scale. I position the parks as material signs of what sociologist Tony Bennett referred to as the “exhibitionary complex,” and suggest that the parks were a crucial piece of architecture to support a developing state-wide disciplinary apparatus intent not only on educating and shaping the Hoosier citizenry, but also shaping the Hoosier landscape itself.
Present Pasts: Memorials, meaning and discourse in public urban space

Joern Langhorst - University of Colorado Denver

*keywords*: aesthetics/meaning, culture, social issues, public space, memory

This paper explores the role of memory and its material and spatial expression in urban landscapes as “memorial” and “monument” in addressing collective and individual trauma, and its attendant issues of politicization and spatialization in the construction of meaning - a discourse brought to the forefront again by the opening of the memorial at the World Trade Center site.

The role of spaces of commemoration in discourses that construct community and place identity is examined through several examples, focusing on the “Monument for the Murdered Jews in Europe” and the “Topography of Terror” in Berlin, Germany. Both memorials have been discussed very controversially during their conception, construction and reception, and suggest that memorials can serve as both catalyst and location for ongoing discourses about place, history and memory and their different readings.

Foucault’s concept of “heterotopia” allows for the interpretation of monuments and memorials both as expression of power and as “counter-places”, sites of resistance against hegemonic discourses.

In this way memorials and monuments participate in the formation of identity – as material and spatial expression (space / place) and as “cultural” identity. These identities are in a state of flux and incompleteness, a condition that is at odds with the conventional monument / memorial that inscribes a particular and closed interpretation of the past into public space, cementing meanings and readings of the past that tend to be aligned with dominant cultural and political positions at the time of inception and building. The concept of counter-memorial suggests to engage the continuous and open-ended process and space of commemoration as a location of ongoing conflicts.

James Young’s assertion that contemporary memorials “aim not to console but to provoke, not to remain fixed but to change, not to be everlasting but to disappear (…), not to remain pristine but to invite their own violation and not to accept gracially the burden of memory but to drop it at the subject’s feet” (cit. in Huyssen 1994) opens the possibility to understand commemoration as a continuous process and allow the dialectics of memory and history to play out, facilitated by the spaces designed for it.

This raises questions of finding appropriate spatial and aesthetic expressions, the ‘ownership’ of trauma and grief, the commodification of memory, the conflict between “the sacred and the profane”, between the demands of commemoration and ‘useful’ public space, and between multiple versions of “acceptable behavior” in such places.
Incite Change Through Writing and Action: Lawrence Halprin and the ethical construct for landscape architectural practice

Judith Wasserman University of Georgia

keywords: Halprin, Landscape Architectural Ethics

Lawrence and Anna Halprin are known for the innovative RSVP Cycle process, promoting spatial choreography to invite motion and participation. Lesser known is their ethics of engagement and the necessity of value-laden creative production. To illustrate, an essential step in the RSVP process includes Valuaction – determining the value of each action as an essential step in design, art or planning.

Anna Halprin credits the influential University of Wisconsin’s Hillel Rabbi Max Kadushin as the initial guiding force in shaping the couple’s lifelong commitment to engaged action. Famed as a rabbinic scholar and Jewish ethicist, Kadushin’s work applied the Jewish ethical code to daily life and action. For Lawrence Halprin this ethical and intellectual construct for landscape architectural practice was promoted through writings, lectures and political activities relevant to the diverse societal and environmental concerns of the era in which he lived and worked.

With a critical eye, Lawrence Halprin’s work is a social commentary on change and development in a transformative time. Church and Halprin promote the benefits of outdoor living for the Californian while chiding the traditional backyard design as an outmoded colonial construct, Halprin disparages unregulated growth in 1960’s California equating the “television antennae-sprouting” roof-tops and houses as Malthusian “...faceless, nameless, surrealist horror”, he promotes design intent with ecological principles through creating “…communities as places to live which are as inevitable in their biological structures as our needs,” and seeks to solve the urban destruction of the highway interchange through reframing the issue and seeking its deeper significance. His talk at the Transportation Roundtable at the Urban America, Inc. conference positioned transportation and movement beyond an engineering question. Instead he engaged a personal narrative describing an experience of motion, release, and the mythological journey of escape. His 1968 call for integrated planning processes in New York City demanded racially integrated inclusion, while last minute revisions of a talk on environmental design at Yale responded to the tragedy at Kent State. Applying early lessons of Kadushin, Halprin’s work went well beyond design production. Through promoting the benefits of landscape architectural works from an ethical context, Halprin served to broaden the view of the benefits of design and planning as a community service profession.

Writing through time, Halprin continually engaged challenging contemporary issues. Through his intellectual gaze Halprin offered insight as to the place of a value-laden landscape architectural practice, and the role of designer as ethical problem solver.
Arboretum on the National Mall: A study of tree labeling

Nathan Heavers Virginia Polytechnic Institute and State University

keywords: arboretum, botanical garden, tree labeling, plant identification, plant collection

This paper examines the labeling of trees on the National Mall, specifically at the US Botanic Garden, Smithsonian Gardens, USDA, US Capitol grounds, and Lafayette Park, and questions how these individual tree collections might, together, better form an arboretum at the center of the nation’s capital. The notion of an arboretum in the heart of Washington is not new: George Washington initiated it with his 1796 proposal to plant trees from all thirteen states in the nation’s new capital (Wulf, 2011); the Columbian Institute for the Promotion of Arts and Sciences, the forerunner of the US Botanic Garden, started planting trees in 1816 (Fallen, 2007); Andrew Jackson Downing’s designs, implemented in the 1850s, created a “museum of trees and shrubs” for the enjoyment and education of people (Ottesen, 2011); and Frederick Law Olmsted reshaped and planted Capitol Hill, labeling the trees in the manner of an arboretum (Choukas-Bradley, 2008). While some of these 19th century efforts were undone with the work of the McMillan Commission in the early 20th century, over the past several decades the activity of collecting and labeling a great variety of trees for the education of the public has increased (Ottesen, 2011). In the areas studied, there are individualized systems of labeling, but there is no comprehensive tree labeling system to guide visitors to the trees of the National Mall. The distinct labels found in planted tree collections suggest that each exhibit begins and ends within the bounds of the individual garden. The one major exception is the US Botanic Garden, which uses QR codes to digitally connect visitors to a wealth of information about plants. The study suggests that tree labels across the National Mall landscape might be better coordinated between tree plantings and modernized to connect the public with horticultural and historical information about each accessioned tree in the collection. It concludes that the institutionally specific plantings of trees, which are part of many individually designed exhibits, could be re-envisioned as an arboretum through the identification, labeling, and mapping of existing trees on the National Mall.
Country Cemeteries and Churchyards: Enduring cultural landscapes in Appalachia

Elisabeth Orr | West Virginia University

Keywords: cultural landscapes, cemeteries, churchyards, Appalachia, West Virginia

The American cemetery is an enduring landscape, both culturally and historically. From frontier graves to modern day memorial parks, Americans have created distinct burial rituals and landscapes for the dead that reveal much about the complexity of our evolving culture. The general history and evolution of the American cemetery is well documented by historians, art historians, cultural geographers and others. Scholars have often focused on grave-markers and tombstones—their religiosity, textuality, forms, and ornament—as relatively complex reflections of the cultural and ethnic heritage of the deceased and of those that are left behind. Others have linked the layout of the cemetery, the layout of graves and plots themselves, to the layout of contemporary cities and towns, or some larger cultural philosophy. Still other scholars have strived to provide explanations, whether practical, cultural, or historical, of a single cemetery, or of a specific region or period in American history with regard to cemeteries.

Central Appalachia, and West Virginia in particular, has had very little coverage in the literature on cultural landscapes, and even less on cemeteries and churchyards. This paper addresses this gap in our knowledge of an often misunderstood region. Though under-appreciated academically, West Virginian country cemeteries, or churchyards, are important snapshots of rural Appalachian life from centuries past that are still visible, and often still actively used, today. Study of these churchyards increases our understanding of the region’s settlement history and reveals clues about life in isolated mountainous coalfields and farmlands.

Through the review and analysis of photographs, maps, oral histories, and on-site investigations of churchyards in the Reno District of Preston County, WV, this paper argues that cultural change happens more slowly in West Virginia than it does in other parts of the U.S. and that cemeteries in this area exemplify this notion. In some cases the cemeteries predate the churches that are located nearby, and the context in which they were originally sited and built is often largely unchanged today. Though cemeteries in this region reveal cultural information through the usual venues—such as grave marker styles, materials and the names of individuals interned—their locations, orientation to the road, surrounding landscape context, relationship to an adjoining church (if any) and nearly continual use for over 150 years are equally important factors.

By examining cemeteries and churchyards in a small corner of West Virginia, this study sheds light on rarely acknowledged but important cultural landscapes.
Material Failure and Entropy in the Salton Sink

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keywords: Salton Sea, geologic time, infrastructure, failure, emergence, indeterminacy, materialism, Anthropocene

The Salton Sea is a saline lake and the largest inland body of water in southern California, formed by a geologic depression below sea level at the bottom of an isolated basin similarly titled the Salton Sink. Once an outlet for the Colorado River to the gulf, the depression was isolated over time through the deposition of sediments. The current volume of the Salton Sea originated in the first decade of the 20th century with the failure of infrastructures built to redirect the Colorado River for irrigation. The Salton Sea now functions both as a hybrid agricultural-ecological system collecting nutrients and contaminants present in the agricultural run-off irrigating the Imperial and Coachella Valleys and as an ecological resource. Destabilized salinity levels, eutrophication, and contaminants have resulted in considerable fish and bird kills. This paper argues that the example of the Salton Sea demonstrates the capacity of material failure and entropy, as closely linked categories of landscape process, to generate novel landscape conditions.

The theoretical work of this paper ties together four distinct but related strands of contemporary theory impacting the field of landscape architecture: emergence, represented by landscape architects Julian Raxworthy, Rod Barnett, and Chris Reed; indeterminacy in ecological systems, as applied to landscape architectural theory by thinkers Kristina Hill and Nina-Marie Lister; new materialist thinking from philosophers Jane Bennett and Manuel DeLanda; and, finally, discourse related to the concept of the Anthropocene, which recognizes and probes the implications of the status of humans as geologic change agents.

A selective environmental history of the Salton Sea (reaching back in geologic time to link earlier lakes to the contemporary volume and its associated network of agriculture, hydrological infrastructure, and human habitation), theoretical arguments that engage these strands and relate them to specific moments in the history and geography of the Salton Sea, and original synthetic mappings by the authors work together to advance our case for the generative capacity of failure and entropy. This case develops concepts for understanding how failure and entropy operate, applying a discourse that, within landscape architectural theory, has primarily focused on ecological phenomena to the behavior of geological, hydrological, sedimentary, and infrastructural assemblages. Ultimately, the paper argues that challenges encountered by the disciplines currently engaged in contemporary environmental restoration efforts in the Salton Sink speak to a role for landscape architectural design within the context of anthropogenic wilderness, particularly design concerned and comfortable with indeterminacy.
Libby Hill and Richmond’s Sense of Place: A Virginia narrative

Brian Katen Virginia Tech

*keywords*: Cultural Landscape, Heritage Landscape, Place, Tourism, Memory

This paper presents the evolution of Richmond, Virginia’s sense of place as revealed through the shifting and multivalent presence of Libby Hill overlooking the James River. The city’s history and the popular narrative of its founding are inexorably tied to Libby Hill, the place where historians credit the City’s founder William Byrd II, in 1737 discovered “the view that gave Richmond its name.”

The study of, undertaken as a public service project by students at Virginia Tech for the Virginia Chapter of the ASLA focused on the popular historical narrative that Richmond, Virginia was named for the resemblance between the view of the James River from Richmond’s present-day Libby Hill and the view of the Thames from Richmond Hill outside of the City of London.

But is the story true? No evidence, in fact, has ever been uncovered that William Byrd actually spoke or wrote about the resemblance of the two Richmonds. Yet, historians, writers, and the city’s citizens regularly quote Byrd’s description of the similarity of the landscape “situations” of the two Richmonds. Does it even matter if the story is true if it is believed to be true and has grounded the city’s evolving sense of place since its founding? This study was developed then to explore the story’s origins, the story’s role in the city’s sense of place and public discourse, and how the story has re-emerged as a central narrative in a contemporary public debate about preserving the “the view that gave Richmond its name” in the face of ongoing development pressures.

The story’s evolution and the place of Libby Hill in the city’s evolving landscape were explored and presented as a timeline viewed through six overlapping lenses:

The lens of the City’s Founder, William Byrd, II; the lens of historians and travelers visiting the city; the lens of the arts and representations of Libby Hill; the lens of the city’s residents; the lens of the official city plans; and finally, the parallel lens of Richmond-on-the-Thames.

The timeline became a temporal landscape atlas, an inquiry into ways of seeing and understanding the landscape as a constructed cultural and physical place and the power of narratives in the construction of place.
Sense of Place and Community Reconstitution in the Context of Natural Disaster

Ryan Wright Design Workshop

keywords: Prattsville, place, sense of place, place attachment, disaster, recovery, urban design, planning, flood, community, personal narrative, community well-being

It has been shown that alterations to a community’s physical environment can lead to a downturn in social well-being and the dissolution of previously held social norms (Speller and Twigger-Ross, 2009). Moreover, Stedman (2003) speaks to the importance of the physical environment or what Agnew (1987) calls “Locale” and “Location” in determining sense of place. Thus, whether a community is relocating in anticipation of rising sea levels or rebuilding after a devastating hurricane, there are essential concerns about the preservation of its well-being that can be effectively addressed with a clear understanding of the sense of place held by its residents. In other words, to learn a community’s sense of place is to position oneself as a designer to rebuild effectively and in a manner sensitive to that community’s social well-being.

Prattsville, NY was all but washed away by catastrophic flooding in 2011. The remnants of two consecutive hurricanes, Irene and Lee converged on upstate New York and overwhelmed the region’s waterways. This paper uses Prattsville as a case study and presents a methodology for determining sense of place in the context of community reconstitution. It expands upon a version of the “personal narrative” methodology outlined by de Wit (2013) and extends it into the realm of community reconstitution. The data for this study was collected in a series of semi-structured interviews of five Prattsville residents. The interviews were meant to encourage personal narrative in order to elicit sense of place and to discover those physical/social elements of the town that helped produce attachment to place.

This study tested the viability of a methodology for interviewing for sense of place that relies upon soliciting personal narrative and applies that methodology to a new context, one in which the test community is undergoing a process of physical reconstitution in response to a natural disaster. The tested methodology appears to elicit deeply personal and often moving responses to questions about place and offers a chance for individuals to feel as though they have a voice in the rebuilding process. The personal narrative approach to interviewing for sense of place is effective and should be considered an integral part of community reconstitution in the context of natural disaster.
Finding Culture in Agricultural Communities

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*keywords*: culture, agricultural landscape, landscape transect

Examining every-day, commonplace landscapes can inform us about the cultural history of a place. Through examples of the manifestation of ethnicity and cultural history in the physical environments of three California communities -- Florin, Thornton, and Yuba City -- this presentation discusses how the presence of immigrant populations engaged in agricultural practices starting in the late 1800's in these communities is still visible. Field studies, archival research, and contemporary interviews, allowed us to read the stories of these landscapes. In this presentation, we discuss landscape clues to these histories, including signs, structures, and fields, which are often overlooked by current residents, yet tell powerful stories of the settlement and struggles of early inhabitants.

Florin’s story is one that captures the important role of Japanese farmers, particularly in strawberry and grape growing, before and after this population’s internment during World War II. Portuguese settlers in California played an important role in the cattle and dairy industry - the small town of Thornton hosts prime examples of the influence this cultural group had on public space and recreation activities including a still functioning bull-fighting arena. Lastly, Yuba City settlers included young Punjabi men who eventually married Mexican-American women. The presence of these successful peach farmers is still evident in local place names and festivals.

The story of ethnic identification and cultural influence on the physical environment told in these three communities is played out across many other agricultural communities around the globe. However, secondary education typically does little in the way of teaching students about the intersections between place and people: why does your community look the way it does? Why did people settle where they did? How might our contemporary decisions impact how people feel about where they live? The lesson we share here is the intentionality and ability to look for the cultural messages in our contemporary landscapes to inform planning and design processes.

The stories of these communities are unique, but provide insight into the impact that cultural background can have on the current places we now live. The ability to read one’s physical landscape with cultural sensitivity enables us to see our landscapes as the layered, multicultural sites of difference that they are. When this sensitivity is practiced by citizens in their own communities, reading the cultural landscape can encourage the conscious acknowledgment of place history and difference when engaging in ongoing processes of local planning and design.
200 Million Trees: Evolution of the Prairie States Forestry Project

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keywords: ecological infrastructure, adaptive design, urban design, history, climate change

Today, as we grapple with the ecological disasters plaguing the United States, we would do well to recall the New Deal efforts of the 1930s to not only bring immediate relief to those suffering in the wake of a natural disaster, but also to bring about a long term solution to the problem. The New Deal is not environmental by today’s standards but a closer examination of the New Deal’s response to the Dust Bowl experience reveals a progressive conservation legacy linking ecologic and economic goals.(1)

The Dust Bowl was the darkest moment in the twentieth century life of the Great Plains. The Dust Bowl and the Great Depression revealed fundamental weaknesses in the traditional culture in America, one in ecological terms and the other in economic(2). The Dust Bowl is important and one of the first systematic attempts to apply ecology to a resource degradation problem.

Recognizing the key issue of the Dust Bowl was soil conservation, Franklin Roosevelt (FDR) established the Soil Erosion Service (now the Natural Resources Conservation Service) within his first year as president in 1933. The establishment of the Soil Erosion Service marked the first major federal commitment to the preservation of natural resources in private hands(3). Even more significantly, in 1935, FDR initiated the Prairie States Forestry Project to create a “shelterbelt” consisting of over 200 million trees from the Texas Panhandle to the Canadian border to mitigate the effects of the Dust Bowl in the semi-arid regions of the Great Plains.

Although the political, scientific, and cultural conditions of America today are very different from what they were during the 1930s and the 1940s, the New Deal is instructive because its programs moved beyond conservation on public land to push or even direct conservation on private land. As A. Dan Tarlock and other environmental historians have noted, an equally significant aspect of the New Deal was the precedent it set for later generations. For what the New Deal’s focus on “conservation” really amounts to is the first major effort at what today we would call “sustainable development”: an approach toward the environment based on long-term planning. This recognizes the need to create a balance between stewardship and managed exploitation and sees the federal government playing a crucial role in establishing the parameters.
Transatlantic Ideas of Ecological Design: Lewis Clarke and modern landscape architecture North Carolina

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keywords: ecological design, planning, intellectual history, modernism

This paper explores a transatlantic exchange of ideas between the British town planning tradition and ecological design through the intellectual history of landscape architecture professor Lewis Clarke. It argues his view of ecological design differs from more prevalent approaches—such as those of Ian McHarg—through a humanist perspective that has its roots in early 20th century British planning ethics.

In 1947 North Carolina State University hired Dean Henry Kamphoefner to found a School of Design in Raleigh, an innovative program credited in large part for cultivating modern architecture in the region. His vision for the school to develop “an organic and indigenous architecture” was progressive, and he hired world-renowned faculty to promulgate a modern ethos including Lewis Mumford, Matthew Nowicki, and Buckminster Fuller among others.

Lewis Clarke was the first long term faculty hire in landscape architecture and was central to modernizing the program beyond its traditional roots in horticulture and landscape gardening. Clarke comes from the British town planning tradition as a protégé of Brian Hackett and is famous as an early pioneer of ecological approaches to environmental design. His teaching trained a generation of designers and his office developed a portfolio that together established the profession regionally with international connections.

Ecological design maintains an extensive history in landscape architecture, but Clarke’s career provides an important window into the development of ideas that bridged the gap between site design and environmental planning that is perhaps less recognized in scholarship. His theories of landscape architecture are tied to a particular way of ‘seeing’ the landscape that involves both sense perception and an ability to understand ecological relationships, linking experience and environmental consciousness through design.

This paper locates Clarke within a larger transatlantic exchange of ideas in the greater history of ecological planning and landscape architecture. It situates his theories within contemporaneous debates between scientific inquiry and design, between ideas of ethics and aesthetics that were dominant in post-war discourse. Through archival research, oral histories and publications, this paper traces Lewis Clarke’s intellectual heritage to the School of Planning and Research for National Development in England, through his time at Harvard University’s Graduate School of Design, and his early years in North Carolina. Ultimately the paper uses Clarke as an example to question larger influences and connections between British planning traditions and the development of environmental planning in American landscape architecture.
I.M. Pei & Timothy McVeigh: A brief history of urban redevelopment in Oklahoma City

Martin Holland  Clemson University

keywords: Urban Renewal, Master Planning, I.M. Pei, Oklahoma City

On April 19, 1995, Timothy McVeigh detonated a truck bomb in front of the federal building in downtown Oklahoma City, killing 168 people. The public’s demand for a memorial followed within days of the bombing and the memorial complex (including an Outdoor Symbolic Memorial and a Memorial Museum) opened five years later. The 28.8 million dollar memorial complex has become the most popular tourist destination within the city.

Through the construction of the memorial complex, and other civic infrastructure projects, Oklahoma City successfully re-branded itself as a place of strength and resilience, triumphal in the face of tragedy, celebrating what they termed “The Oklahoma Standard.” Many residents quietly identify bombing as a grim turning point for the city, noting that it took a monumental tragedy to end petty political squabbling and infighting that had plagued city hall.

What is not common knowledge however, is that in 1964 a small cabal of Oklahoma City’s well-to-do businessmen approached I.M. Pei to develop a renewal strategy for the dated downtown core. Pei’s plan, massive in scope and scale, called for the demolition of a wide swath of the existing historic fabric in the name of urban renewal. A piecemeal implementation process, combined with demolition process that outpaced construction efforts, led to a crippled and vacant downtown. After twenty years of attempting to implement Pei’s vision, it was quietly shelved and forgotten.

Through the use of archival records, historic photographs, planning documents and a promotional film advocating for Pei’s master plan, I compare the scale of damage inflicted on the downtown by the 1995 bombing with the scope of urban renewal present in Pei’s master plan. I reveal the lasting and important spatial legacy that Pei’s work has on the urban fabric of the downtown core of Oklahoma City, identifying key locations and projects to how they are currently utilized today.
Enduring Imprints and Fading Traces: The CCC’s legacy in Virginia State Parks

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keywords: Civilian Conservation Corps, Virginia, State Parks

The public landscape of the United States is imprinted with the landscape programs of the New Deal, a presidential economic program during the Great Depression of the 1930s. This program marked the beginning of park development and building across the country. Using local knowledge and supplies, men enrolled in the Civilian Conservation Corps (CCC) built many of the first state-owned outdoor recreational areas across the nation. The CCC imprinted a landscape legacy as they reinvented, reclaimed, or restored forested and agricultural lands for natural resource conservation through recreation. The parks reflect a lack of funds for imported materials and an abundance of on-site labor. The forms, materials and process of the existing landscapes informed the reinvention of rural sites as recreational areas. The CCC’s public park legacy began in Virginia, where the CCC helped build the first six parks of what became the nation’s first state-wide public park system. This paper documents the evolution of these six Virginia parks through study of their design images and landscape types, and prevailing visions for public parks before, during and after their initial opening on June 15, 1936. The six parks span the state’s physiographic landscape: Seashore State Park hugs the Atlantic Ocean in the Tidewater, Douthat and Hungry Mother are embraced by the Appalachian Mountain Chain; Fairy Stone State Park marks the spot where fairy tears turned into crystallized stone crosses, and Westmoreland and Staunton River State Parks border rivers on either side of the state.

Douthat State Park is said to be one of the most extant parks of the CCC era. The park continues to embody the original nature vacation aesthetic of the 1930s through rigorous and sometimes unpopular preservation and conservation efforts. This contrasts heavily with the evolution of the other parks. In response to changing state open space policies, economic pressures, and outdoor recreation expectations, traces of their landscape legacy are fading. Seashore State Park is smothered by the popularity of its ocean beachfront. Fairy Stone State Park’s nature aesthetic has faded as renovations and newer recreation facilities are located and built under different design principles. Westmoreland’s recreation facilities have changed as the river waterfront continues to erode away. All are under pressure to meet contemporary demands for more developed recreation facilities, increased visitation rates, and higher contributions to regional economies.

Study of photographs, maps, state and federal documents and on-site investigations are the basis of this review.
Dutch Landscapes of Change

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keywords: design theory, innovation, Holland

“Defining the site is a creative act, undertaken by an architect or landscape architect during the early process of design.” –Elizabeth Meyer

This presentation describes recent shifts in our physical and cultural context that foster landscape creativity and challenge designers’ notions of what is necessary and possible. Using contemporary Dutch case studies, this paper provides a framework for understanding and critiquing contemporary landscape practice, a framework based in the material, ecological, and social site of projects, and in the tactics designers use when defining and expressing those sites.

Recent decades have seen an explosion of innovation in the materials, forms, and processes of landscape architecture. In no small part, these innovations arise from opportunities inherent in the sites landscape architects are being asked to design on and for. Some of the changing context of landscape architectural design is internal to the profession, as designers increasingly explore material processes, embrace a theoretical praxis, and engage the challenges and opportunities of complex, multidisciplinary projects. But much of the changed context is external to the profession, as social, economic, and climatic values and perceptions shift.

In the last ten years, urban populations have demanded new forms of open space and new connections to natural amenities. At the same time, changes in infrastructure and industry have opened new types of sites for parks and other open space. Residents have demanded access across (or even on) roads and rail lines that divide cities; environmental function has become a priority; and city residents are calling for local food options. These factors have led to the rediscovery and reinvention of sites as complex hybrids that perform ecological, social, and economic functions.

Moses Bridge (RO&AD Architects, 2011), Essent Roof Garden (Buro Sant en Co; 2008), Wijkeroogpark Velsen (Bureau B+B; 2012), and Péage Sauvage (Observatorium; 2012) describe five categories of sites – infrastructure, vegetated architecture, ecological function, materiality, and post-industrial sites - that are renewed areas of exploration for landscape architects. By peeling up and digging down, designers are recovering the thick agency of landscapes.

The projects were selected to represent the breadth of tactics used in perceiving, critiquing, and designing with the opportunities and constraints that the sites provide. While the focus is on Dutch practices, the sites and strategies are transferable frameworks for understanding and critiquing practices elsewhere.
Water Landscapes as Laminates

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**keywords**: Landscape laminates, ghats, talaab, canals, land-water interface

Water has always played an important role in dictating human settlement patterns. Nowhere is this truer than in the Indian sub-continent where one of the most ancient of human urban civilizations flourished on the banks of river Indus. The weather pattern of this region, with a long dry spell of summer followed by intense rainfall during the monsoons, has necessitated a close relationship between water and human settlement. In India, public spaces adjoining water are vibrant cultural landscapes that serve numerous functions. These landscapes function as both physical constructs and socio-cultural constructs to support various ways in which people use these spaces. This paper compares three main public landscapes connected with water bodies in India: the Ghat (pier, wharf) adjoining rivers, Talaab, (pond/tank), and canal edges, and their multi-functional use to find similarities and differences in the physical aspects and design of these landscapes. Ghats are common in north India, talaab are commonly built in central India and canals are widely used in south India. Thus, these three landscape types represent three different geographic and climatic regions of India. The study was carried out through data collection on published literature, online web portals and use of ethnographic data collected through site visits of these landscapes. Based on linguist Stef Slembrouck’s discussion of sociologist Erving Goffman’s ‘frames’ as spatial metaphors, this paper speculates that these land-water interface landscapes act as ‘laminates’. These landscape laminates host normative activities and also act as situational/interactional space determined by culturally defined temporal and ideological principles.
LANDSCAPE PERFORMANCE
Dissemination of Sustainability Education Resources Across Universities: Promoting landscape performance

Gary Austin University of Idaho
Katharine Burgess The Landscape Architecture Foundation

Keywords: Landscape Performance, Sustainability, Pedagogy, Water Treatment, Landscape Architecture Foundation

Purpose: This paper reports on research, development of curriculum, and creation of distributed educational resources developed in association with the Landscape Architecture Foundation (LAF) and in support of improving the technical and environmental performance of designed landscapes. The pedagogy, products, application of the model to an undergraduate course and the dissemination of these resources to educators in landscape architecture are presented for academic review.

Background: Educators in landscape architecture rarely share developing pedagogy, curriculum, or research and processes used in the classroom. Furthermore, landscape performance metrics are rarely made explicit and more rarely applied in design studio courses. In the case of water management and treatment, landscape performance assessment must apply research findings emerging from the discipline of environmental engineering.

Methods: LAF charged the academic author with developing a process and set of tools that could be used to assess landscape performance in relation to water management. An environmental engineering literature review provided water quality treatment performance data for green roofs, bioretention basins, gravel wetlands, vertical and horizontal subsurface wetlands, and free water surface wetlands. The data was incorporated into a process accessible to the student. Students used these resources and training in the use of TR-55 software combined with grading, drainage, construction detailing and planting design skills to create and document and sustainability of a landscape that they designed.

Findings: The influent concentrations for polluted road and parking, landscape and wastewater flows are presented along with removal percentages for a set of landscape treatment alternatives. The student projects demonstrate that research data available to undergraduates was used effectively to plan and detail high performance landscape elements. The individual elements and the aggregate were justified with research-based metrics. The products of the research are made available to educators, students and professional landscape architects by LAF.

Importance: Public dissemination of processes and tools that can be adopted, adapted and evaluated by any professor advances the profession efficiently and rapidly. Methods that guide and justify landscape proposals on technical, economic and social, as well as aesthetic grounds improves the standing of the profession with allied professional, clients, and the public. This research provides an example of research synthesis, curriculum development and landscape performance metrics that improve the education of undergraduate students.
Green infrastructure (GI) design has been advocated by the U.S. Environmental Protection Agency as an ecological way to manage stormwater for better water quantity and quality. This new drainage design paradigm focuses on maintaining the natural hydrologic cycle and suggests treating runoff on-site in lieu of the old paradigm that prefers off-site treatment. Current literature suggests the performance benefits of GI design; however, there is a regional disparity, in respect to number of GI projects reported, level of sophistication in design, available design guidelines and policy endorsement. This study reports the performance benefits of GI design implemented in Daybreak, a 4,100-acre master-planned community in Utah. Daybreak is a project assessed in the 2011 Landscape Architecture Foundation Case Study Investigation program. Daybreak is also known as one of the largest GI projects in the arid West. Its GI design retains 100 percent of stormwater that falls on-site for up to a 100-year storm with no impacts on or connections to the municipal storm sewer system. Further, an ongoing water quality monitoring study is assessing the hydrologic performance of two sub watersheds within the community. Parcel data were used to assess the extent of development in the watersheds. Streamflow data were collected by ISCO 750 flow meters and water quality samples at discrete precipitation events by ISCO 6712 samplers. Precipitation data were collected by a Texas Electronics tipping bucket rain gauge on-site. Preliminary results show the performance benefits of a large bioswale. These benefits include substantial reductions of stormwater runoff volume and pollutant concentrations, such as nitrate+nitrite nitrogen (NO3–N), total nitrogen (TN), ammonia nitrogen (NH3–N), total phosphorus (TP), total suspended solids (TSS), and heavy metals (Copper, Zinc, Lead). This presentation will close with a discussion on GI research fronts: (1) integration of form-based code into GI design and evaluation (e.g., impervious cover assessment), and (2) use of landscape performance measures in assessing project success, especially for watershed-scale, integrated system designs.
Quantification of the Benefits of the Lincoln Road Streetscape Revitalization Project

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*keywords*: landscape performance, sustainability, post-occupancy evaluation, landscape architecture foundation, case study investigation

The Lincoln Road Mall is an outdoor pedestrian mall and a major tourist destination located in Miami Beach, Florida. It attracts millions of visitors annually from around the world for its fine dining, trendy shopping, and unique culture and entertainment. In 2010, a streetscape revitalization project at the 1100 block of Lincoln Road expanded the mall by an additional block to the west. The expansion replaced previously existing motorized traffic lanes with a pedestrian-only plaza/promenade. Since its completion, the 1100 block has quickly become a new linchpin for the mall, re-linking the 1100 block to its historic character while also incorporating new local ecological connections through the use of water gardens and native planting that evoke the habitat and atmosphere of the nearby Everglades.

This research introduces a study conducted on the impacts of the streetscape revitalization which found that the mall’s expansion and renovation contributed to an increase in nearby property values, improvements in user perceptions of the site, an enhancement of shopping, dining, and lingering experiences of visitors, reductions of air temperatures, and an increase in the sequestration of carbon dioxide. The research work was conducted between March and August of 2014 and was funded by the Landscape Architecture Foundation’s 2014 Case Study Investigation Program. Primary data collection methods included on-site user surveys, user counts, observations, and site measurements. Secondary data was collected from the firms that participated in the project design and construction, other stakeholders, and public records and databases. 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.
Landscape Performance of Built Projects: Comparing Landscape Architecture Foundation’s published metrics and methods

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*keywords:* landscape performance, LEED-ND, SITES, POE, comparison, reliability, validity, methods, metrics

Landscape performance is defined as “the measure of efficiency with which landscape solutions fulfill their intended purposes and contribute toward sustainability” (LAF, 2014). In 2010 Landscape Architecture Foundation (LAF) launched the Landscape Performance Series (LPS) to initiate research in landscape performance. An important goal of LPS is to quantify the results of landscape solutions in high-performing landscape projects. The quantified results show how sustainable solutions create benefits in the three aspects of sustainability (environmental, economic and social), reducing uncertainties during design and promoting measurable sustainable design practices.

For landscape performance evaluation, determining what to measure (metric) and what methods to use is particularly important. Inappropriate metrics and methods will lead to misleading results and problematic decisions. For this reason, it is necessary to analyze the currently used metrics and methods to ensure the credibility of landscape performance evaluation.

The purpose of this study was to 1) compare the currently used landscape performance metrics with other measuring systems to identify gaps and make recommendations for future improvement, and 2) examine and discuss the reliability and validity of frequently used methods in landscape performance quantification.

We first compared the LAF’s published metrics with ecosystem services, a set of post-occupancy evaluation (POE) metrics of building, the checklists of Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) and Sustainable Sites Initiative (SITES) to identify gaps in landscape performance metrics. Next, we selected several typically reported metrics and discussed the quality of their quantification methods, using reliability and validity defined by Pedhazur and Schmelkin (1991) as standards.

The results show that landscape performance metrics address more aspects of sustainability than LEED-ND and SITES checklists. LEED-ND focuses on the environmental aspect, while SITES focuses on environmental and part of the social aspects. However, since LEED-ND and SITES assess landscape projects from different perspectives, they include a few metrics that can be added to landscape performance. Furthermore, comparisons with ecosystem services and POE metrics also show that there are quite a few gaps in the current landscape performance metrics. We suggest adapting suitable metrics from LEED-ND, SITES, ecosystems services, and POE metrics to improve the comprehensiveness of the landscape performance metrics. As for methods, the availability of data often determines what quantification methods to use. Therefore, methods differ from project to project, which makes it difficult to make comparisons between projects. We suggest developing standardized data collection and quantification methods for future landscape performance quantification.
Performance Measurement: Cross disciplinary comparison on definition, framework, metric and method in landscape architecture, architecture, urban planning, and transportation

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keywords: landscape performance, building performance, urban planning performance, transit performance, comparison

Landscape performance is receiving growing attention in the field of landscape architecture. It is an effort initiated in 2010 to evaluate the results of design solutions in constructed landscape projects. This feedback information is anticipated to reduce uncertainties, inform future designs, and therefore support multifunctional and sustainable design. The purpose of this study is to help improve landscape performance quantification through a cross disciplinary comparison on performance measurement.

In Landscape Architecture Foundation’s Case Study Investigation (CSI) Program, landscape performance is undertaken through a collaboration of faculty, students, and design firms to quantify performance benefits of high-performing landscape projects. To date, about 80 case studies have been published online.

Landscape performance is still new. There exist a number of gaps in its metrics, methods, and framework. Moreover, CSI research teams encountered various difficulties during data collection and benefit quantification. These gaps and difficulties limit landscape performance’s credibility and reduce its contribution to future designs and achievement of sustainability.

Although landscape performance is new, performance measurement has been widely used in other design fields to evaluate the outcomes of projects, programs, and services. The purpose of this study is to review performance measurement in landscape architecture, architecture, transportation and urban planning; compare its definition, framework and evaluation metrics and methods; and make recommendations that can help improve landscape performance evaluation.

Relevant research papers were collected and reviewed for information regarding the definition, purpose, theoretical framework, historical development, metrics and methods, and main opinions of each paper. This information was compared across different fields to identify similarities and differences.

The results show that performance measurement is quite different across landscape architecture, architecture, urban planning, and transportation. Compared to other performance measurement systems, landscape performance is the only one with a framework that addresses the environmental, economic, and social aspects of sustainability. It offers a scientifically sound framework of assessing sustainable solutions. However, since performance measurement in the other three fields is more developed, they provide valuable information and guidance for landscape performance evaluation. They also help fill the gaps of present metrics and methods, suggest quantification procedures, and enhance landscape performance’s contribution to sustainable development.
Quantification of Landscape Performance for Rural Landscape——Case studies of five typical villages in Nanjing

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keywords: rural landscape; landscape performance; quantitative assessment

China is undergoing rapid urbanization where rural areas are being converted into urban uses. The concern is that the vast rural areas are full of complex geographical features and diverse cultural characteristics. Rapid urban sprawl has a great impact on the rural ecosystem, scenic landscapes, local culture and life styles. Under China’s development policy of “integrated” urban-rural growth, Chinese rural landscape is facing new opportunities and challenges. Due to differences between urban and rural characteristics and needs, it is obvious that the urban development pattern cannot be directly applied to the rural area. Therefore, evaluation of rural landscape projects on their performance has become a research hotspot.

Five villages in Nanjing Jiangning District have started their landscape transformation since 2011. Their development aims to enhance the rural environment, improve public infrastructure, promote tourism and increase farmers’ income. So far, the five villages are considered exemplary rural developments in the region.

The researchers used Landscape Architecture Foundation’s (LAF’s) Landscape Performance Series (LPS) research method to quantify environmental, economic and social benefits of the five villages. The purpose is to investigate China’s sustainable rural development examples and attempt to provide guidance for broad application to future Chinese rural landscape projects.

Assessment of environmental benefits includes studying land, water, carbon emissions, and material utilization. Economic benefits assessment includes studying land value, maintenance costs, income level, etc. Social benefits assessment includes studying tourism value, public service, landscape quality, job opportunities and so on.
Landscape Performance Metrics and Methods: A discussion of what to measure and how

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keywords: landscape performance, metrics, methods, assessment

Determining what landscape performance benefits to measure and how, will significantly impact the value and validity of assessment findings. In an effort to help improve the research rigor of landscape performance case studies, in 2013 the Landscape Architecture Foundation (LAF) commissioned a two part study. Task-1 involved the coding and analysis of all metrics and methods used in the 58 Landscape Performance Series (LPS) case studies published from 2010-2012. Task-2 involved identifying potential sets of metrics and methods for each of LAF’s 31 sub-benefit categories, and then compiling findings into a comprehensive guidebook. To be published in 2014, the guidebook will serve as a primer for future LAF Case Study Investigation (CSI) teams and others working to evaluate landscape performance benefits. The guidebook is also intended to encourage practitioners (and clients) to set targeted performance objectives and gather relevant baseline data. Perhaps most importantly, the guidebook helps further ongoing landscape performance discourse on what should be measured and how. During this presentation we will discuss our process in selecting metrics and methods presented in the guidebook; we will discuss opportunities and limitations for using select metrics and methods; and we will present a range of examples, from LPS case studies, that illustrate the application of various metrics and methods for quantifying environmental, social, and economic benefits. We will end by discussing how future studies can continue to strengthen landscape performance research.
Documenting Campus Ecosystem Services: Technological advances in collecting data and producing tree inventories

William Winslow  Kansas State University

keywords: ecosystem services, data collection, GIS, database, trees, inventory

Trees serve as an important resource to a university campus, providing aesthetic appeal and environmental benefits through ecosystem services. Knowledge of a comprehensive host of data – including species, location, quantity, size, age, and health, is important in the management of the tree resource. As a matter of procedure, universities have kept records of campus grounds throughout their history. Documentation of trees prior to the digital age involved a cumbersome method of index cards and maps done by hand on paper. Technology offers digital tools capable of recording nearly every detail about a tree, presenting a dilemma on how to effectively produce an inventory of trees. Determining what information is useful and what is not is a relative question that requires much consideration to accomplish the goals of the inventory.

The purpose of this study is to determine current methods, criteria, and technology to: 1) provide a prototypical campus tree inventory, and; 2) provide a system to access the tree data for use by an audience seeking tree information for a diverse range of projects – from general interest, to campus planning, to analyses of ecosystem services.

The project research consisted of three phases: 1. Establishing the content and status of the existing tree database/inventory – interviews of university personnel at Kansas State University (KSU) were performed to gain knowledge of the extent and location of the existing tree information. Historical archives were also reviewed. 2. Determining what tree inventories exist for college campuses and how they are they being used – a Google search was conducted and a spreadsheet table created to compile attributes identified in the search results. Telephone interviews with key people identified in the web search were conducted to provide first-hand experiences on the use of selected digital tree inventory systems. 3. Identifying and testing equipment and software for data collection and output – based on analysis of the Google search data, telephone interviews, and existing/archived KSU tree data, a tree inventory system utilizing an iPad for data collection and ArcGIS Online for data dissemination was investigated. Additionally, an augmented reality software program (LAYAR) providing real-time geospatial information was tested.

Results to date are promising. The KSU comprehensive tree inventory system remains in development. It is hoped that this presentation will stimulate discussion and experimentation/development of comprehensive tree inventories for universities and communities in which they are located.
The Social Life of Cool Urban Spaces: Learning from Sundance Square Plaza, Fort Worth & AT&T Performing Arts Center’s Elaine and Charles Sammons Park, Dallas

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James Richards University of Texas at Arlington
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For three decades the design literature has pointed out that performance of completed projects must be evaluated to assess their value and inform future design practices (LAF 2014; ULI, 2014; Ozdil, 2008; Lang, 2005; Francis, 1999; Marcus et.al., 1998; Preiser et. al., 1988). In recent years landscape architecture has started seeing a significant spike of such evaluative studies, including efforts by Landscape Architecture Foundation (LAF), EPA, USGBC LEED, SSI, and TCLF (see references). While these efforts are still in their early stages, this collective body of knowledge sets the stage for a critical look at landscape performance within the context of urban design.

This research evaluates two urban landscape projects completed as centerpieces representing decades of district-level efforts within the two largest cities of North Texas. It is a product of a performance study completed as part of the LAF Case Study Investigation (CSI) Program in 2014 and specifically focuses on: 1) Sundance Square Plaza by Michael Vergason Landscape Architects; 2) AT&T Performing Arts Center’s Elaine and Charles Sammons Park by SmithGroupJJR. The review of the procedures and findings of the research is to highlight the importance of understanding varying landscape project typologies that are part of district-level efforts in complex urban settings.

Research combines quantitative and qualitative methods to evaluate two urban landscape projects (Ozdil et al., 2014; Deming et al., 2011; Lang, 2005; Moughtin, 1999) in a systematic manner. It is designed to search for consistent and reliable criteria (social, economic, environmental, and other) and methods to set a framework to study cases in urban settings. The LAF’s Case Study Briefs (LAF, 2014), the relevant design and planning literature (Lang 2005; Francis, 1999; Whyte 1980), a total of 210 surveys and over 100 hours of site observations (Gehl et al., 2013; Marcus et al., 1998; Whyte, 1990) conducted by the research team, and finally secondary data informed the research findings and the conclusions.

The presentation primarily reviews excerpts of social performance findings from the observations and surveys, as well as selected economic and environmental performance benefits while exploring the implication of project typologies and their direct and indirect impacts in urban settings.

The presentation highlights the importance of research design and performance indicators for varying landscape typologies. In-depth focus to understand projects is believed to be a critical direction of performance research in landscape architecture in the future to produce more impactful results and to communicate their value to society.
Rhizosphere Performance Modeling: A synergistic research approach addressing construction variables, extended performance and materials interface

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Keywords: performance, modeling, rhizosphere, paving, soil

Landscape design in urban areas is a critical element in defining the character and beauty of a city. However, despite the importance of vegetation in urban landscape, it is perhaps more important to maintain the functional infrastructure elements of the city such as paved areas for pedestrian, bicycle, and vehicular traffic. When these urban elements collide in design, there are often conflicts that arise to the detriment of one or both elements. For example, canopy trees have the potential to reduce urban heat island effects, mitigate storm water impacts, enhance biodiversity, and improve the aesthetic quality of an area. However, for a tree to flourish and meet its potential, it requires a nurturing environment (or rhizosphere) consisting of ideal planting media and conditions (temperature, moisture, nutrients, and oxygen). On the other hand, when designing a long-lasting paved area (street, sidewalk, plaza, alley, etc.), it is important to ensure that the pavement foundation (soil and aggregate base) is strong and its integrity not undermined by factors such as moisture, tree roots and other organic materials, and erosion because if the foundation becomes compromised, the durability and load carrying capacity of the pavement will diminish. Therefore, when trees are planted in close proximity to paved areas, there can be issues with the long-term health of either the tree or the pavement.

The objective of the research is to establish lasting synergistic research to address design and construction variables on the long-term performance and sustainability of the rhizosphere/pavement interface.

The ultimate goal of this research initiative will be to create an experimental test apparatus called the Rhizosphere Performance Model (RPM), which will be developed in four sequential phases. This paper will describe in detail the sequential phases and the various data sets collect, experiment variables, expected outcomes and continued investigations.

The expected outcomes from this effort are multi-faceted. In the short-term, the initial research will provide data that will be used to quantify the benefits of coordinated soil design profile and paving material application, installation, and management on rhizosphere conditions.
Relevance of Hydrologic and Micro-Meteorological Monitoring for Green Roof Planning, Design, and Management

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keywords: green roof monitoring; hydrology; micro-meteorological conditions; informed design

During the past ten years green roof monitoring has increased dramatically (Onset 2012) – with landscape architecture and other faculty offering important contributions (e.g. Sutton et al 2012; Dvorak & Volder 2013). Researchers, educators, and designers recognize the need for monitoring that informs practice (Simmons et al 2008; Coffman & Waite 2010; Welker et al 2013). Nevertheless, some Landscape Performance Series research has monitored green roofs and other systems for less than a day (for one example see: https://lafoundation.org/myos/my-uploads/2011/09/26/kresgefoundationhqmethodology.pdf). Longer-term, multi-season green roof monitoring (particularly of hydrologic and microclimate-related conditions as they relate to substrates and plant types) is vital if we are to understand and improve how to design, implement, and manage these systems. Creating resilient, less-resource-demanding living roofs that fit with their larger eco-regional context, specific local setting, and unique project objectives means understanding how green roofs function in regards to hydrologic, micro-meteorological, and many other parameters. This presentation shares an inventory of ways to monitor abiotic conditions related to green roof hydrology (precipitation, irrigation, runoff/ outflow, evapotranspiration, and water storage) and micro-meteorology (energy fluxes, temperatures, and wind). Understanding hydrologic and micro-meteorological conditions are essential to creating resilient ecological systems, especially for extensive and semi-intensive green roofs. Linkages between hydrologic and micro-meteorological conditions and green roof substrate characteristics, gas/carbon exchanges, and plant growth/viability are briefly noted. Drawing on peer-reviewed literature, demonstration and research projects, LAF case studies, and personal communications with researchers across the United States, hydrologic and micro-meteorological monitoring approaches and equipment needs are discussed. Precedents are considered to demonstrate pros and cons of different instrument configurations. Findings indicate that green roof monitoring presents a variety of challenges including limited budgets to secure necessary or desired equipment, collection of representative data sets, effective management and interpretation of collected data, and limitations related to instrumentation and maintenance of green roof monitoring systems. Three examples: 1) monitoring hydrologic inputs and outputs from green roofs are complicated by the fact that flumes and gauges may not capture low flows and are susceptible to debris blockages; 2) tipping buckets cannot capture precise precipitation rates that are very small or too large/rapid, and generally only work for small areas since they can be overwhelmed by larger flows; 3) cisterns and buckets collecting runoff may overtop in large storm events making accurate runoff measurements impossible. To conclude, connections between monitoring programs and improved understandings related to green roof planning, design, and management are noted.
Integrating Landscape Performance Strategies into Design

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keywords: landscape performance, pedagogy

Purpose: This paper reviews and assesses the instructional processes and products developed as one of the Landscape Architecture Foundation funded projects in the Landscape Performance Education program.

Background: The Landscape Architecture Foundation has been promoting the development of landscape performance objectives during the past decade. This leadership has promoted the development of standards, tools, case-studies and exemplars that promote sustainable landscape solutions. In recent years, LAF developed the Case Study Investigations – a series of sponsored research projects leading to the documentation of design performance of prototype projects. In 2014, LAF begin the Landscape Performance Education Grants (LPEG) charging fellows with developing strategies for integrating landscape performance into curriculum and learning situations.

Method: The project was conducted during the spring 2014 semester at The Design School at Arizona State University. The scope of the project was to explore the teaching and learning of landscape performance as a primary learning objective within the framework of the MLA thesis studio. Each student develops a design project with which to explore one or more significant design issues or challenges. The issues explored included such topics as water conservation, riparian restoration, therapeutic landscapes, animal habitat design, recreation and public open space design. Each student’s design was developed and tested in a manner that permits the project to serve as a prototype for the identified issues or thematic design type. The project also explored the concepts of design resolution that advances the quadruple bottom-line (ecology, economics, social and aesthetic considerations – after the work of Dennis Jerke). The projects applied landscape performance tools identified by LAF resources.

Findings: Based on the experiences and findings of this course, the author presents a framework for integrating landscape performance goals into project conceptualization and development. Criteria for describing and measuring the performance outcomes are presented. The work was judged to be a model for future project development.

Importance: The project demonstrated that the consideration of a design benefits perspective or an evidence-based design approach could be incorporated as one of the important learning objectives of most intermediate or advanced courses. In our case, the studio had a very broad and flexibly wide agenda, but it would be possible to make performance benefits a component of courses with a narrower learning agenda (including courses focusing on planting design, urban design, recreation planning, infill, brownfields reclamation, sustainable landscape construction or other similar professional specialties).
Evaluating Performance: A guidebook for metric and method selection

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Barbara Deutsch  The Landscape Architecture Foundation

*keywords*: landscape performance, metrics, methods, assessment

A key step in evaluating the performance of any landscape project is determining what to measure and how. Since 2010, the Landscape Architecture Foundation (LAF) has worked directly with design firms and has funded faculty-student-designer collaborations to produce over 100 case studies documenting the environmental, social, and economic benefits of high-performing landscape projects. These Case Study Briefs, and the methods used to quantify the benefits, are part of the online library of resources in LAF’s Landscape Performance Series.

In 2013, LAF commissioned a study to assess the metrics and methods used in the first 58 Case Study Briefs in the Landscape Performance Series, identify a set of widely applicable metrics and methods for each benefit category, and then compile findings into a comprehensive guidebook. The metrics were to be understandable and meaningful to typical land development decision-makers. The methods were to be: (1) relatively easy to use for a non-expert, (2) generally applicable to a range of project types and scales, (3) able to be accomplished in a short (≥6 months) timeframe, which may involve limited site visits, and (4) defensible.

To be published in late 2014, the guidebook pulls together over 100 metrics in 34 benefit categories and presents assessment considerations and positioning information. This much-awaited resource, offers a starting point for researchers, students, and practitioners who want to evaluate landscape performance of a built project. The guidebook is also intended to encourage firms and clients to set specific performance objectives and gather appropriate baseline data.

This session provides an overview of that guidebook and presents LAF’s long-term vision for it. Next steps include:
- Putting the guidebook into a web-based format so that users can more easily navigate, see examples, and drill down to the appropriate level of detail
- Adding detailed how-to guidance for the different methods, so that there will be consistency across case studies
- Working with scientists and other experts to expand and refine the list of metrics and methods presented

The session will end with an open audience discussion on how the guidebook can be used and strengthened, and how it contributes to the ongoing discourse on what should be measured and how.
Measuring and Evaluating Social Performance through Practice-Based Research

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**keywords:** landscape performance, performance monitoring, social benefits, translational research

The continued progression and advancement of the landscape architecture profession depends on increasing the use of evidence to inform and support design decisions in practice (Brown & Corry, 2011). Evaluating the performance of sustainable landscape projects by measuring and quantifying their environmental, economic and social benefits provides the evidence needed to build a strong case for sustainably designed spaces and help practitioners continually improve future designs (Windhager et al., 2010). Research provides mounting evidence that well-designed urban landscapes can positively impact human health, safety and social interaction (Eicher & Kawachi, 2011; Frumkin, 2003; Matsuoka & Kaplan, 2008). However, these social benefits can be difficult to quantify and challenging for landscape architects to translate into practice (Hamilton, 2003). Several landscape architecture firms are attempting to close the gap between research and practice by integrating performance monitoring directly into their design process to inform future work (Jost & Lamba, 2010). This panel will focus on a case study of Canal Park in Washington, D.C., where practice-based research was utilized to evaluate the park’s social performance.

The panel will begin by introducing the case study as part of the Landscape Architecture Foundation’s (LAF) Landscape Performance Series and providing a brief overview of the environmental and economic benefits measured and documented for the study. Panelists will then focus on the post-occupancy evaluation of Canal Park’s social performance, presenting the year-long monitoring effort completed by OLIN design firm. Several methods were utilized to collect seasonal data on visitors and park use including interviews with key informants, over 200 on-site surveys, and ten days of field observations, monitoring of light and noise levels, and time-lapse photography (Gehl & Svarre, 2013; Whyte, 1980). Findings suggest that the goal of creating a year-round neighborhood park was successfully met. Observations demonstrate the park is active throughout all seasons with a peak lunchtime use of 886 visitors. Over 75% of users traveled less than 1/2 mile to reach the park and the demographics of survey respondents closely matched those of the neighborhood. More than 85% of respondents describe the park in positive terms, indicating an overall satisfaction with the design, and qualitative findings offer additional insight into user perceptions and experience. The session will conclude with a look at the next steps for practice-based performance research, discussing how landscape architecture firms can collaborate with researchers and integrate performance monitoring into their design process to inform and improve future work.
Accelerating the Adoption of Landscape Performance in Design Education

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Heather Whitlow The Landscape Architecture Foundation

keywords: landscape performance, design education, pedagogy

To prepare for the professional challenges and opportunities of an increasingly evidence-based marketplace, landscape architecture students need awareness, skills, and resources to be able to design for, evaluate, and communicate landscape performance. Yet landscape performance — measuring and conveying the environmental, economic, and social value of excellent design — is not yet an established part of the educational curriculum.

To accelerate the adoption of landscape performance in design education, the Landscape Architecture Foundation (LAF) offers Landscape Performance Education Grants to select faculty. The $2,500 mini-grants allow faculty to develop and test models for integrating landscape performance into standard landscape architecture course offerings. Grant recipients work with LAF throughout the duration of the classes and use formal course evaluations to determine the success and replicability of the teaching models used. The first five mini-grants were awarded for the Spring 2014 semester, and another five will be awarded for Spring 2015.

Course materials developed through the mini-grants form the basis of the new Resources for Educators section of LAF’s Landscape Performance Series. This online library offers sample teaching materials for integrating landscape performance into studio, seminar and lecture courses. Materials include syllabi, reading lists, and sample student assignments, as well as faculty reflections on their pedagogical approaches and experiences teaching landscape performance. Over time, LAF will continue to build this collection and add new search capabilities.

This session provides an overview of the Resources for Educators materials and lessons learned from the first five mini-grant recipients. The session will end with an open audience discussion on how to bring landscape performance into the classroom to better prepare the next generation of design professionals.
Analysis to Site Design: Landscape performance and the design studio

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keywords: studio, mla, bla, graduate, undergraduate, performance, design, studio, ecology, regional, local, urban, academic, pedagogy, instruction, research

Purpose: This paper describes the development of curriculum in an undergraduate and graduate landscape analysis and design studio. The pedagogy for this course was developed with the support of a Landscape Performance Education Grant from the Landscape Architecture Foundation. The teaching materials and student work that were produced as part of this research grant are presented for discussion, exploration, and academic review.

Background: The primary goal of this research was to understand the potential for aspects of landscape performance to support academic analysis and design process within the design studio format. The deliverables for each student in the studio included a design proposal which aimed to achieve concrete landscape performance benefits, informed by prior analysis in order to create a coherent design strategy.

Methods: The research proposal outlined a process for revisiting an existing pedagogical approach to the design studio format by identifying areas within the course to explore landscape performance. Performance metrics were gathered and presented to students for analysis at a range of scales, from regional to neighborhood. A review of the Landscape Performance Series CSI projects yielded several precedent studies which were researched by students. The LAF’s Performance Benefits Toolkit was used to calculate and document the specific social, economic, and environmental performance benefits achieved by each student’s design proposal.

Findings: The analyses and design proposals of each student are presented for context, with isolated landscape performance benefits highlighted across all projects. Contextual analysis is shown along with specific research metrics. The student design proposals illustrate the effective integration of landscape performance into the studio format, with specific projects described in greater detail to illustrate the successful connection made between research, analysis, and design within the studio design process. The context for developing this version of the studio is described, with explanation of the techniques and pedagogical approaches used to build this studio around landscape performance. These products, accompanied by other course materials are provided to students, educators, and professionals via the LAF’s Resources for Educators website.

Importance: The development of a studio format which allows students to create a design proposal which aims to achieve specific, relevant, and effective landscape performance benefits allows students to justify the impact of their proposed project beyond aesthetic or experiential arguments. This research presents the development of such a format, and presents recommendations for faculty who similarly wish to develop a unique teaching approach to landscape performance.
Keeping it Real: Striving for accurate and appropriate use of tools to measure landscape performance

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keywords: iTree, validity, metrics, performance

In 2011, the Landscape Architecture Foundation (LAF) initiated a case study investigation series (CSI) to assess landscape performance and to provide empirical evidence of the benefits associated with built landscapes. Subsequently, in 2013, LAF initiated a research effort to understand gaps, commonalities and differences in the way different case studies analyzed and presented such benefits. As part of that effort, a series of recommendations emerged, some of which focused on ways to better apply the i-Tree /National Tree Benefits Calculator to evaluate landscape performance. (Myers, et.al. 2014)

In 2013-14, an additional 27 Case Study Briefs were added to LAF’s Landscape Performance Series. Of these 27, nine used either one of i-Tree assessment tools (e.g., i-Tree Design) or the National Tree Benefit Calculator, which is based on i-Tree’s street assessment tool, STREETS (collectively called “i-Tree”). (Bonifaci, 2009, McPherson, 2010).

In efforts to understand the degree to which initial recommendations incited change relating to i-Tree use, this research team audited the i-Tree results presented in these 2013 case studies. This audit revealed that some case studies contained insufficient data to review results while 4 of the case studies with sufficient details had issues of varying degrees. Indeed, in one instance, the audit revealed that the benefits presented in the Case Study Brief are actually less than 80% of that which was reported.

Such differences, especially when easily calculated by the general public, can serve to undermine the value of the tool and the case studies using them. Drawing upon this review, the Team will:
(i.) Detail the analyses that identified issues with some of the cases studies using i-Tree;
(ii.) Provide recommendations for sampling future case studies to provide high confidence that results are as reported;
(iii.) Describe proposed ways future case studies can more reliably use the i-Trees tools.
PEOPLE-ENVIRONMENT RELATIONSHIPS
DisplayScapes: Landscape displays of infrastructural flows to enhance conservation

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keywords: Infrastructure, water-energy nexus, resilience, environmental justice, ecosystem services

Hypothesis: the hidden flow of water and energy within infrastructure is a significant barrier to resource conservation as out-of-sight is out-of-mind; therefore, revealing these flows is a means to reduce consumption.

This paper establishes the theoretical terrain and roadmap for revealing hidden resource flows by deploying Ambient Displays (AD) along infrastructural corridors to empower resource conservation by the public. ADs are subtle visual (though can be aural too) indicators providing information and status feedback at a glance (Weiser and Brown 1995; Wisneski et al. 1998). This is not rehashing ‘eco-revelatory design’ (Brown, Harkness, and Johnston 1998) into ‘eco-technological revelatory design’. Instead, DisplayScapes springs from Weiser and Brown’s calm technology, utilized in the research that strongly establishes AD’s ability to influence energy and water conservation in buildings (Arroyo, Bonanni, and Selker 2005; Froehlich, Findlater, and Landay 2010; Rogers et al. 2010). But working in the larger realm of landscapes demand we embrace poetics of eco-art like Nuage Vert installation in Helsinki which prompted the conservation of 800KVA over one hour (Huuskonen 2008), to transcend the technocratic attempts of engineers applying psychology to increase conservation efforts.

DisplayScape aims to establish normative social messaging about collective consumption, which has been established as the strongest persuasive influence on individual conservation behavior (Nolan et al. 2008). In the landscape, there are myriad visual and physical manifestations for normative messaging that AD nodes could utilize. These nodes are stationary robots collecting environmental data (using in situ sensors or from centralized servers), then processing and (re)transmitting the data, to control the display elements/actuators. Alternative public landscape display include deploying intermittently updated centralized displays such as billboards, or utilizing augmented reality (Malkawi 2004) via mobile devices.

For CELA, the session will also cover the research design to establish visual preferences of simulated displays to: 1) select the visual characteristics of the AD nodes, 2) optimize the spacing and location selection criteria for deployment, and 3) define the content for the education outreach. AD prototypes and installation designs created by students using Arduino microcontrollers will be used to illustrate the talk.

Establishing the DisplayScape presents a transdisciplinary challenge – but landscape architecture has the aesthetic and technical prowess to successfully bring informational awareness to the public, while not adding to the visual clutter of urban or rural landscapes.
Using Transparent Spaces to Encourage Patients’ Engagement with Therapeutic Landscapes and Optimize Stress Reduction in Urban Health Facilities: A pilot study

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*keywords:* Therapeutic Landscapes, Urban Health Facilities, Transparent Space, Stress, Aesthetic Preference

Urban megahospitals have been built in the way that divorced patients from the natural environments [1]. Empirical researches have suggested that patients experience environmental stress in such settings due to insufficient connectivity with the exterior world [2]. Additionally, issues of the inadequate usability of healing gardens in general hospitals have emerged, majorly yield to twofold aspects: low visibility, and difficulties of accessibility [3-4]. In this context, this on-going doctoral study explores how therapeutic landscapes can be more integrated into urban health facilities, get patients more involved, hence optimize the stress-reduction during hospitalization. The theory of transparency, initially presented by architecture theorists [5], expressing a type of continuous space that blurs the boundaries between interiors and exteriors, is operationalized for the first time to describe a unified continuum of landscape-architectural flow within healthcare environments. Twelve design patterns of that can encourage such experience are derived and reshaped from Alexander’s pattern language [6], and the typology study of hospital outdoor environments [7]. Then the stress-reducing effects of one selected patterns, therapeutic viewing place, is tested by a survey-embedded quasi-experiment.

This study aims to reappraise landscape and architectural design patterns that can be used to address the current disconnection between therapeutic landscapes and interiors within urban healthcare environments. The major research question yields to how can transparent spaces of urban health facilities, take the hospital waiting areas for instance, optimize patients’ stress-reduction compared with two other typical design patterns — (a) total exclusion of nature, and (b) with limited window views of natural features.

A pilot study consisted of 17 subjects from the target population has been completed. They were paired and assigned to three groups of three types of hospital waiting areas in urban health facilities. Images of three groups of hospital waiting areas, expressing (a) absolute exclusion of nature, (b) limited window views of nature, and (c) transparent waiting area that has maximum view of nature, are exposed to the subjects as treatments after their exposure to an acute stress stimuli. Subjects’ stress levels were measured by continuous physiological readings of heart rate and blood pressure, and their mood states and aesthetic preference to the images were also surveyed after the treatments. Pilot results have indicated that there is a strong potential that people’s stress levels and mood scores decrease the most significantly in the third treatment group, compared to the other two groups.
Analysis of Aptitudes, Aspirations, Capacities, and Resources for Community-Based Agritourism Establishment

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*keywords*: Agritourism, Tourism Planning, Community-based Tourism, Sustainable Tourism

Agricultural landscape, rural vernacular landscape, and cultural heritage can be presented as an open air museum displaying culture on the land by local people. Conservation of rural vernacular landscape, cultural landscape, and sustainable agriculture has become the theme of community-based agritourism (CBAT), however the rural farmers’ aptitudes and resources are a much-under researched topic. This study investigates the aptitudes, aspirations, expectations, capacities and skills of rural farmers and infrastructure needs of three rural villages in Chiangkhan District, Thailand as a prelude to the establishment of a community-based agritourism. The survey data explore farmers’ understanding of agritourism, their capacities to contribute, and their infrastructure interests which would essentially underwrite the setup of a CBAT. There are good elements of natural resources, unique farm village heritage, self-sufficiency farming, traditional life, diversified farm products, well-integrated farm practices and farmers’ knowledge and skills; they serve as good foundation of starting a CBAT. A further discussion of agritourism elements which may be applied in the locality is deliberated to have a holistic and sustainable development of CBAT programs in these three rural villages.
Public Safety and Built Environment: Mapping hotspots of outdoor crime

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*keywords*: crime hotspots, Public Safety, Outdoor Crime, Built environment

Background: Public safety is a major component of livable communities for people of all ages. Neighborhood safety related to crime is known to be directly and indirectly associated with walking and social activities. Despite increasing evidence reporting fear of crime as a significant barrier to physical activity, scant attention has been paid to the environmental risk factors associated with the specific types of crimes targeted for outdoor places. While most previous studies used an aggregated measure of all crimes combined, this study focuses on those selected crime types that are most commonly committed in the outdoors such as violence (e.g. assault, kidnapping), physical disorder (e.g. graffiti, abandoned vehicle) and public misbehaviors (e.g. intoxication).

Purpose: This study is to: identify the environmental risk factors of outdoor crime in three different spatial scales (point-location, line-street segment, and polygon-neighborhood); generate hotspots of outdoor crimes; and examine the built environmental risk factors frequently found in those hotspots.

Methods: This study examined locations of outdoor crime reports (2008-10) by Austin Police Department, Austin, Texas. In this study, an outdoor crime is defined as a reported crime occurrence in an outdoor public space, such as a street, parking lot, park, or recreational area. The study was conducted in four phases: (1) develop a framework for understanding environmental risk factors of outdoor crime in three spatial scales based on the systematic literature review, (2) employ Geographic information systems (GIS) to map the locations of crime hotspots and explore spatial distribution of outdoor crimes, (3) examine built environmental characteristics associated with crime hotspots through GIS analysis and environmental audit, and (4) analyze the relationships between outdoor crime rates and the built environmental characteristics by using multiple regression models.

Preliminary Findings: The literature review indicated that different environmental features could lead to outdoor crimes at different spatial scales. At the neighborhood scale, land use mix, density, vacant lots, destinations, etc. are associated with outdoor crime rates. At the street scale, sidewalks, types of buffers, and street connectivity are related to outdoor crimes. Finally, at the specific location level, crimes are shown to be influenced by visual surveillance, lighting conditions, and house and garden maintenance. GIS and statistical analyses are being conducted to further investigate the built environment-crime relationship at the three spatial scales using the data from Austin.

Importance: The results from this pilot study can help develop evidence-based planning, design, and policy strategies for creating safe neighborhood environments.
Living by Measure: The quantification of the landscape and idealization of the everyday

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keywords: landscape metrics, mapping, health, walkability

The desire to exact and standardize environmental measurements for everyday life has been a recurrent theme throughout urban history. Whether it is specifying individual modules of air, light, and green space or specifying the neighborhood unit, since the institutionalization of the profession planners and designers have sought to quantify the landscape for many reasons: to make sense of a chaotic and complex reality, to exert power, to improve health, and to come ever closer to utopian ideals. From the scale of Le Corbusier’s individual dwelling units to Olmsted’s and Burnham’s grand urban visions, they are often borne of an idea of how the landscape should be portioned to the individual, then multiplied and aggregated to the urban scale. These kinds of calculations often intend to shape behavior as much as reflect it, but the dimensions and goals have changed over time. The current trend of advancing the “science of cities,” alongside increasingly sophisticated environmental data collection, will likely embolden efforts to quantify the urban landscape for performance, with implications for future policy. Before moving forward, it is necessary to examine how metrics and mapping have shaped the urban landscape we inhabit today. This presentation traces the historical progression of how landscape measurements have been derived from ecological observation, urban analysis, and human anatomy, and how they have left their mark on the present day metropolis.

This historical review sets the context for a contemporary case study of how the landscape is measured for health, in particular neighborhood walkability. In mind, I demonstrate how rethinking common walkability measurements from a landscape perspective can show significantly different outcomes. What happens when we specify neighborhood units by built environment changes, instead of administrative boundaries? What happens when we visualize perceived density, as opposed to population density? Finally, how does walkability look when radii are measured by time instead of distance? In conclusion, we return to the primary question: do landscape measures reveal how we actually live, or projections of how we want ourselves and others to live?
Representing Time and Dynamic Space in the Public Realm

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keywords: dynamic phenomena, sensory dimensions, experiential space, representation, visualization

Purpose: The purpose of this study is to develop a drawing schema that represents the perceptual dimensions of landscape space.

Background: Landscape architecture is composed of both constant and variable elements. Dynamic forces and environmental phenomena animate forms during the day, and mutate form over time. Dynamic phenomena influence patterns of human spatial behavior, and play a significant role in shaping the public realm, however as designers we are equipped with limited tools to visualize the spatial dimensions of environmental change. Current drawing practices either preference physical dimensions (orthographic drawing), or treat phenomenal spatial elements as ambiguous: intoning mood or an attitude of hyper-reality. While the role of non-visual elements in landscape space is widely discussed among scholars (Corner, Giori, Halprin, Lynch, Appleyard), new drawing mechanics often limit experiential phenomena to notational recordings, and omit the volumetric and dimensional qualities of temporal spatial experience.

Methods: This project combined scholarly research, experiential and phenomenal data collection, and experiments in methods of representation. Research focused on representation in landscape practice, the mechanics of visual and non-visual spatial perception, as well as contemporary conceptions of public space. Initial drawing experiments were conducted through a study of Union Square, NYC. Perceptual and mechanical recordings were made of dynamic elements: light, wind, sound, human movement and aggregation. Drawings were developed to translate patterns of movement or gradient into volumetric projections.

Findings: Preliminary findings from this ongoing research have lead to the conclusion that there are at least two sets of dimensional measures of space --- one based on global measurements (fixed), another based on relative, perceptual measurements (dynamic, perspectival). Global measurements lead us to one definition of volumetric space, one that is based on physical armature, and a binary of solid form and spatial void. In order to expand this definition, the parameters (or measurable factors) used to define space must be expanded beyond armature and form to include: phenomena, time, movement, and memory. These parameters have relationships that form a range of perceptual spatial understandings. Drawings from this study attempt to identify and visualize the volumetric characteristics of these perceptual spatial types. The spatial ‘dimensions’ depicted in these drawings are relative to human perception, not physical boundary or scale.

Implications: The role of landscape architecture in the public realm is limited if we do not have the toolset to describe how it influences the public realm and transgresses the boundaries of architecture and landscape.
Rain Water Harvesting Practitioners Most Influenced by Environmental Ethic

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*keywords: Rainwater Harvesting, Environmental Ethic*

While there are new rainwater harvesting products and systems evolving beyond the simplistic rain barrel, it seems that influences associated with their implementation are not well defined. With hopes of better understanding these influences, the authors studied the relationship between incorporating rainwater harvesting systems into new project design and project owners’ reasons for inclusion. Construction projects under construction or previously built that include above or below ground water capture and storage systems were targeted in Oklahoma, Texas and New Mexico due to typical arid climates with eight and forty-eight inches of annual rainfall. Factors influencing integration of RWH were determined from literature review and included in an online cross-sectional survey. Project owners were invited to complete a five level Likert scale to be used to rank the strength of influence of these factors: initial cost, perceived return on investment, government dollar incentives, geographical factors, product availability, available design and installation expertise, aesthetics, maintenance, education, social reluctance, legislation and regulations, marketing, storm water management, LEED and environmental concern. From these results means were calculated to determine the strongest influencing factors. The results show that rain water harvesting practitioners believe that implementation is due to an environmental ethic, rather than economic incentive or environmental regulation.

Of the eight projects included three were LEED certified. Using these three respondents’ data, a LEED certification cross tabulation was created. Results revealed that of those LEED certified project respondents, all felt little to no influence concerning perceived return on investment. Owners possessed high environmental values as well as a perceived need for sustainable building.

The authors acknowledge the limited study sample and focus on a specific U.S. region, but feel the methodology is a suitable model for additional regions, project type or feature. The other desired learning outcome of this study is the replicability of the research methodology to explore strength of influence for any type of building project (office buildings, schools) and building feature (rain water harvesting, LEED credit categories) in other climates where precipitation averages are different.

The authors believe that the results and methodology create greater understanding of the influences associated with water conservation through integration of rainwater harvesting and reuse systems in new building construction projects.
Patterns of Living and History: Cultural landscapes in a New Urbanist and an historic neighborhood

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keywords: history, landscape, preservation

History’s role in common, everyday understandings and actions remains unclear in the contemporary world. Glassie (1988), like Riegl (1982/1903), concluded that individuals rely on a sense of the past to structure a sense of self and identity. More recently, Klein (2000), Said (2000), and Grenville (2007) have argued that contemporary history must recognize the use of the informal past derived from memory and everyday meanings. The design and preservation of human environments risks engaging history in abstract ways that have no meaning for individuals unless designers and preservationists understand how individuals use history.

Oral history interviews with residents of two neighborhoods were conducted to explore how the residents’ understandings of their own past related to their present. The residents of a New Urbanist and an historic neighborhood in Longmont, Colorado shared similar understandings and uses of history despite the physical and temporal differences of the two places. The historic neighborhood developed west of the town’s traditional business district in 1871. The New Urbanist neighborhood was built more than 120 years later on a suburban site three miles away. The two neighborhoods shared some physical and social characteristics, including comparable senses of community cohesion and stability. In both places, the residents talked about who they were with stories from the distant and immediate past. Those stories relied on the landscape and, significantly, compelled changes to the place. Individuals recognized the past, but rarely explored it until conflict pressed them to defend their sense of who they were, how they want to be presented, or the markers of time that they used. Although history and precedent defined central characteristics of both neighborhoods, the residents of these places used this history in ways that are different from academic, formal understandings.

Three themes about the understanding of self, history, and place emerged from narrative analysis of the residents’ stories: (1) Understanding of self intertwines with knowledge of history and personal experience in a place, (2) Understanding of self is inherently contradictory, and (3) Self, identity, and place are supported through actions to protect the individual by protecting the status quo. The themes were derived using a narrative analysis of recorded interviews. Riessman (1993) outlined narrative analysis methods as a way to understand human belief and meaning through the structure and content of an individual’s stories. The residents’ stories were contextualized through archival records and readings of the cultural landscape.
Characteristics of and Facilities in Parks That Promote Children’s Park Use

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*keywords:* Urban Park, Children’s Park Use, Park Facilities, Children’s Health, GIS

Urban parks are important for providing opportunities for children to explore nature and promote physical activity (Loukaitou-Sideris and Sideris, 2010). Although many previous studies have documented benefits of parks including psychosocial, educational, and behavioral aspects (Estes and Henderson, 2003), only a small number of studies have examined specific correlates of park use using disaggregated and objective measurements (e.g. size and distance measured with Geographic Information System, GIS, techniques) of individual park features/facilities (Bedino-Rung et al., 2005; Cohen et al., 2007).

This study explores if objectively-measured characteristics of parks in general and individual park facilities (e.g. playground, sports field, swing, and pool) are correlated with children’s park use.

This study used parent-reported survey data for 4,265 elementary school aged children from Austin, Texas. GIS was used to measure the characteristics of 196 parks in neighborhoods where survey respondents lived. The dependent variable was whether or not the respondent’s child used a park at least once a week. The independent variables were the distance to the closest park, the size and presence of the park, the various facilities in the park, and trail features in the park. Multivariate logistic regression models were developed to identify correlates of children’s park use, after controlling confounding variables including gender, grade, race, socio-economic status, and Body Mass Index of children.

A network distance to the closest park was negatively correlated (OR=0.705, p<0.01), while the size and presence of a park within a half-mile buffer from home were positively correlated (OR=1.718, p=0.137; OR=1.428, p<0.01) with the odds of using a park. For the individual park facilities, the presence of several activity-friendly facilities such as multipurpose fields, playgrounds, pools, swings, and tennis courts were positively associated with children’s park use. However, ball fields, basketball courts, and volleyball courts were not significant. The presence of trails within a half-mile buffer from home and shorter network distance to the closest trail were both positively related to children’s park use (OR=1.448, p<0.01; OR=0.776, p<0.01).

Findings from this study suggest that parks with features/facilities such as multipurpose fields, playgrounds and swings, in close proximity to children’s home, and well-connected trail systems could help encourage children’s park use. Park planners and designers should consider strategies to foster children’s park use by considering appropriate locations, designs and features to attract their use.
The Concept of the Anthropocene: Considerations for the environmental resources, communities and cultural heritage of the Central Appalachians

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keywords: Anthropocene, Appalachia, ecosystems services, community

The idea of the Anthropocene as a geologic chronological term traces its origins to the work of ecologist Eugene Stoermer during the 1980’s. Essentially, the Anthropocene provides a framework for considering the extent that human activities have had on the Earth’s topography and ecosystems. The overriding thought is that in recent times that human behavior’s impacts on the earth are now so significant as to constitute a new geologic epoch. Roger Hooke in a seminal 1999 paper (Hooke 1999) takes the concept a step further providing quantitative analyses of landscape level geomorphic analyses for the entire United States comparing rates of geomorphic change (erosion, sedimentation, mass wasting, and other mass earth movements) for natural and manmade processes. This paper will focus on the concept of the Anthropocene as applied to the recent history of the Appalachian Mountains where Hooke found the greatest landscape changes due to man’s activities to be present. These changes are due heavily to surface coal mining and the construction of major infrastructure elements such as the national highway system. The impacts of these changes are being felt particularly heavily in the areas of ecosystem service losses, local community and community development disruptions, and losses of Native American and more recent cultural landscape resources including early settlement and industrial archeology areas and features. This work is ongoing and the paper will provide initial findings for the impacts on the above three aspects of landscape focusing on a rural previously very heavily mined area in southern West Virginia.

The study is currently utilizing a wealth of spatial data for the initial study area of approximately five million acres though we are presently working in three focus areas – McDowell County, The Coal River Watershed, and the New River Gorge National River. McDowell County and the Coal River are areas with rich mining histories with significant disturbances beginning in the 19th century and continuing through today while the New River was the location of some of the earliest significant underground mining in the state. Through a series of projects for the USEPA we have developed a significant amount of what might be viewed as ecosystem services data and we are beginning work examining the potential social aspects/dimensions of those ecosystem services in the Central Appalachians.
The Crucian Provision Ground: From enforced self-reliance to new models of culturally grounded sustainable practice

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keywords: urban agriculture, cultural history, social justice, St. Croix

Purpose: While advocates associate urban agriculture and local food production with environmental, social, and human health, proposals in some low-income communities of color may face ambivalence or resistance from individuals for whom the practice is complicated by negative associations with poverty-based necessity, inequality, and subjugation. Propositions underway in St. Croix to recreate kitchen gardens and provision grounds as educational opportunities provide a context to discuss the significance of cultural meaning, social justice, and self-reliance in urban agriculture endeavors.

Background: St. Croix, U.S. Virgin Islands, has a complicated history with agriculture and local food production. Since Columbus landed in 1493, seven nations have claimed the island. Accounts from 18th century visitors describe the dominance of the plantation economy, with all flat land under cultivation and an enslaved population that grew to 27,000 by 1803 (Boyer 1983, Tyson and Highfield 1994). Unwillingness to allot land and labor to food production and seeking to avoid expensive imported food, managers provided the enslaved with kitchen gardens and provision grounds to grow food during their “free time.” These included root crops, tree crops, and some grains and legumes—all of which could be maintained with the limited time and labor. Industrious individuals sold extra produce at Sunday markets, which provided essential opportunities to communicate with slaves from other plantations. Anthropologist Sidney Mintz describes this as a “proto peasant” economy that subsidized the harsh plantation system yet also enabled the enslaved to assert their own initiative and humanity (Mintz 1985, Tobin 2005).

Today, there is growing interest to reveal this historical legacy of self-reliance as inspiration to contemporary Crucians who are struggling financially as a result of limited job opportunities. With the closure of a major industry, there has been an increase in home vegetable gardens as well as proposals to recreate provision grounds as opportunities to educate about agriculture, cultural history, and sustainability.

Methods: This research project incorporates methods of historical research, interviews with key participants, and engagement through design studio working with the National Park Service and Estate Whim Museum.

Findings and Importance: Data collected to date suggest that historically grounded agricultural demonstrations offer opportunities to discuss self-reliance, culturally appropriate gardening and foods, and environmental conditions. Interpretation is political and the ongoing cultivation and harvesting often requires additional programmatic considerations. While the provision ground illustrates one cultural history, it can be abstracted to open discussions of other cultural histories and immigrant groups.
The Influence of Urban Landscape Spatial Patterns on Single Family Home Property Value

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*keywords*: Landscape spatial patterns, landscape index, urban green space, property value, single-family housing

The influence of urban green space on economic value has been the focus of many empirical studies, which have documented several positive relationships between the urban natural environment and property value. However, previous studies to measure the value of urban natural environments have been limited to calculating the total quantity of vegetation from aggregated land use data, and/or the proximity of a property to nearby green spaces. While a few studies have attempted to capture the quality of urban natural environments with objective measurements, the role of landscape spatial patterns shaped by urban forests on property value has not been examined sufficiently.

This study examined the association between landscape spatial patterns of urban green spaces and single family home sale transactions. To measure property values and housing structures, 8,551 housing transaction records from 2010 to 2012 in the city of Austin, TX were collected. To quantify the quality of landscape spatial patterns, this research used several landscape indices after classifying land cover types surrounding a property using Geographic Information Systems (GIS) and remote sensing using the high-resolution Digital Orthophoto Quarter Quadrangle (DOQQ) aerial photo imagery. FRAGSTATS, a spatial pattern analysis program, was utilized to compute various landscape indices for a half-mile airline buffer around each of the selected single family houses. Bivariate analyses and multiple regression models were used to predict single family property values.

In addition to several significant correlates from housing characteristics including the total living area, existence of a pool, and waterfront view, the results showed that larger tree areas surrounding a single family home were positively correlated with higher housing transaction value (p<.001), while more isolated landscape spatial patterns (p<.001), more fragmented conditions (p<.001), and more irregularly shaped landscape spatial patterns (p<.001) were negatively associated with the transaction price.

This study helps fill a gap in the existing body of literature by assessing the influence of the quality of urban green space assessed by quantitative methods on single family housing value. The results of this research could be reflected in community design and planning policies, through increased awareness of the role of urban green spaces, and linking their spatial structure to design guidelines and frameworks to promote economic benefits.
Young Children’s Preference for Natural or Manufactured Behavior Settings in Outdoor Preschool Settings: Combining photo preference, drawings and interviews

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**keywords**: mixed methods, young children, photo preference, interview, drawing, behavior setting, cognitive play, outdoor preschool

Rather than making inferences based on observations or parental report, it is necessary to collect children’s accounts of their experiences of place. However, limited data is available on young children’s view on cognitive play opportunities within behavior settings. Behavior settings are ecological units that link the built environment and behavior, and are categorized as natural, manufactured, or mixed. This study emphasizes the value of hearing children’s voices through combined drawings, photo preferences, and interviews, to understand the perspectives of 22 four- to five-year-old children. These children were enrolled in a preschool with a manufactured, mixed, and natural outdoor play environment that provided diverse natural and manufactured, loose or fixed play elements. After reviewing some photos, children were asked to draw their favorite play spaces in the outdoors that were composed of diverse natural and manufactured elements. Afterwards, children were asked about their favorite play spaces, kinds of play they enjoy, and the reasons for drawing or selecting certain photos. The data was coded for different settings and cognitive play behaviors (functional, constructive, exploratory, dramatic, and games with rules). Children mainly sketched the sand, the pathway, trees, and swings as their favorite behavior settings. In the interviews, they mostly mentioned the trees, sand, stone-lined swale, and hill as their favorite behavior settings. The combined results suggest children’s preference for mixed settings composed of natural and manufactured features. Children emphasized how mixed settings provide opportunities for their functional, constructive, dramatic, and games with rules play behaviors. In addition, children described the exciting opportunities that natural settings offered for exploratory play. The qualitative results of this study encourage landscape architects to incorporate mixed settings that include manufactured structures in natural environments to amplify the cognitive play value and enjoyment of the outdoor preschools.
While assumed to be the stuff of science fiction, a socially and ecologically resilient Los Angeles is less far-fetched than people might think. For local landscape architects and other like-minded designers, the future of a Resilient Los Angeles revolves around vibrant landscapes for living that promote human health and well-being, among other things. This paper explores which contemporary environmental design concepts and principles can be employed synergistically to promote health, mobility, and access to nature in a 13 million-person region well known for degraded environmental quality. Literature reviews on health and well being in the following areas: environment-behavior studies, public health, and ecological urban design support this research. Project examples and case studies will be developed in the Fall 2014 semester in a new graduate course on health and the designed environment. What this paper will reveal are everyday ways to improve human health and well being at multiple and scales in the built environment of a large US city region. This paper will help practitioners and scholars understand the current best thinking about how well being and urban form and function interact and shape one another; it will provide project examples and new ideas for practice and research, and will provide a critique of the approach one place is taking in regard to reshaping the built environment to better serve people.
Embracing Green: The healing gardens at the Palliative Care Center in Göttingen, Germany

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*keywords*: palliative care environment, restorative garden, healing place

The proposed presentation focuses on the Palliative Care Center at the University Hospital in Göttingen, Germany. Addressing pain management and symptom control, this ten-bed in-patient facility treats patients who are extremely ill, often close to death, and typically suffering from extreme pain due to cancer in advanced stages of development. Opened in January 2007, the care center is the remodel of the former oncology ward of an existing six-story conventional teaching and research hospital built during the 1970s.

By now it has been well established through numerous research studies that access to green nature can have significant restorative effects on human beings. In particular, research supports the notion that access to nature can contribute to reduced pain experiences (Craig 2003; Malenbaum et al. 2008) and thus improved quality of life during serious life circumstances such as catastrophic and potentially life-threatening illness. By means of a qualitative study involving observation and structured interviews with patients, family members and staff, user responses were elicited regarding the effects of environmental factors on their perceptions of wellbeing. Responses reveal the tremendous importance of the presence of private and shared green outdoor spaces immediately adjacent to patient rooms. Applying Wilbert Gesler’s definition of ‘healing places’ as a theoretical framework, the presentation discusses the care center’s gardens in light of their built, natural, social and symbolic components.

Interview participants offered important insights about the relationship between their respective perceptions of well-being and environmental characteristics of the facility, including: the overall ambiance of the unit; opportunities to walk out of the facility and enjoy a stroll in the adjacent park without having to go through the main lobby; ample views of nature from their beds; experience of fresh air and the sounds of nature through large operable glass doors within the patient room; and direct access to a private deck and garden, where the pleasures of being out of doors can be enjoyed, even during inclement weather and while lying in bed; and having control over one’s immediate environment.

The presentation highlights the design of the gardens as part of a continuum of spaces, from interior to exterior, in response to the specific needs for healing of their particularly vulnerable users. Furthermore, the presentation offers insights on how change can be brought even to the depersonalized and institutional settings of large hospitals in order to incorporate ‘healing places’ for patients, family and staff.
Soundscape Investigation on Mississippi State University Campus

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*keywords:* Human perception; soundscape; public open spaces; acoustic comfort; sound preference

The term soundscape, used first time at the end of 1970s, refers to the sum of the sounds which can be heard and perceived by people in a specific environment. Soundscape and acoustic comfort concentrate on the way people consciously perceive their environment through hearing and listening (Schafer, 1977). The concept of soundscape has recently received attention in planning and design disciplines where the focus has been placed on the visual, rather than the acoustic feature. Recent studies on soundscape have shown that the acoustic environment plays an important role for the overall comfort of site users (Kang and Zhang, 2010). Hence, this research investigates how objective measurement of soundscape might be different from subjective perceptions of users in the Mississippi State University Campus as a public open space due to demographic variations. The public open spaces studied in the Mississippi State University Campus include four locations: Mitchell Memorial Library, Colvard Student Union, Bell Island, and Sanderson Center. The reason of selecting these locations is that each of them has different sound features. These locations were evaluated through sound recordings and sound measurements (objective measurement), and questionnaires (subjective evaluation). Each site was measured four times a day (8am-noon-4pm-8pm) and different days (every other day) in the week between July and September 2014, and a total of 51 campus users participated in the study.

The goal of the research was to determine the demographic and climatic variations related to sound perception. For the subjective evaluation, two steps were conducted. In step one, as a pilot study a soundwalks was conducted with small groups in four study sites. In step two, questionnaire surveys were conducted in these sites and analyzed by SPSS software in order to understand subjective evaluation. For the objective measurement, the sound of these locations was recorded by a professional audio recorder and sound was measured by a sound pressure level. The recorded sounds were analyzed for creating graphics by a sound software called Raven Lite 1.0. As a result of the research, water sounds, birdsongs, and wind blowing trees were the most desirable sounds. So, natural sounds were commonly more favorable in the Mississippi State University Campus, except insect sounds. However, construction, surrounding speech, and chatting and shouting were unwanted sounds in the campus. The research characterized soundscapes of different sorts of open spaces in the MSU campus in order to understand the demographic variations.
Environmental Legacies and Social-spatial Adaptations of a Marshallese diaspora

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keywords: Marshallese, diaspora, landscape legacies, culture and open spaces

This paper evaluates the human-environment relationships of the Marshallese diaspora in Springdale, Arkansas. The Marshall Islands, a series of coral atolls in Micronesia, are infamously known for the United States nuclear weapons testing conducted there after World War II. This testing resulted in a severely polluted landscape. Reparations from the United States government for this damage and trauma include, among other things, an agreement in which Marshallese may reside and work in the United States indefinitely. Subsequently, a number of Marshallese have chosen to relocate to the United States. The largest Marshallese community outside of the Marshall Islands resides in Springdale, attracted in part by the available industrial jobs at companies such as Tyson Foods, Inc., as well as familial and cultural connections.

This study evaluates the Marshallese experience of place and its manifestations on their Springdale environment. This evaluation includes social, cultural and political influences from their American community, as well as the social and cultural antecedents from their Marshall Island roots. An observation analysis, a survey and interviews (i.e., thoughts about their open spaces, environmental amenities, cultural roots in terms of the environment, and their current place in the local spatial design and planning processes) are conducted in the Marshallese community. The overlapping boundaries of American and Marshall Island contexts and forces are examined, with a particular emphasis on its expressions in the Springdale community. It is found that the way the Marshallese neighborhoods are used and perceived is partly a result of their historical roots in Marshallese culture and at times in stark contrast to their non-Marshallese neighbors. It is also found that these communities are sometimes marginalized in the context of Springdale community planning (whether implicitly or overtly). This study sheds light on the interesting social-spatial phenomena of the Springdale Marshallese diaspora, yet also provides a call to action for their voice to be heard in local spatial design and planning processes.
Revealing Green Roof and Rain-garden Changes Over Time: Coupling frequent observations and photography with monitoring and management

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Keywords: green infrastructure; observations; photography; monitoring; management

A common sentiment related to green infrastructure planning and design is that public and stakeholder perceptions of aesthetics and management often trump other issues (for example, ecological performance) and thus strongly influence rain-garden, bio-retention area, and green roof acceptance. Of particular concern in urban areas is the “weedy” or “messy” look of many “naturalistic” green infrastructure projects. Similar to concerns regarding invasive species management, challenges related to the management of green infrastructure projects are largely aided or constrained by a range of frequently competing human dimensions (McNeely 2001). Two projects in north-central Kansas serve as useful references for discussing concerns related to aesthetics and management. Since March 2007 Kansas State University’s International Student Center Rain-Garden has been regularly observed and photographed. Vegetation management of this rain-garden has likewise been frequent with annual involvement by landscape architecture students as well as those enrolled in an interdisciplinary environmental issues and ethics course. Since May 2009 Kansas State University’s Upper Seaton Hall Green Roof has also been regularly observed and photographed. Regular monitoring of this green roof has provided a wealth of data about its changing conditions through time. This presentation reveals how one green roof and one rain-garden have changed over time as recorded by the camera. This presentation argues that although pictures can in fact “paint a thousand words,” close observation along with focused, regular, and systematic monitoring are essential for providing a deeper understanding of the landscape or ecosystem of interest. Ongoing observation and monitoring, regular rain-garden management, detailed note-taking regarding green roof conditions and dynamics, frequent public tours to both the rain-garden and green roof, and a number of other outreach activities provide strategic opportunities to reveal more than static photographs can tell. This presentation opens the door for reflective conversations about the role of observation and photography in helping to reveal landscape/ecosystem change over time. The presentation will conclude by briefly noting connections between observation and photography; an effective range of outreach programs (including those focused on students of different ages and interests); improved understanding, appreciation, and decision-making capacity by stakeholders and designers; and green infrastructure planning, design, monitoring, and management.
Perceived Economic Values of Walkable Communities: Built and natural amenities for walking

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Keywords: Walkability, Neighborhood Amenity, Willingness-to-pay

Objectives: Walking is often undervalued as an underutilized mode of transportation. While walkable communities have recently gained popularity for their potential to promote walking as a health-promoting physical activity and environmentally-friendly travel mode, only a small number of empirical studies have addressed their economic values. The purpose of this study is to examine perceived economic values of walkable communities using the survey data collected from parents of school-aged children.

Methods: An online survey (n=416) collected the data on one-time WTP amounts to have/keep walking-friendly amenities in their neighborhood, and key covariates identified from the literature (e.g. income, attitude/preference toward walking, residential history, car ownership), from one urban, two suburban, and ten rural central Texas communities. The WTP amounts were captured for ten ‘built’ (e.g. sidewalk, playground, public plazas) and five ‘natural’ (e.g. street trees, trails/greenway) amenities. A pair of photos showing a typical landscape ‘with’ and ‘without’ each amenity accompanied the survey questions to facilitate consistent assessments. Two linear regression models were estimated to predict the mean WTP amount for the built and natural amenities.

Results: Three most valued ‘built’ amenities were public schools ($152), playgrounds ($93), and street lights ($91); three top ‘natural’ amenities were parks ($108), trails ($96), and water features ($77). Multivariate regression analyses showed that urban residents and high-income groups were willing to pay more for both built and natural amenities. People living in neighborhoods with some existing amenities were willing to pay more for the built amenities. Those who already had sidewalks in their neighborhood were willing to pay more for the built amenities which mostly served as destinations for walking but less for the natural amenities which were usually places/routes for walking, possibly because sidewalks already served as places/routes to use for their walking.

Conclusions: The finding that people living in areas with some amenities already are willing to pay even more, suggests that existing/available communities do not fully meet the expectations of those who prefer walkable environments. Certain combinations (e.g. routes and destinations) of individual amenities seem more valuable than others (e.g. routes and routes). Further, as potential individual intervention targets, street lights and trails appear promising as relatively feasible interventions with high perceived values. More studies are needed to further assess the full and varying ranges of values and costs associated with individual and combinations of walking-friendly amenities, to help develop more effective design and policy interventions to promote walkable communities.
Can Green Streets Promote a Livable Community?

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Keywords: Green Street, multiple benefits, storm water treatment, green infrastructure, process

Background: Green infrastructure is gaining acceptance across the country, primarily for addressing urban hydrology requirements specified in the Clean Water Act. Green streets, as portions of green infrastructure, are designed to deal with stormwater runoff at the source and implemented in a public right of way. They also provide other benefits such as traffic calming and pollution reduction all of which contribute to more livable communities. They consist of natural materials such as soils and plants. These Green Streets provide various benefits, yet, little evidence can be found if these benefits are actually achieved.

Blacksburg, VA has built the first Green Street on College Avenue. They established Environmental Management Program and are expected to build more throughout the town. To deliver more benefits to the community, this project needs to be studied regarding the process for planning and designing the street and users’ experience. Lessons from the study will provide guidance for the future development of Green Streets.

Purpose: This research looks into specific process for planning a Green Street to understand how the design of the street was decided and how communication among different parties was conducted to deliver particular benefits. Users’ experience on the street is studied to see if they actually experience what is designed for them. Then, recommendations for final Green Street oriented planning and design process is suggested.

Method: College Avenue Promenade, received positive feedback from local media and the town was selected for in-depth research. The method includes semi-organized interviews and surveys. Target subjects are experts who worked on the project to document the process of design in detail; users to evaluate their experience on the street; business owners to find impacts on local business. Findings are evaluated for compatibility with a range of intended benefits, forms and functions of Green Streets to create guidance.

Finding: Preliminary analysis of the interviews summarizes experts’ and users’ experience to Green Streets that can bring critical design evaluation and findings of Green Streets. It leads to a more comprehensive understanding of Green Street oriented process and how they deliver needs of users. The results can be utilized when designing Green Streets with multiple benefits.

Impact: This study can reveal how Green Streets need to be designed and are accepted by users. The results can be utilized for consolidating the existing Green Street strategies to make it more practical and desirable community development strategy for multiple benefits.
Letters in Landscape Narrative

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keywords: landscape narrative; landscape description; narrative literature

“What the map cuts up, the story runs across.” - Michel de Certeau, The Practice of Everyday Life

“Here was a piece of river, which was all down in my book, but I could not make neither head nor tail of it; you understand it was turned around. My heart broke again, for it was plain that I had to learn this troublesome river both ways.” - Mark Twain, Life on the Mississippi

A narrative is an account of events, fictional or actual, presented as a sequence of spoken or written words. In Western narrative tradition, the most popular form of narrative literature is the novel, yet novels are only one of a number of possibilities, which include verse, myth, legend and memoir. Using the context of ongoing watershed-related research in New Jersey’s Raritan Valley, the proposed presentation explores a distinctive though neglected form of landscape narrative: the letter. In its full geographical and cultural sense, landscape is composed of everything we can see or be educated to see, when looking at our surroundings. In landscape, local places exist within a continuum of entanglements whose associations are as much open and porous as discrete and spatial. Moving along this continuum, humans draw together observations, stories, impressions, and memories to make sensible the elements and conditions surrounding them. To philosopher Paul Ricoeur, this act of synthesizing heterogeneous phenomena is the essence of narrative. This presentation will explore the meditative and revelatory nature of letters and letter-writing. I begin by tracing the origins of common narrative forms used in landscape description, distinguishing between thematic and stylistic categories in fiction and non-fiction writing and documentation. Drawing on first-hand accounts of the Raritan Valley by geographically separate landscape observers, emphasis is placed on local eyewitness accounts and the power of letters to convey observations and impressions with dramatic immediacy and verisimilitude. A geographical imagination coupled with an interest in landscape documentation led me to the Raritan. Situated mid-way between Philadelphia and New York, the valley is rich in historic incident and ecological variety. Its river, the longest in New Jersey, drains more than 1,100 square-miles along its seventy-five mile course, and formed the backbone of an elaborate system of post, turnpike, canal, railroad, and highway routes, which both enabled and epitomized the state’s subsequent settlement patterns. The presentation will conclude with thoughts on the transfiguration of the letter in a digital age.
A community garden occupies a bounded site, but its influence is not limited to the boundaries of the site. My research aimed to understand the geographic dispersion of garden related activities and values that emerge from the community garden, including the potential influence of gardeners on the pro-environmental behaviors of non-gardeners through conversation and sharing of produce. In particular, this project focused on understanding the spatial extent of the sphere of influence that a community gardener may exert beyond the bounds of the garden. Several researchers have discussed the importance of the learning and information exchange that occurs within the garden through formal and informal opportunities for environmental education (Barthel et al. 2014, Bendt, Barthel, and Colding 2012, Krasny and Tidball 2012). This project aimed to expand upon the work of current researchers to begin to examine how ideas, attitudes and understanding of environmental stewardship might flow out of the garden via the activities of the gardener. The first phase was to identify the spatial extent of gardeners’ interactions where they discussed the garden and their experiences.

By interviewing gardeners associated with two different types of community gardens, the research collected data to understand if the geographic extent of the gardeners’ interaction and influence varies with garden model. This project used a combination of photo elicitation with GPS mapping and participant interviews, framed as case studies to understand the differences between these two community garden models. The research aimed to identify the spatial extent of participants’ conversations or encounters by collecting GPS data from photographs of participants’ interactions with friends, family, colleagues or strangers.

The original objective, to understand the geographic dispersion of community gardener influence beyond the bounds of the community garden site, was not attained. In reviewing the 400+ photographs submitted by participants, 85% of the photographs were taken of the gardener’s plot, within the garden site, or at home. Another 2% of the photos were of Facebook postings. The mapping data did not support the conclusion that community gardeners have significant numbers of interactions with people beyond the bounds of the garden that may serve to promulgate ideas of environmental stewardship. However, the use of photo elicitation and mapping was a useful tool to assess the content and small spatial extent of gardeners’ interactions emanating from the garden. In this case, the mapping technique revealed unexpected spatial patterns.
Beyond the Sagebrush Rebellion: Envisioning the role of landscape architects in alternative futures of land ownership in the Intermountain West

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keywords: federal lands, BLM, public private land interface, Intermountain West

Historically, landscape architects played pivotal roles in shaping frontier development patterns (Cleveland, 1873) and the creation of federal public land agencies. Today, large swaths of the West are held by federal agencies such as the U.S. Forest Service (USFS) and Bureau of Land Management (BLM). However, opposition to federal control of public lands is visible at state and local levels throughout the Intermountain West.

Transfer of federal lands to state control or private ownership has been proposed over the last several decades, and has precedent elsewhere. Eastern and Midwestern states saw rapid disinvestment of federal land ownership in the 1800s, largely as a result of settlement acts (Hyman, 2008). The American West has historically had a complicated relationship with federal land agencies, and during the Sagebrush Rebellion citizens sought to transfer control of land from federal agencies to state and local entities. In 2007, the Department of the Interior proposed allowing the BLM and USFS to sell hundreds of thousands of acres of surplus land. Recent conflicts between the BLM and local citizens have sparked a renewed debate on federal land ownership in the West (Johnson, 2012).

Utah is a microcosm of this land ownership issue, with over 70 percent of its land currently held and managed by federal agencies, a rapidly expanding population, and increasing economic and development pressures (Travis, 2007). The state is home to not only a wealth of natural resource and recreation-based development, but also substantial federal lands in very close proximity to residential development in rapidly urbanizing areas. Should legal challenges to current federal ownership succeed, Utah’s landscape could experience profound changes in energy and land development patterns. However, there is no modern precedent of the divestment of federal land on such a scale.

To envision potential land management and development futures, archival records were analyzed and juxtaposed with data obtained from focused interviews with select policymakers and advocacy groups representing conservation, recreation, and development interests. The results of these findings were compared to the unique capabilities of landscape architects to identify convergences between planning and design opportunities and contemporary practice.

This presentation discusses how landscape architects are especially suited to identify issues within a potential transfer of federal land ownership in the Intermountain West, implications these changes may have on human settlement patterns, and how landscape architects can mediate competing political, cultural, and economic interests in constructing alternative futures for residents and policymakers.
Correlates of Child and Parent Self-Efficacy in Walking to School

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keywords: Walking to School, Child and Parent Self-Efficacy

This study focuses on the concept of self-efficacy (SE) which has just begun to be explored in walking to school (WTS) studies [1]. In social ecological theories, SE refers to people’s self-belief in their abilities to control their functioning, overcome difficulties, and perform specific tasks, and determines how people feel, think, motivate themselves, and behave [2]. Previous studies on SE-WTS relationships have focused on parental SE [1] [3] and the roles of child SE have been understudied.

The objectives of this study are to examine behavioral, attitudinal, and environmental correlates of child SE and parent SE in WTS, and to assess differences in the correlates of child versus parent SE.

This study used data collected from surveys completed by 4th grade students (N=1,225) and their parents (N=1,206) from 81 elementary schools across the state of Texas in 2010-12. The surveys captured personal, attitudinal, behavioral, and environmental perception variables related to WTS. Objective physical environmental data were measured with Geographic Information Systems techniques in 2011-12. Students and parents reported the levels of SE (low SE vs. high SE) related to long distance, heavy traffic, and uncomfortable weather, etc. Binomial logistic regressions were performed to estimate the odds of having a high SE for children and parents separately.

Among the behavioral and attitudinal variables, walking benefits and parents’ recall of their child asking for their permission to WTS were positively associated with parent SE only, while longer travel time to school was negatively associated with child SE only. Children’s WTS (dummy variable, walked to school vs. not) was positively associated with parent SE only. From the environmental perception variables, well-maintained sidewalks (+) was the only variable significant in the parent model and three variables were significant in the child model: child and parent perceptions about people walking or biking around (+) and parental perception of the presence of playgrounds or parks close to home (+). Among physical environment variables, more diverse land uses along the home-to-school route were positively related to parent SE while steep slopes were negatively associated with parent SE.

This study introduced the concept of SE as an important mediator of school travel behaviors. The findings showed that both parental SE and child SE are directly related to the characteristics of the built and social environments, and suggested more studies are needed to further identify effective design and planning strategies to increase SE as a prerequisite to WTS promotion.
The Landscape is Several Places; Design and the Culturally Shared Landscape

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keywords: Aotearoa, cultural practice, culturally shared landscapes, Maori, New Zealand, place, post-colonial

The landscape, particularly in ‘the west’, is no longer understood in the same way across society, and no longer serves a singular cultural client. Instead, demographically, conceptually and in some instances politically, society has become a plurality with the result that singular landscapes are shared by multiple cultural groups, generating numerous understandings of what these landscapes represent, and multiple and not always complimentary expectations about the activities they will facilitate. This paper discusses the idea of the culturally shared landscape, focusing in particular on antipodean New Zealand and the landscapes shared by its predominantly post-colonial settler and indigenous Maori populations.

Like other settler countries such as Australia, Canada, South Africa and the United States, New Zealand was colonized out of Europe. True to form this re-imaged the country’s landscape, remaking it around British derived economics, cultural norms and aesthetics; and it also unseated Maori from the position of hegemony they had as the first settlers of the country they called Aotearoa. Fast-forwarding to the 21st century, immigration into New Zealand has broadened the country’s cultural character, but it is nonetheless dominated by its post-colonial white population (70%), and by its much invigorated and increasingly powerful Maori population (16%). As a result a shaky cultural politic has developed with a bicultural structure composed of migrant and Maori; an emerging conceptual part of which is the landscapes that these two groups share.

This paper views the issue of the culturally shared landscape through the lens of over 30 projects student and otherwise, for sites both hegemonically Maori and culturally shared; and focuses in particular on two projects for sites that were culturally shared but in form and character were overwhelmingly ‘white’. The first was the re-design of the Lincoln University campus to facilitate Maori cultural expression, and the second was aimed at giving voice to Maori in the landscapes of Christchurch’s earthquake damaged CBD. As the nature of our societies’ cultures change, shared landscapes will need to change with them. There are no neat answers on how, there are conflicts and tensions, and of necessity solutions will be culturally and landscape specific. However, it is clear from these New Zealand case studies that creating landscapes that are culturally shared is not only possible but could also to be part of the way towards a post-colonial, culturally relevant and inclusive future. Which repositions landscape as part of the cultural debate.
Sound Impact on Greenspace Ratings: Comparing psychoacoustic and physical characteristics of urban greenspace to user preference data

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Keywords: Landscape experience, Soundscape, Environmental psychology, Perception, Virtual reality

Soundscape has been identified as playing an important role in user appreciation of spatial environments. Research has indicated that in an urban park context maximum sound levels should be below 50 dBA if users are to assess the sound environment as ‘Good’ or better (Nilsson & Berglund 2006). While the guidelines are adequate for sound ratings, in the context of overall environmental preference are these levels meaningful? As part of a larger research project a pilot study was conducted. Sounds were recorded digitally in an urban park in hi-fidelity while simultaneously measuring LAeq, Lamin and Lamax for a 2-minute duration at 4 times (0700, 1200, 1700 and 2200) over a 24-hour period. Four well-known psychoacoustic metrics were chosen to evaluate the soundscape 1. Sharpness; 2. Fluctuation strength; 3. Loudness; and 4. Roughness. The acoustic data were compared to previously collected user preference scores for the park experience overall. The results show that while an urban park soundscape may indeed breech recommended acceptable sound levels, in some contexts this does not negatively impact user experience of the greenspace. This leads us to conclude that the experience of urban greenspaces is very much dependent on user profile and urban context.
Human Use and Perceptions of Greenway in Nanjing, China

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keywords: Human Use, Perception, Greenway, China

In China, Greenways are primarily planned and implemented through top-down planning application (Yu, 2006). The centralized planning approach is highly effective and provides an excellent opportunity for developing regional greenway networks within a short period. As greenways continue to develop and expand across cities in China, information about greenway users is important to research-based greenway planning and design. Although greenways claim to be a great opportunity for transportation trips by numerous studies (Shafer 2000; Walmsley, 2006; Gobster, 1995; and Lindsey; 2003), it is unknown to what extent people use greenways as transportation corridors in China.

The purposes of this study are two-fold:
(1) Explore the relationship between perception and human use of greenways in Nanjing, China.
(2) Compare the difference between recreation users and transportation users along the urban greenway in Nanjing.

The presented study used site observation and on-site survey from three greenways (30 segments) in Nanjing. The usage of greenway trails measured by site observation and six variables (amount, gender, age, ethnicity, user group size, and physical activity type) recorded. The design of the survey was to measure users’ perception of greenway and trip purpose.

A total number of 900 surveys (30 surveys for each greenway trail segment) were gathered, with a response rate is 78.5%. The findings indicate that although bicycles have been transportation tools in China for several decades, still a great number of people perform riding bikes on greenways for recreation and exercise. Some respondents reported that they choose to use the greenway because it has good connection to their homes. This confirmed previous studies (Coutts, 2006; Lindsey, 1999) about the importance of accessibility. Future research will explore how urban greenway system work as urban infrastructure in combination with public transit and urban bicycle routes to facilitate non-motorized transportation.

Although greenway planning has primarily relied on creek route and hydrological flow, the social aspect is also an important factor to influence greenway route. From urban planners’ perspective, the most important finding concerns the correlation between trail use and proximate population. From a greenway trail designer’s perspective, the most important finding is that person’s decision to use a trail is a combination of many factors including his own preferences and the built environments.
The Urban Aesthetics of Continuity

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keywords: Urban Aesthetics, Continuity, Place-making, Landscape Experience, Change

“Man will be defined not so much by what he has created, but rather by what he has chosen not to destroy.”

Many urban environments have been undergoing such dramatic changes that their local identities as unique and culturally rooted places have already disappeared. While we have the means today to transform our cities with the power of capital and technology, we always seem to do so at the cost of a profound disruption of our relationship to a place, experienced as the loss of something that has been valuable to our sense of origin and identity. Although the coexistence of our need for continuity and our desire for change appears to be a constant of the human condition, radical changes in the urban landscapes we create today may threaten the continuity of human experience that provides “a harmonious condition of reciprocal fulfillment of person and place in a single socio-cultural-environmental complex.”

This paper attempts to construct a frame of reference to the aesthetics of continuity as an antithesis to our current desire for change in place-making. It begins with a reasoning for how this value of continuity could be grounded for the notion of place as an integral part of an environmental field, we both shape and are formed by the multitude of forces that produce the experiential qualities of the universe we inhabit.

Four lines of reasoning are suggested: 1) Continuity has an evolutionary value to help all species to arrange the circumstances of their immediate natural environment; 2) All cultures value continuity in the form of traditions, because traditions enable cultural evolution and progress; 3) The success of families, friendships, and communities are all predicated on continuity; 4) Human experience is grounded in our ability to perceive the continuity of self-identity and the world.

The paper proposes four dimensions and twelve parameters of the aesthetics of continuity as follows, and it concludes that the notion of continuity cannot be about immutability, but about the degree, the pace, the direction, and the locus of change in an urban environment.

1. Inhabited (Ecological context): Repetition, Rhythm, Routine—Adaptability
2. Imagined (Cultural context): Resemblance, Recognition, Revelation—Legibility
3. Interactive (Social context): Reference, Relevance, Relation—Reciprocity
4. Internalized (Personal context): Reverence, Resonance, Remembrance—Spirituality
Historically, the Lazuri people of Turkey and Georgia have had a close relationship between their family and community practices, and home landscapes. Settled along the southeastern edge of the Black Sea since the 12th century BC, their clustered family houses were surrounded by hazelnut and corn plantations and forests. Their daily interactions between family members and friends and their crops created a unique agricultural landscape. However, changing national economic and agricultural policies have caused fissures in these daily practices, displacing traditional practices related to historical land uses and putting the heritage landscape at risk. This study documents changes in the Lazuri’s traditional landscapes caused by mono-economic and monoculture policies related to an introduced tea production since the 1950’s.

Scholars attest that cultural landscapes struggle against changing land-use policies, increasing economic development and population pressures, and uncontrolled landscape management practices (Taylor & Lennon, 2012). The cultural landscapes of Findikli, a Lazuri and Hemshin village located in the Rize Province of eastern Turkey, are at risk. Villagers are losing their heritage relationships with each other and the landscape as agriculturally diverse farmlands give way to an increasing monoculture of tea production. Villagers are worried they cannot hand their historic landscape relationships down to the next generations.

Oral history interviews with older residents, photographic analysis, municipal archive research, and on-site observations were used to identify and document physical and social changes over the last sixty years. On-site observations and interviews with local residents were conducted to document current daily life patterns, their relationship to contemporary and traditional practices, and changes in the physical and social landscape. The interviews revealed people’s relationships to their landscapes before tea production replaced hazelnut and corn production. The loss of traditional crops changed harvest ceremonies, family and community agricultural practices, and traditional lifestyle patterns.

Findikli’s traditional settlement pattern has fragmented as tea plantations replaced small-scale family farmsteads with a village-scale monoculture. Alteration of the village’s spatial organization has caused the villagers’ traditional life and social relationships to decline as family and neighborhood-gathering spaces were lost. Findikli residents are increasingly concerned that without adequate national conservation and land use planning policies, their community and family landscape heritage will be erased under economic pressures to grow tea for a global market.
A Preliminary Case Study on Landscape Preference and Ecological Quality in Urban and Exurban Communities

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keywords: Landscape preferences, Ecological quality, Resident perception, Community sustainability

Landscape plays an important role in human communities. A body of literature has examined various landscape functions including social, recreational, cultural and environmental services (Jorgensen and Gobster, 2010). Although ecological quality and experience of nature construct integral parts to ecosystem health and human well-being (Miller, 2005), however, current residential landscapes often lack ecological functions and natural features’ values have been less considered in planning process.

This study aims to understand residents’ perceptions and needs regarding landscape and ecological quality, and to identify whether the spatial context shapes on their perceptions. Four master-planned communities in Phoenix were chosen, of which two are in urban areas (within a 30 mile-radius from the urban center) and the other two communities are located in the exurban areas (40-60 mile from the center). A semi-structured interview was conducted allowing interviewees to bring new ideas to the themes of conception, value, and preference over the nature components in their communities. From a target population of about 31,868, 122 individuals were interviewed through online survey using SurveyMonkey®. Additionally, face-to-face surveys were performed to diminish coverage error by preventing any systematic exclusion from eligible people, especially those who don’t have a personal computer or access to internet.

The major findings were as follows. First, physical settings and spatial morphology in and around communities influence the uses of spaces and the purposes assigned to them. For instance, urban residents mostly used private landscapes (e.g., front and back yards) for recreational use, while most of the exurban residents used adjacent mountains and natural trails for more meaningful interaction with the natural world. Second, ecological quality and experience of nature are closely related to resident satisfaction. People with more exposure to nature responded that their communities are sustainable (91.3%). The degree of satisfaction with overall quality of the landscape was dependent upon the amount and greenness of landscapes. Third, there was more commonality than difference between urban and exurban communities in the positive impact of landscape on ecological health and quality of life. Most of the respondents valued landscapes as a habitat for local wildlife and a space for interaction with nature.

Although the study is based on a preliminary work with just four case sites that may not represent the whole population, it provides insights on personal values concerning ecological quality and preferred use of shared landscapes. The study informs community design and development for creating a socio-ecologically sustainable community.
How can Twitter help public space design?: A big data analysis on the relationship between design and use

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keywords: Public Space, Big Data, Social Media Analytics, POE

Background: Public spaces, such as plazas and parks, are where social activities take place. Professional design practices have often been involved in the design of public spaces, and well-designed public spaces attract users and their rich activities (Gehl 2011). However, few attempts have examined the design of public space for social interaction and satisfaction. Post-project evaluations can help increase design-use interaction through feedback from occupants and users of public space, but the common barriers to its adoption are identified as cost, time and skills.

Social media analytics is a set of various emerging techniques to develop useful insights or intelligence (e.g., hidden patterns and relationships) from social media platforms such as Twitter, Facebook, content communities, and blogs (Zeng et al 2010). Among such techniques, opinion mining (and sentiment analysis), which analyzes “people’s opinions, appraisals, attitudes, and emotions toward entities” (Liu and Zhang 2012), can be utilized as an alternative tool for post-project evaluation of designed public spaces with lower up-front cost.

Purpose: The purpose of this study is to examine the relationship between professional design and use of public spaces by identifying (a) public’s satisfaction and (b) major influences on public’s perception. This study investigates social media analytics as a new method of gathering and analyzing user feedback. We are particularly interested in Twitter as the source of such user feedback and opinion mining as the method of finding valuable information regarding public spaces.

Methods and findings: In this study, two of public spaces in the US, The High Line (www.thehighline.org) and National 9/11 Memorial (www.911memorial.org) in New York City, were selected as the study cases. The selection criteria are whether the public space has won any professional design awards for objective validity; and had sufficient exposure to public for provoking social interaction. Public opinions about the selected public spaces will be collected through Twitter API; classified as positive and negative using opinion mining techniques; and further examined to understand major causes of such opinion and satisfaction about the two public spaces through social media analytics techniques.

Importance: There are diverse methods and techniques for post-project evaluation in research and practice. As the influential role of social media for communication and interaction keeps growing among individuals and organizations, this study seeks an opportunity to explore the use of social media in general (and Twitter in particular) and social media analytics techniques for design making and evaluation process.
Inciting Change to Reduce Stress in Public Housing using Healing Gardens

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Keywords: Healing garden, public housing, environmental preference, stress, inciting change, African-American women

The purpose of this study was to provide insight on the relationship between women of lower socioeconomic public housing communities, their external living environment (outdoors), and their perceived level of stress. Literature supports that women who live in lower socioeconomic public housing communities experience high rates of malnutrition, fatigue, susceptibility to infection, and premature death (Cohen, 1994; Whelch & Kneipp, 2005). The research looked at two groups of women residing in lower socioeconomic public housing communities where they were asked whether their stress level was affected by viewing an audiovisual simulation of two different recovery conditions: a healing garden or an existing public housing ground. Protocol was based on Ulrich et al. 1991. Due to the lack of accessibility to the public housing grounds, a simulation was used in place of an onsite model. Implication was made through the creation of a healing garden simulation in the Lumion 3D Education Software. Research methods analyzed the participants’ response to the presence of healing gardens in a public housing setting where the head of household was an African-American female (http://portal.hud.gov). Findings suggest that significance exists between the two groups of women viewing the two different recovery conditions. Studying the environmental preference of women residing in lower socioeconomic public housing communities and their perceived level of stress provided quantitative data that formalized the effect of the presence of a healing garden in lower socioeconomic public housing communities. The importance of this research provides a step towards better understanding how the two different types of landscapes affect women’s stress levels.
Applying the Seniors’ Outdoor Survey (SOS) in Practice: An observational tool for assessing outdoor environments at long-term care settings

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Keywords: Senior Living, outdoor assessment tool, affordances

As the population of the nation ages, increasing numbers of seniors are making their homes in long-term care facilities. As these facilities allow residents to age in place, they become the places where seniors experience major changes in their physical, cognitive, and functional abilities. As a result, supportive outdoor spaces associated with these facilities play an increasingly important role in residential settings. While research has mainly focused indoors, new models of environmental design for aging encourage the incorporation of access to natural environments to supplement the quality of livability found in their existing dwellings.

In 2014, the Seniors’ Outdoor Survey (SOS) was developed and published, having been being presented at CELA prior to publication. This tool assesses the effectiveness of outdoor activity areas within senior living facilities. It offers the ability to evaluate usable outdoor environments in long-term care settings in terms of the indoor-outdoor connection, and the potential to support the activities, needs, and preferences of aging residents.

As a continuation of this research, scoring protocol is being developed to enable meaningful results for researchers, practitioners and care facility staff that use the SOS tool. Providing easily understandable measures of outdoor space quality will provide decision support related to the overall space as well as tied to each of the five survey domains (access to nature, outdoor comfort and safety, walking and outdoor activities, indoor-outdoor connections, and connections to the world.) Item weighting rationales will be described as well as comparisons between non-weighted and weighted survey test results.

Toward the goal of promoting positive change in the lives of older adults, this innovative tool will allow researchers, care providers, and design practitioners to share a common platform for evaluating the spatial continuum that connects the natural and built environments in assisted living facilities.
Balancing Water and Land in the Monsoonal Landscapes of India

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keywords: Talaab, ponds in India, urbanization, flooding, water scarcity, monsoons

Water has always played an important role in dictating human settlement patterns. Nowhere is this truer than in the Indian sub-continent where one of the most ancient of human urban civilizations flourished on the banks of river Indus. The weather pattern of this region, with a long dry spell of summer followed by intense rainfall during the monsoons, has necessitated a close relationship between water and human settlement. With rainfall limited to just a few months, rain-water storage is essential and thus, many sophisticated as well as simple rain-water harvesting techniques were developed and perfected through the centuries. Rain-water harvesting has been a way of life since antiquity and one such ubiquitous rain-water harvesting strategy has been that of the artificially constructed ponds or talaab, in Hindi.

Talaab prevent monsoonal flooding, regulate local temperature, establish a freshwater ecosystem and provide habitat for aquaculture, places for recreational events, and meaning for religious rites. Talaab water is used for various purposes such as irrigation, construction works, and daily ablutions for humans and domesticated animals. This research maps and compares the relation between talaab and the urban pattern in two old settlements of Arang and Raipur, in central India, by calculating and comparing the ratio of area under the talaab to that under urbanization. The study further documents the historic development of the city of Raipur to calculate similar ratios from 1868 to 2008. This research was carried out through studies of archival records such as historic maps and aerial images.

The research results reveal that in ancient cities, there were numerous water bodies to maintain the settlement-water balance. The ancient city of Arang, which remains unchanged through the centuries, maintains the same land-water ratios whereas the city of Raipur which has grown at a rapid pace in recent times has neglected the talaab system. In the past fifty years, Raipur, like many other cities in India facing incredible pressures of urbanization, has developed in an uncontrolled manner with very little space allocated to water in the contemporary urban fabric. This is beginning to affect the city’s ability to withstand and store monsoonal rainfall leading to increasing instances of monsoonal flooding and summer droughts.
Parks and Quality of Life: Differences among African American and White residents

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keywords: Quality of Life, Neighborhood Satisfaction, Parks, Environmental Justice, Racial Disparity

The question of whether parks are equally distributed among African American and White residents is of growing concern among public officials, urban and regional planners, parks and recreation managers, and landscape architects. This paper examines the distribution of parks among African American and white residents in metropolitan Detroit and considers relationships between parks, their use by each group, and quality of life. Household survey data and GIS data covering the location and amount of parkland are used. Findings show that African Americans have more recreation resources than whites. On average, African Americans lived closer to parks and had more parkland within one-half mile of home. However, African Americans were less likely to visit parks and more likely to rate them poorly. For both groups, local park ratings were positively associated with neighborhood satisfaction and higher quality of life.
Direct and Indirect Effects on Mental Wellbeing: A designer’s perspective

Sara Hadavi University of Michigan

*keywords: Neighborhood satisfaction, Use patterns, Design implications, Mental wellbeing, Nearby nature*

Research in environmental psychology and public health has yielded valuable findings demonstrating that urban nature settings promote mental wellbeing and life satisfaction. However, the mere presence of nature seems to be insufficient. Given the significance of urban residents’ mental wellbeing and the substantial role of planners/designers in shaping outdoor public spaces, it is worthwhile to investigate the ways that these experts can positively influence mental wellbeing. Learning more about people's perception of the physical aspects of the environment and their possible direct and indirect effects on mental wellbeing will help planning and design professionals to make a difference in this respect.

This study focuses on four physical aspects of the environment relevant to planning and design including perceived proximity of green/social spaces to home, proximity to a specific type of landscape structure defined as open lawn with trees, proximity to building-dominated spaces as opposed to green spaces, and perceived barriers to use of outdoor spaces. Even if green spaces are in close proximity to residents’ home, they may not have the expected impact on life satisfaction and wellbeing if residents do not use them, or have low satisfaction with their neighborhood. Therefore, the associations between these physical factors and mental wellbeing have been investigated by considering the mediating role of neighborhood satisfaction and frequency of use of outdoor spaces.

This study was conducted in a residential area in Chicago covering portions of four community areas. A random sample of 434 residents participated in a survey, in which they were asked questions based on a five-point rating scale about perceived proximity, landscape structure, quality of nearby green spaces, neighborhood satisfaction, frequency of use of outdoor spaces, the type of activities done in such spaces, barriers to use of neighborhood outdoor spaces and sense of mental wellbeing. The results of linear regression modeling and mediation analyses support the hypothesis that satisfaction with quality of public space and frequency of use of green/social spaces have significant mediating role in the relationship between the physical aspects of the environment and mental wellbeing. Exploring the effects of perceived proximity of nature to people’s home, landscape structure and barriers to use of neighborhood outdoor spaces on both neighborhood satisfaction and use patterns as well as mental wellbeing provides insights into useful place-based planning and design recommendations. This approach, a step towards translational design of public spaces, is highly significant in landscape architecture and related fields.
Employing Design and Implementation of a Native Prairie Garden to Enhance Well Being for Incarcerated Women

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Keywords: attention restoration theory, native plants, therapeutic landscapes, prison

The female prison population is growing, as are costs associated with mental health treatment and rehabilitation. Most offenders serve sentences under one year. While incarcerated, most are required to complete treatment programs focusing on victim’s awareness, parenting, and life skills that will help them live more productive lives after reentry into society.

Environments synonymous with long-term isolation (urban living, submersibles, prisons) promote high levels of tension, anxiety, depression and anger (Palinkas 2004). Attention Restoration Theory (A.R.T.) developed by Kaplan suggests that contact with nature has positive effects on one’s health and well-being particularly when one is experiencing prolonged mental fatigue associated with places such as hospitals and prisons. Additionally, the theory of Supportive Gardens (Cooper Marcus, Sachs) suggests that the views of and the act of gardening can reduce stress.

This presentation articulates the impacts on offenders and staff involved in the establishment, early maintenance and use of the Outdoor Therapeutic Garden and Outdoor Classroom designed and built by Iowa State University Students from 2012 to 2014 at the Iowa Correctional Institution for Women in Mitchellville. The site design included: visual permeability throughout the garden, circulation within and multiple entrance points around the garden, and plant selection for post-construction soils and extreme microclimate conditions.

This project incites change by fulfilling several objectives related to design strategy, plant selection, program, and people-environment relationships. The design, created by adapting a strategy developed by Piet Oudolf and Noel Kingsbury, employs prairie species native to Iowa while maintaining sightlines for security. The 1.5-foot plant height limit, partitioned design of the planting beds, neat lawn borders, and reduced palette will simplify maintenance associated with a typical ‘mixed perennial bed.’

The contemporary planting design is visually appealing, performs many ecosystem services of a natural prairie and encourages offenders to spend time outdoors. Ecosystems, as categorized by the Millennium Ecosystem Assessment, contribute to human well-being by providing provisioning, regulating, and cultural services. An IRB approved questionnaire distributed to offenders, officers and staff at ICIW provides qualitative information about gardening and being in this newly established garden. This assessment shows that the work of planting and maintaining this naturalistic garden has fostered the personal well-being of the incarcerated and staff through pathways like social cohesion, mutual respect, ability to help others, feeling well, and access to clean air, and choice seating. The garden also provides vocational and educational opportunities to the women at the ICIW for successful reentry.
LANDSCAPE PLANNING AND ECOLOGY
Ghats on the Ganga in Varanasi: Contingency and complexity in the cultural landscape

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keywords: cultural landscape, India, Ganga, performativity, legibility

Rarely has any river gathered in itself so much meaning and reverence as the Ganga has over three millennia in the Indian subcontinent. The land-water interface at the urban settlements on 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, kunds (tanks), colonnaded streets, and shaded plazas—is layered and kinetic, and responsive to climatic requirements and the river’s flow. At Varanasi, where the Ganga reverses its flow, the 84 ghats in a 6.8 km stretch, constitute the sacred landscape that draws millions of visitors. The ghats embody multiple forms of heritage—built, intangible, natural and cultural. The on-going efforts to inscribe the ghats on the UNESCO World Heritage List, guided by a monument-centric approach, focus only on historic buildings and overlook the role of open spaces within and around them in sustaining cultural heritage. It is proposed that a more valid form of heritage assessment and an appropriate conservation methodology would be to study the cultural landscape of the land-water interface and apply the findings to future planning and redesign of the ghats.

The theoretical framework for heritage conservation is based upon the concept of cultural landscape as the subject and setting of ritual enactments that keep cultural traditions alive. Two significant dimensions of landscape experience—performativity and legibility—are considered to be salient in the sustenance of material and intangible heritage. The ghats are settings for ritual enactments by pilgrims—bathing, worship, and cremations—that engage with the River Ganga. On a few ghats enactments have evolved into elaborate performances viewed as spectacles by large numbers of tourists. Although the ghat skyline is highly imageable, the spaces are not legible because of the dense, meandering and therefore confusing web of lanes in the old city of Varanasi bringing visitors to the Ganga. Performativity and legibility of the five most visited ghats were researched through participant observation and ethnographic interviews of pilgrims and tourists in three site visits over eighteen months. The study revealed ways in which the landscape structure facilitates these experiences as well as obstacles posed by increasing private encroachments, congestion, and silting on a few ghats. The paper concludes with discussing design case studies for enhancing legibility and performativity as examples of the landscape conservation approach guided by the proposed theoretical framework.
**Scenarios in Geodesign**

**Allan Shearer** The University of Texas at Austin

*keywords: scenarios; geodesign; uncertainty*

This investigation considers the multiple kinds of scenarios that can contribute to geodesign toward the goal of productive collaborations among designers, scientific experts, policy makers, and stakeholders. While the word “scenario” generally refers to a possible future, any individual use of the term carries specific (and often implicit) assumptions about types of uncertainty and degrees of agency. Patterns of differences in these assumptions reflect what can be considered distinct scenario cultures, akin to the recognition of distinct planning cultures. Often, scenario cultures are grounded in established professional or academic disciplines. Formalized use of scenarios to explore the dynamics and consequences of change in environmental policy-making, planning, and design began the 1970s. Applications have ranged from pesticide regulation to regional biodiversity conservation to neighborhood redevelopment. New attention to scenario techniques has been prompted by the emerging practices associated with geodesign. Although an exact definition of geodesign remains contested, commonly held positions include the use of spatially explicit analysis and the assessment of impacts related to proposed changes, often made through simulation within a geographic information system. Perhaps above all, geodesign practitioners and educational programs emphasize interdisciplinary engagement to address issues. While such an approach can be said to promise a better ability to resolve complex (or entangled or wicked) problems, it can be difficult to relate and integrate methods of investigation across different bodies of knowledge. Because the assumptions about when and how scenarios should be used differ widely among disciplines, the use of scenarios in geodesign can especially challenging. This paper examines the kinds of scenarios that might be used in geodesign. It employs Carl Steinitz’s six-part framework for landscape planning and design, which has been adopted by many in the geodesign community as a way to structure collaborative inquiry, as an organizational template. The characteristics of scenarios developed within each of Steinitz framework steps or models—representation, process, evaluation, change, impact, and decision—are presented, compared, and discussed with regard to examples from different scenario cultures. Relationships among the cultures are identified as points of agreement and disagreement towards an understanding for collaboration.
Development of Habitat Suitability Index (HSI) for Habitat Restoration of Narrow-mouth Frog (Kaloula borealis)

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keywords: Endangered Species, Urban Wildlife Conservation, Habitat Suitability Index, Ecological Restoration

Amphibians have been considered an important taxon that is threatened with extinction globally due mainly to climate change and habitat destruction (Wake and Vredenburg, 2008). Narrow-mouth Frog (Kaloula borealis) is the only amphibian species belonging to the Kaloula genus inhabiting Korea (Ko et al., 2011). The size of the population and habitats has been significantly decreased on the national scale, because of the urban development and the use of agricultural pesticides (National Institute of Biological Resources, 2011; Yang et al., 2001). Accordingly, the Ministry of Environment listed this species as “Endangered Species (Class II)” under the “Endangered Species Protection and Management Act”. Nevertheless, few studies have focused on habitat restoration that would be essential to preventing the extinction of the species and destruction of remaining habitats.

This study aims to develop a Habitat Suitability Index (HSI) of the narrow-mouth frog based both on literature review and habitat field surveys. Five HSI factors were investigated, including space, feed, cover, water (breeding) and threatening elements. The specific variables for each factor were also proposed. For instance, the factor, “space”, has variables of the distance from natural lands and the altitude of spawning pond; while the “feeding” factor includes forest layer structure and the existence of grassland. For the variables of the “water” factor, the area of permanent and temporary wetlands, ratio of open water, water depth, temperature, water quality, and pH levels were developed. The presence of predator and the distance from pollutant sources were chosen as the variables for the “threatening element”. The process of developing the HSI factors, the variables and the associated criteria were drawn through in-depth consultation with biologists and regional conservationists.

The study provides ecological information and baseline data for restoring the narrow-mouth frog’s habitats and presents the possibility of applying the HSI habitat model to ever increasing ecological restoration projects. A set of criteria and HSI’s spatialization would be useful in replacing an existing habitat or creating a new one often materialized as substitute habitat that are required when development influences the habitat area. As such, it will be helpful for a landscape designer who needs to improve habitat’s condition for better protecting the species or identify a new suitable place that works for the species’ life cycle and meets habitat requirements. An ecologically informed planning and designing will lead to successful restoration and ultimately contribute to enhancing urban biodiversity and the health of urban ecosystem.
Integrating Marine Spatial Planning and Land Use Planning: Lessons learned from The Peninsula in Mobile, Alabama

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Keywords: Marine Spatial Planning, Land Use Planning, The Peninsula

Land-use affects marine interactions. Human activity on land results in a variety of inputs into the marine environment that would otherwise not occur in a natural setting such as sediments, nutrients, and other pollutants. Coastal wetlands provide many ecosystem services to mankind (i.e. water quality improvement, flood attenuation, habitat). They are also the most vulnerable to human impact. Coastal urbanization is increasing. Worldwide, 40% of the population lives within 100 km of the coast (NOAA 2004). Coastal zones within the USA represent 17% of the land area and contain greater than 50% of the population. It is estimated that the coastal population will increase by 28 million people by 2015 (NOAA 2004).

According to the U.S. Census Bureau, the population of the city of Mobile was 195,111 in 2013, and is poised to increase in population due to the expanding economic sectors in the aviation industry and its suppliers. Additionally, an estimated one million tourists visit the Mobile area every year. There has been a significant shift in land use and land cover from agriculture and forestry to residential, commercial and industrial development. This shift to urban land use and its related attributes (such as an increase in impervious surfaces) impacts wetlands and sensitive ecosystems. Laws in place to minimize direct impacts to wetlands and sensitive ecosystems may or may not be properly enforced by code enforcement, and result in reduced ecosystem function (Ehrenfeld 2004).

Coastal governments are beginning to recognize the need to integrate water and land-use planning. The blending of land-use planning and marine spatial planning is an innovative blue and green approach to coastal policy and decision making. This paper identifies how these planning tools can be integrated into a holistic master plan. It analyzes the concepts, histories, and Best Practices of marine spatial planning and land use planning using case studies from Oregon, Rhode Island and Virginia. It compares these case studies to land use data, and survey data collected from a test site, The Peninsula, in Mobile Alabama. Findings generated contribute to a new holistic master plan including improved government and resource management decisions, improved communication and collaboration between community and industry; and increased protection of water quality, coastal habitat, and land and marine ecosystems.
ReImagining Garden Grove: Integrating multiple modes and methods of public participation to reach diverse audience

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keywords: Public participation, community engagement, urban design, trail design, downtown revitalization

Integrated planning can shape and influence the type of growth that occurs and where it occurs by optimizing or maximizing the use of existing infrastructure, as well as optimally designing new infrastructure. The public participation used in the planning process can also help build a sense of community, create new relationships, and identify tools or techniques that can change user behavior (e.g., increased use of transportation alternatives such as cycling). The Reimagine Garden Grove project was developed to support and encourage non-motorized transportation, healthy living, economic growth, and the revitalization of the heart of Garden Grove through public participation, geodesign, and strategic planning.

Found in the relatively flat Coastal Plain of northwest Orange County (OCPW, 2011), Garden Grove is located approximately 30 miles from Downtown Los Angeles. The City is surrounded by a number of the County’s most notable landmarks and attractions and is four miles from Disneyland, the most famous landmark and attraction in Orange County. As a result, Garden Grove is extremely diverse in ethnic profile, education, and socio-economic status. A non-traditional mixed-method approach was adopted by the researchers to collect rich and comprehensive data from the wide range of stakeholders in the city. A number of methods were developed to facilitate genuine community involvement, including crowdsourcing, focus groups, participatory urban assessments, questionnaires, and photovoice techniques. Groups that participated in one or more of the techniques included senior citizens, high school students, online users, visitors to public buildings such as the library or city hall, faith community leaders, and bicycle coalition members. Results were integrated using geodesign (Steinitz 2012) to develop a series of mobility network alternatives and a downtown revitalization plan.

Results suggest the following: (1) online forums work best for collecting personal stories and design ideas (rather than feedback on proposals), (2) for trail design, differences between different user groups were less significant than differences between utilitarian and recreational users, (3) information on trail locations was largely similar between all groups, with some variability for high school students, (4) “take home” exercises were largely ineffective and had poor response rates — exercises should be designed to be done “on the spot”, (5) all exercises need researcher facilitation and participation (the researcher(s) must get involved in the diagramming process), (6) involving members of the public who are non-english speakers is extremely difficult, but can be accomplished by partnering with local religious institutions.
Reshaping Post-mined Land for Future Use

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*keywords*: Coal Mining, Reclamation, Environment, Landforms, Mineral Planning

The surface mining industry will continue to reshape the landscape based on our needs and supply of the earth’s minerals. In 1978, the American Society of Landscape Architects teamed with Surface Environment & Mining to create a guide for landscape architects to follow in planning and designing mineral development. This guide discusses the environmental objectives, the landform determinants, the integration of landform planning into mineral planning, and various techniques of visual communications of these proposals. In this qualitative and interpretive research, I will reframe a part of this series of guidelines by focusing more on the Anthracite Coal Region for a more detailed report on how the topography of mined land may guide solutions for new landforms and design. By reviewing the historical and existing open strip mining methods and procedures on specific case studies, the use of local topography maps and surveys of the mines will lead to discussion on potential future land use and development opportunities. My analog sketches and photography will be the communicative clarification for displaying topographical studies and design solutions. The determinants of landforms that are inherent in the mining process have potential to effectively guide the future planning and development through new landscape forms and defining its landscape program. Existing and proposed land use patterns surrounding a surface mine and natural buffer of the terrain have the potential to direct the pattern of excavation and the location and type of buffer required. Landscape architects can have a critical role in the success of post-mined land reclamation through effective land-use planning, landscape re-contouring or reuse of mined slopes, revegetation, and restoration of local ecologies.
The Ike Dike: Design strategies for integrating surge protection infrastructure and resilient communities

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Keywords: The Ike Dike: Design Strategies for Integrating Surge Protection Infrastructure and Resilient Communities

Comprehensive storm surge protection infrastructure systems have proven effective in protecting coastal communities prone to hurricane storm surge and resultant flooding. However, due to the size and required system contiguity, many systems have resulted in adverse ecological and cultural effects. Ecological alterations include disturbances to water exchange, increased land cover conversion and habitat fragmentation while cultural disruptions include physical and visual coastal disconnection, decreased beach area and challenges to commercial and tourism activities tied to coastal environments.

This research seeks to generate a framework for developing a comprehensive storm protection system for the Houston-Galveston MSA which preserves or enhances ecological processes and cultural practices into an integrated system. This system, called the Ike Dike, is a projected $6 billion coastal spine which seeks to protect a region including a population of 6,087,133 persons and the nation’s second-busiest port, the Port of Houston, from a 10,000 year flood. In 2008, Hurricane Ike resulted in the deaths of 84 people and an estimated $29 billion in damages (the latest in a series of nearly 40 hurricanes devastating this region since 1900).

While the protection of populations is the primary goal of the coastal spine, integration of the infrastructure into the landscape is a key objective. Multifunctional strategies and program options are being established to achieve this integration including a mixture of fortified dunes, seawalls and channel gates offering protection up to 20-25 feet above MSL. As an example, fortified dunes would require a cross-sectional 70’-90’ footprint which, if not integrated, could create visual, ecological and/or social barriers by restricting coastal access, decreasing wildlife patches, and replacing the coastal atmosphere with non-pervious infrastructure.

This research evaluates both structural and non-structural mechanisms for ecologically and culturally integrating surge protection infrastructure. Evidence is drawn from case study comparisons of related efforts in the Netherlands and New Orleans. Social, economic, and ecological impacts of these mechanisms are compared across these cases. These mechanisms are then applied into a large-scale multifunctional framework using four unique environments in western Galveston Island, TX as a test site. Early results indicate that the surge infrastructure could be implemented with relatively minimal impact on connectivity and natural processes while increasing development opportunities. The creation of an integrated coastal spine within the region provides a unique opportunity to create resilient communities while also providing multiple cultural and ecosystem services to its residents.
Natural Resource Monitoring and Comprehensive Management Plan of Protected Areas in Baekdudaegan Mountains, Korea

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keywords: Baekdudaegan, natural resource monitoring, conservation, protected area, Korea

Natural resource monitoring is one of the most important components of managing protected areas within South Korean. Understanding the current conditions of natural resources is fundamental to promoting sustainable conservation programs. These programs effectively manage the natural resources that keep a sound ecosystem and preserve biodiversity in protected areas. This study focuses on introducing the current efforts of natural resource monitoring, and illustrating the comprehensive management plan for protected areas within the Baekdudaegan, a mountain range that creates a natural divide in the Korean peninsula.

As the most important ecological corridor in East Asia, the Baekdudaegan is a 1,700km mountain range and watershed divide which traverses through the entire length of the Korean peninsula. The total length of the Baekdudaegan in the South Korean territory is approximately 684km and its total area is about 2,635km2. The section of Baekdudaegan in South Korea includes most of Korea’s highest peaks and seven national parks. The Baekdudaegan has been one of the most important natural and cultural geographical features and the area reflects a wide spectrum of spiritual, religious, and nationalistic traits, while also having a valuable ecosystem supporting numerous habitats with rich biodiversity including a number of rare and endangered species.

To establish policies and procedures for monitoring and managing natural resources of the Baekdudaegan, the ‘Baekdudaegan Mountains Protection Act’ was passed by the South Korean National Assembly in 2003. Following the Act, multiple governmental and local agencies have been collaborating, and developing the master plan for the protected areas, which include: 1) managing ecological resources, 2) establishing management guidelines for sustainable use, 3) developing management capacity, 4) promoting public participation and education, and 5) building collaboration between South and North Korea.

Then, based on the management goals, the five basic steps to building a monitoring and management plan were developed. These steps involve: 1) designating protected areas, 2) developing a long-term protection plan, 3) establishing implementation plans, 4) assessing the existing conditions using survey and research protocol, and 5) documenting. After completing the first phase of a monitoring plan conducted from 2006 to 2015, findings have helped administrators/decision makers of protected areas establish the basic monitoring framework, implement detailed monitoring protocols, and develop policy to manage projected areas effectively.

The current monitoring practices and comprehensive management plan of the Baekdudaegan protected areas will introduce multiple applications for natural resource management decision-making, research and education, and promoting public awareness of natural resources.
The YardWorks Project: Developing urban ecological design strategies for residential private property

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Keywords: Urban ecological design, urban habitat, residential design

As a major component of the urban land base, private residential property already contributes a range of ecosystem services in cities (Cameron et al, 2012). Yet substantial potential remains for improving the ecological performance of gardens and landscapes of private residences (Tratalos et al, 2007). Urban ecological innovations on residential property however are only valuable if they are compatible with private landowner interests and needs- otherwise they may never be constructed. While there is growing interest in improving habitat quality on private property (ASLA, 2012, Goddard et al, 2010), guidance on residential strategies for urban ecological design could be more comprehensive and oriented toward the profession of landscape architecture. Landscape architects would benefit from a better understanding of what types of urban ecological design interventions could best fit within residential settings.

This paper describes the results of two years of ongoing studio research to develop a set of urban ecological design strategies that are compatible with the programmatic and aesthetic goals of residential landowners. In cooperation with Cornell Laboratory of Ornithology’s YardMap program and Cornell Cooperative Extension, each YardWorks project begins with an engaged methodology for working with neighborhood communities. As a sequenced exploration at multiple scales, the YardWorks Project first undertakes a collaborative visioning and goal setting process for urban ecological stewardship at the neighborhood-level with community members. The design team then drops down in scale to develop a set of site-level urban ecological design strategies that meet these mutually defined goals. Finally, the team tests these strategies by incorporating them into a site-by-site design development process that directly engages the individual property landowners for feedback during the process.

To date, the project has developed designs and plans for over 35 urban and peri-urban properties, each of which has incorporated urban ecological benefits into a given residential landscape design scenario in ways that are compatible with the interests and programmatic needs of the property owner. This paper organizes the results of this effort into a series of emerging urban ecological design strategies that taken together can improve the landscape performance of private property in cities. These include design strategies for vertical and horizontal landscape connectivity, vegetative structure, plant diversity, targeted temporal distribution of avian forage resources, pollinator support, stormwater management, and others. Metrics used for measuring the benefits of proposed project designs, both individually at the site level and collectively at the landscape-level, are also presented.
Structures of Coastal Resilience: Jamaica Bay, New York

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*keywords*: Coastal resiliency, sea level rise, salt marsh islands, dredged material, sediment capture, nature-based features

This design proposal for enhancing coastal resiliency at Jamaica Bay, New York consists of strategic recommendations for the Rockaway Peninsula, the central marsh islands, and back bay communities. Assessing social, environmental, and infrastructural vulnerabilities, the plan merges the United States Army Corps of Engineers’ traditionally separate tracks of ecosystem restoration projects and coastal storm risk management strategies. These recommendations embrace the vast scale and fetch dimension of Jamaica Bay as an asset for exploring USACE’s new focus on natural and nature-based features (NNBFs) as part of an array of coastal storm risk reduction strategies.

The Jamaica Bay resiliency plan includes three strategies. First, the improvement of water quality and the reduction of residence time and back-bay flooding via a series of overwash plains, tidal inlets, and flushing tunnels at the Rockaway Peninsula and Floyd Bennett Field. Second, the strategic verge enhancement of Robert Moses’ Belt Parkway and the elevation of coastal edges at vulnerable back-bay communities, managing flood risk via a layered system of marsh terraces, berms, and sunken attenuation forests. Third, the development of novel strategies of bay nourishment and salt marsh island restoration through maximizing the efficacy of minimal quantities of dredged material. This feature, the “island motor / atoll terrace,” would align with local cycles of maintenance dredging. By establishing a dredged material management plan for Jamaica Bay, material from maintenance dredging may be beneficially reused to nourish the Rockaways’ coastal beaches, enhance the central salt marsh islands, and create living shorelines at the back-bay perimeter.

A novel strategy of marsh island restoration, the “atoll terrace” consists of the strategic placement of minimal quantities of dredged material as a perimeter ridge at the edge of the marsh island footprint; the “island motor” harnesses the natural processes of current-driven sediment capture and deposition to nourish the marsh, allowing it to accrete upward with sea level rise. Atoll terraces are arrayed at the perimeter of the marsh platform, positioned to best capture sediment given predominant current speeds, tidal flows, and sedimentary transport. A resilient marsh ecosystem provides coastal storm risk management services to adjacent communities through wind fetch reduction and wave attenuation. Building on the pilot success of marsh terracing restoration projects at the Mississippi Delta, the construction of these atoll terraces would be aligned with availability of local dredged material and sequenced to provide maximum immediate benefits for both vulnerable communities and the gradually disappearing marsh islands.
Changing Future of Rural Hollowing: Insights from rural landscape changes of five villages

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keywords: rural hollowing, landscape change, sustainable development

Just like the ongoing urban vacancy in some American cities, rural hollowing is a recent significant phenomenon in Chinese countryside due to rapid urbanization and economic changes. There are massive neglected and vacant rural dwellings. The total area of rural hollowing is even larger than the total of urban areas in China. It has led to the wasteful use of rural land resources, and imposed obstacles on the optimization of land use and coordinated urban-rural development.

To better anticipate the changing future of rural hollowing for sustainable development, this study used case study method and specifically examined landscape changes of five typical villages in the last ten years. These five villages represent five different development potentials of rural areas around Beijing: second home for urban residents; tourist site developed by company; tourist site developed by the government; spontaneous tourism development by villagers; and ant family dwelling district. These five villages are examined specifically for their landscape changes, ecological impact, economic benefits and social identity by on-site observation and questionnaire surveys.

The study identified that the five villages have totally different development trajectory with distinctive landscape changing trend, which can be categorized into two types: gentrified landscape and hectic landscape. Second homes and organized tourism development lead to gentrification of rural landscapes, while spontaneous tourism and ant family dwelling district experience more hectic landscape changes. Similarly, gentrified landscape changes coupled with improved ecological quality while hectic landscape changes further jeopardize the rural living condition. However, the family income of rural villagers’ increases faster in hectic landscape changes than those gentrified landscape changes. The tension between villagers and outsiders exist all the time and social identity is lost in most cases. By carefully exploring their differences, this study ends with a series of suggestions for rural hollowing, the brilliant and dark side of these five trajectories with potential improved landscape strategies and management policies.
Green Infrastructure Values of Vacant and Residential Land: Some preliminary results

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keywords: ecosystem services, urban forestry, i-Tree Eco model

There are relatively few studies of the ecology of vacant lands (Burkholder, 2012). For the most part, vacant land is not managed for its environmental benefits. Most vacant land is viewed only in terms of its current highest and best use from an economic perspective. However, vacant land does contribute ecosystem services and benefits and could potentially contribute more if managed appropriately. We know that vacant land can provide ecological habitats for a wide range of plants, mammals, birds and insects, supporting biodiversity and urban wildlife health (Kamvasinou, 2011). From an urban ecology perspective, urban vacant land has a high potential as valuable ecological resources in the forms of agriculture, forested areas, and open stream in urban areas (Zipperer & Pickett, 2012).

However, land use planners do not have benchmarks for ecosystem productivity to use in setting planning goals. One reasonable expectation for ecosystem benefits from the management of vacant land is that it should meet or exceed the ecosystem benefits produced by single family residential land. This is reasonable, because single family residential land use is not considered a very intensive use of land. It might be reasonable to expect vacant land should at least produce similar or greater ecosystem benefits than single family residential land. The research described in this study is a comparative study of single family residential and vacant land to determine how they comparable are, both in terms of forest structure and ecosystem benefits.

The urban landscape of Roanoke, Virginia was used as a study site for this comparison. To assess the physical structure and ecosystem services of the urban forest, the i-Tree Eco model was developed by the U.S. Forest Service was used. The i-Tree Eco model is a sample based program that estimates total tree population, tree attributes, and their ecosystem services for a specified study area. The i-Tree Eco model was used to quantify forest structure and ecosystem services on vacant and single family residential land in Roanoke.

The results of this study identify differences in forest structure for vacant land and single family residential that in some cases result in fewer ecosystem services being provided by vacant land. The results provide a basis for management strategies that can be used by planners and landscape architects to improve the forest structure of vacant land in a manner that will provide similar or greater ecosystem services than that of single family residential land.
Strategies for Urban Ecological Greenway Planning in the Bartın River, Turkey

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keywords: landscape planning, greenway, urban river, sustainability

The Bartın River is located in northern Turkey. The Bartın River is the only river in Turkey allowing water transportation for a distance of 12 km from the Black Sea to the Bartın City center. Due to this value, the role of the trade on the Bartın River was a determining factor in the development of Bartın, which is the center of its environs especially in the Ottoman Empire period. In addition to its rich natural resources, Bartın City has important cultural landscape characteristics, as well. Therefore, Bartın River is a special river at regional and national scales and it was chosen as the research area for this study. Protection of landscape characteristics of Bartın River and landscape planning studies has many benefits to future generations in view of rising population and urbanization pressure.

The main aims of planning studies at various scales are to meet the increasing demands of future population growth and to develop protection strategies for flood damage and landscape characteristics of the Bartın River. Therefore, landscape characteristics of Bartın River Floodplain Corridor should be evaluated and assessed to protect its valuable natural and cultural resources and to maintain balanced land use and development.

Urban river corridors constitute the backbone of ecological greenway planning. This study proposes strategies for urban ecological greenway planning in the Bartın River. The natural and cultural assets within the potential flood zones along the river should be taken into consideration in urban landscape planning and design processes in urban ecological greenway planning. It is of importance for the quality of contemporary urban life that riversides are transformed into green areas open to public use by ensuring the balance between conservation and use with a multifunctional approach. As a result, it is expected that both natural assets are protected and integrated into cultural environment. In addition, the amount of green space per person and landscape quality would increase and contributions would be made to sustainable urban development.
Applying a Biodiversity Index to Small Town Planning

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Keywords: Singapore Index, City Biodiversity Index, Comprehensive Plan

Biodiversity within the urban context is under considerable pressure as cities grow in order to support their expanding populations. One method to better understand the value of green infrastructure is through the use of a biodiversity index. The quantitative data provided by a biodiversity index adds depth to the conversation about ecological services and measures the biotic, abiotic, and environmental health of a city.

The small town of Starkville, MS (population 24,000+) was used as a case study for the City Biodiversity Index (CBI). The CBI is a planning tool that utilizes twenty-three indicators to evaluate three major themes: native biodiversity, ecosystems services, and levels of support with the municipal framework. We summarize the planning trends of Starkville from 1976 to 2005 in order to better understand the City’s progression towards inclusion of the environment in its planning process via comparison of the major themes of the CBI. We describe through this case study the environmental challenges Starkville has experienced and how the use of the CBI can enhance policies and procedures pertaining to the protection of the environment through the planning process.

For Starkville, our pilot study revealed that the environment has not been factored into the planning process over the past forty years. Annexation has occurred within each comprehensive plan cycle expanding the city boundary while creating a buffer for growth. The inclusion of natural areas, the protection of existing habitats, and the creation of habitat corridors are missing. In 1994, evidence to address stormwater and localized flooding issues were noted with recommendations for “long-range improvement plans” and upgrading of the “Tree City Program.” Parks and recreational areas, although more than adequate for the population, are highly programmed. The evaluation of biodiversity within the park systems reveals low levels of biodiversity within five taxa groups, and terrestrial habitat pushed to the property edges. Policies, partnerships, and public outreach that ingrain biodiversity and ecological services into public conversation have not been raised except for the development of a landscape ordinance. As shown in this case study, the CBI provides a framework for assessing biological diversity and a matrix for measuring biodiversity related goals and objectives. As Cities undertake their next comprehensive plan, the inclusion of findings from the CBI illuminates opportunities and constraints within the municipal and physical landscape.
Natural Disasters as a Catalyst for Change: The recovery and redevelopment of Greensburg, Kansas

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*keywords*: Disaster, Recovery, Redevelopment, Change, Greensburg

On May 4th, 2007 the small rural town of Greensburg, Kansas was torn apart by an EF-5 Tornado that measured a mile and a half wide in diameter, and recorded wind speeds exceeding 200 miles per hour. The tornado destroyed 95% of the built environment, and took the lives of eleven residents. The decimated town was declared a Federal Disaster Area by then President George W. Bush.

The town rebuilt itself, but did so with a fundamental change in the performance standards used to evaluate new construction. Greensburg, Kansas now has the most LEED’s platinum certified buildings per capita in the United States.

Through detailed archival and historic research, site visitation and community interviews this paper documents the remarkable transformation that Town of Greensburg has undergone. However, there are also significant social, political and economic tensions that have emerged as part of the town’s forced rebirth and commitment to environmental sustainability. Some townspeople have complained that “going green” was an unwanted endorsement of liberal politics, that the reconstruction efforts relied too much upon unproven technology, and that the town’s preoccupation with sustainability has curtailed significant, economic growth and development.

I argue that natural disasters such as the 2007 tornado that decimated Greensburg provide a unique set of operational conditions that allow rapid and speculative recovery solutions to be engaged. Immediate needs and urgency trumps regulations, and the moral status of natural disasters removes issues of prolonged litigation regarding culpability. Further, given the scope of the devastation, a “clean slate” can often be provided for a complete and holistic design to be implemented, correcting past design errors, and overcoming constraints imposed by aging infrastructure or a past, piecemeal, “build as you go” design approach.
Constructing Identity to Incite Change: Landscape ideology of the Research Triangle Park

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keywords: regional identity, development, research parks

In 1950 the Research Triangle Park (RTP) was a poor tract of rural land straddling two unremarkable counties; in the course of 50 years it has become a world-renowned center for research and innovation. At its roots the Research Triangle was an idea to incite change through a regional identity of intellectual capital very much grounded in a particular place. This paper questions how that process altered the socio-cultural character of the region and transformed how people identify with the very landscape that was promoted as the guiding force of change.

At mid-century North Carolina was a typical southern state “still on a colonial, branch-plant footing,” yet Tar Heels had built a regional banking center, made advances in tobacco, textiles, and furniture production, and established a reputation for progressive politics. The concept for a Research Triangle sought to exploit the intellectual capital among three adjacent universities through collaborative research programs, to attract industrial research operations, and build a regional identity as a hotbed for innovation. It was a progressive idea inextricably founded in a unique regional geography. George Simpson, founding director of RTP, put it succinctly: “There is great value in having something concrete, something that can be mapped and walked over, to place before people. Something tangible stimulates the imagination.”

In her book Pastoral Capitalism: A History of Suburban Corporate Landscapes (2011) Louis Mozingo correlates the relocation of business offices to the suburbs with the development of managerial capitalism by situating the segregation of white-collar management to suburban office parks as part of the larger white-flight narrative. This paper extends many of Mozingo’s concepts to a case study of RTP as a model of separatist geography and considers the ensuing regional change. It will explore the historical evolution of the Research Triangle idea to gain insight on how landscape functioned as a medium for a particular ideology of development and progress. Simpson himself said, “What we are attempting here is really the stimulation of a general movement, the development of a new state of mind, among the people of the state.” This paper will look at park planning, site design, and buildings to investigate how landscape functioned to incite change in the culture of a region and questions the resultant globalization that distanced people from the very landscape whose main asset was its unique regional geography.
Monitoring Urban Bluegrass Streams

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keywords: Stream monitoring, WARSSS, Urban streams

Urban streams in Lexington, Kentucky offer a complex set of watershed and stream characteristics, not unlike many urban settings. However in addition to normal urban characteristics, some unique features in the Inner Bluegrass Ecoregion include karst topography (disappearing and reappearing streams), Lexington resides at the top of the watershed (no large streams, only headwater streams), multiple interconnected watersheds, and an urban growth boundary (compact development). These headwater streams and karst landforms directly influence surrounding cities’ water supply and can be contaminated through the direct connection of karst landforms. Thus, pollution from urban areas are delivered to surrounding municipalities in a quick manner. Lexington, KY, has negotiated a consent decree with the US-EPA to lessen water quantity delivered to the storm sewer systems and improve water quality delivered to the streams. In response to the decree, millions of dollars have been spent in order to lessen stormwater delivered to streams in the urban area, but little monitoring has taken place to validate efficacy of any ecosystem rehabilitation efforts. Streams, being the ultimate ecosystem drain, can illustrate the effects of changes in watershed characteristics and can be monitored over time to establish efficacy of stormwater BMPs implemented in the watershed.

We are in the establishment period of monitoring urban and urban effected streams in the Inner Bluegrass Ecoregion. Methods include Rosgen’s (2006) WARSSS methodology to establish locations of high and low sediment yield reaches, geomorphic assessment of those reaches, sediment assessment and riparian corridor changes within new developments. These methods have been used mostly in rural settings, thus validating them in an urban setting may reveal tweaks to the method required.

Increases in stream widths are expected as new developments initiate stream channel successional sequences due to increased runoff and bedrock controlled streambeds. Widening of streams can prove to be an issue in any community, but are especially critical when working within the confined spaces of urban growth boundaries and small lot sizes. Thus, it is critical we monitor and assess streams and watersheds prior to planning and developing landscapes with their unique characteristics so that water supplies are not impacted.
Territory, Porosity, Intervention: Design response to border impacts on biodiversity at Nogales, Arizona/Sonora

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keywords: Ecology, border, design studio, Arizona

The border between the USA and Mexico has in very recent years become more fortified and arguably impermeable. While the social/economic and cultural impacts of the border have been the subject of some study, the impacts of the border design and its management have been poorly understood from a landscape ecological perspective. What are the impacts in the short and long term of this arbitrary border-line upon this territory in terms of the probable flow of species’ genomes; how can this issue be articulated; and, what is the potential of landscape architects to mediate through design at this novel, yet somewhat porous edge? Emerging from a preliminary design exercise undertaken at the University of Arizona’s Master’s of Landscape Architecture program, student work sought to articulate the potential impacts of the border design and its impacts upon a selection of common, rare and lesser known faunal and floral species. This paper explores the ways in which students explored design solutions to a difficult and politically-charged brief. As is common in Landscape Architectural education and practise, explorations ranged widely in response and often extended spatially and thematically well beyond the site focus area at Nogales. These reflect and reinforce the potential of Landscape Architecture not only as ‘form-giver’, but also as policy maker and land steward. This paper will highlight a range of design response examples to reveal an array of interventions at the intersection of time, territory, ethics and ecology. An appreciation of this complexity and of this territorial conflict led to a series of reflective maps. This consequent mapping stage dialogues with the ‘drift, layering/strata, gameboard and rhizome’ types as suggested by Corner (1999) and attempt to reveal the actual porosity of the border and its inherent complexity.
Infrastructure 15 years out: Setting strategic and resilient design priorities for the next generation of infrastructure

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keywords: Resilience, Climate Change, Infrastructure Renewal, Sustainability

Utility and transportation infrastructure is at a developmental turning point due to factors of age, deferred maintenance, environmental and climate change and regulatory mandates. In part the need for replacement has been driven by state and federal entities as well as public outcry over infrastructure failures such as the tragic I-35 Bridge collapse in Minneapolis and the failure of levees in the ninth ward of New Orleans and, most recently, the requests for flood protection planning across the East Coast in the wake of Hurricane Sandy. Quantitative evaluations by FHWA, the Government Accounting Office and the American Society of Civil Engineers have assessed a significant percentage of public infrastructure and noted that it has not only exceeded its intended service life, but it is no longer capable of performing services reliably. These assessments have prompted a need for renewal on a vast scale which has raised concerns as to how replacement and upgrades of degraded infrastructure can be feasibly achieved.

The next generation of infrastructure will have significant long lasting impacts on land use, the resilience of the built environment and qualitative impacts on communities. Three recent infrastructure case studies present criteria for addressing the local and regional impact of next generation infrastructure in the landscape. Each case study examines the role of infrastructure in a unique American city and its impact on the public realm. The case studies evaluate infrastructure systems in the context of renewal and climate adaptive flood protection in the South Bronx, change of infrastructure service typology and technology in Philadelphia’s urban neighborhoods through the implementation of green infrastructure and lastly a projective assessment of infrastructure carrying capacity for the Highway 45/Interstate 57 corridor in the Chicago metro-region, an area experiencing rapid low density urbanization at over twice the rate of population growth.

Collectively these studies are an early snapshot of critical infrastructure systems with significant landscape and community impacts that will be realized over the next fifteen years. These projects reveal the need for a strategic re-evaluation of infrastructure type and criteria for delivery of services to address the significant opportunity costs at stake in the face of future climate change burdens, resource scarcity and financial burdens to maintain and renew infrastructure. Most importantly to planners, urban designers, and landscape architects, the footprint of this next generation of infrastructure services will have long lasting direct impacts on the built quality of the public realm.
Blue Over Rust. Green and Blue infrastructure in the Legacy Cities: The case of Buffalo

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keywords: storm water infrastructure, Rust Belt City, Vacant Land, Green and Blue Infrastructure

Located in the most densely urbanized sub-basin in the Great Lakes system, the cities of Buffalo, Cleveland and Detroit are paradigmatic cases of Rust Belt Urbanism. Reporting a sustained population loss since the 1960s, these urban landscapes currently display an excess of vacant land, unevenly interspersed between residential neighborhoods and outdated industrial and commercial corridors. Over time, the population contraction translated into a shrinking tax base, and maintaining the obsolete infrastructural systems built to serve a much larger constituency became more challenging. The case of water and sewage infrastructure illustrates this legacy. In the three cities under consideration, the infrastructure systems go far beyond the municipal boundary to serve a still-growing suburban population. During high-precipitation events, the combined sewers are already full when they reach the scarcely populated city geography and the system fails, inundating basements and releasing untreated water into the urban rivers.

Led by the Environmental Protection Agency’s mandate to reduce water pollution, the three cities are adopting green over grey infrastructure approaches (Desimini and Quin, 2014) to reduce storm water runoff entering in the combined sewer systems. These initiatives offer an opportunity to repurpose vacant land as green and blue infrastructure, improving water quality through better management of storm water flows (Schilling, 2014). Advancing this agenda, new collaborative frameworks are emerging in these cities, offering an alternative to traditional infrastructure governance. The scope, extent and ambition of the current initiatives vary in each geography, resulting in many questions regarding scale, continuity, implementation and maintenance of the projects. Still in the very early stages of development, much of the work is more concerned with setting performative standards for these landscapes than participating in the emerging cultural and social narratives.

Using a comparative case study approach among these three cities, this investigation outlines the different initiatives advancing the reuse of vacant land as blue infrastructure, and examines the partnerships between municipal governments, land banks, water utilities, philanthropies and other local non-profits involved. The study illustrates the existing spatial challenges resulting from the fragmentation of vacant land ownership, and the challenges for land reassembly. In addition to identifying a matrix of actors and the need for physical continuities, the study evaluates the financial structures required to advance these projects, and foster a new land stewardship agenda in the region. The assessment aims to provide a critical stance and infer new meanings for these emerging postindustrial landscapes.
The Lake and the Lagoon: Roles for landscape architecture along the C-44 Canal

Rob Holmes University of Florida

keywords: Everglades, Lake Okeechobee, Indian River Lagoon, infrastructure, hydrology, nutrient pollution, estuarine ecology, environmental engineering, environmental restoration, canals

The C-44 canal is a constructed watercourse in south Florida that runs between Lake Okeechobee and the St. Lucie River, connecting—and polluting—those two critically endangered waterbodies, as well as the linked Indian River Lagoon, America’s most diverse estuary. C-44 currently lies at the center of environmental engineering focused on restoring the health and function of the Indian River Lagoon and Lake Okeechobee. The research reported in this paper delineates the potential capacity of landscape architecture to contribute to such large-scale environmental restoration projects generally and the design of next-generation hydrological infrastructures specifically.

C-44 was built as part of a wholesale 20th century reconfiguration of the hydrology of South Florida to support agricultural and urban development. C-44 and the Caloosahatchee Waterway, which runs west from Lake Okeechobee, are the Lake’s primary release valves; as the levees containing the Lake have aged, releases have become increasingly frequent. These releases send large volumes of freshwater and sediment into the brackish St. Lucie Estuary and Indian River Lagoon, rapidly dropping salinity and depositing muck, killing many estuarine organisms. At the same time, both those releases and stormwater runoff from agricultural zones that drain into the canal deliver spikes of nitrogen and phosphorus to the estuary, triggering algal blooms, such as 2011’s so-called “superbloom”, which choked ecologically-foundational seagrass beds.

In response, a coalition of agencies and local governments has developed a program of augmenting hydrological infrastructures, linked to the larger Comprehensive Everglades Restoration Program. These reservoirs, canals, stormwater treatment areas, control structures, levees, pumps, wetlands, and new management regimes will work to reduce impacts on the lake and lagoon.

This paper employs synthetic cartography and visualization to describe existing infrastructural, hydrological, ecological, and socioeconomic conditions along C-44; reviews existing restoration plans; and draws on design proposals for new hydrological infrastructures developed in a studio led by the author. This is done in context of a review of relevant landscape theory and practice, which serves to situate the goals, principles, and practices of landscape architecture and environmental restoration in relationship to one another. Through that work, it demonstrates the capacity of landscape architecture to contribute to this and similar restoration projects, currently primarily the domain of environmental engineering and policy, and develops an initial sketch of specific strategies, including synthetic cartography, programmatic coupling, regional choreography, and speculative scenario-building, which landscape architects can use to build on and interact with the work of those other disciplines.
The Geometry of Urban Biodiversity

Gary Austin University of Idaho

Keywords: Biodiversity, Biological Diversity, Ecosystem Services, Sustainability, Urban Planning, Stockholm, Green Infrastructure

Purpose: This paper reports on ecological research, and implemented plans for the preservation of urban biodiversity. This paper will partially bridge the gap between ecological research, planning policy and physical design in the context of the urban metropolis.

Background: Urban biodiversity is a diminished subset of native plant and animal species impacted by human activity, the fragmentation of habitat and exotic species. Species requiring large territories or those with specialized habitat relationships are usually locally extinct within the limits of cities. Landscape architects working in interdisciplinary teams are often expected to provide generate guidelines and designs that promote ecosystem health. To participate effectively landscape architects need research-based criteria on which to make planning and physical design decisions.

Methods: This paper provides an ecology literature review to establish research findings that support planning and landscape architecture. The research findings are used to investigate a case study to evaluate the effectiveness of municipal and regional planning in sustaining urban biodiversity.

Findings: The literature review yields planning and design guidelines for the size and configuration of habitat fragments and ecological corridors. These are considered in relation to the case study of Stockholm, Sweden. The paper reports on the planning practices that address the biodiversity capacity in the context of urban expansion, development density and transportation infrastructure. Compatibility with other green infrastructure services are discussed. Planning and urban design teams can conduct literature reviews and contract spatial surveys of one or more species guilds to guide urban growth.

Importance: The rate of species extinctions is alarming. Biodiversity is impacted greatly the size, distribution and links between remnant habitat. Most native species can be supported within metropolitan areas if ecological parameters for fragment size and corridor network length and width are provided. Landscape architects can use the tools presented in this paper to address urban biodiversity in planning and in the physical design.
Effects of Green Space Size on Land Surface Temperature (LST) in Seoul, Korea

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Keywords: Urban Heat Island, Urban Temperature, Remote Sensing, Landsat, Greenery Open Space

Urban sprawl and population migrations have augmented the increase in impervious land cover amplifying the effects of climate change and increasing urban heat island effects in urbanizing areas. This phenomenon has particularly amplified increases of urban temperatures. Temperatures in urban areas tend to be significantly higher than in rural areas in similar regions. Many researchers, practitioners, and policy makers have attempted to reduce the rise in urban temperatures through the application of multi-scalar green spaces and habitat patches such as parks, street trees, cemeteries, golf courses and botanical gardens.

Seoul, South Korea is one of the largest metropolitan cities in the world with a population of about 14 million. While land uses in Seoul vary, land cover patterns have not changed much (under 2%) in the past 10 years, making the city a prime target for studying the effects of land cover types on the urban temperature. This research seeks to generalize the urban temperature of Seoul through a series of statistical tests using multi-temporal remote sensing data focusing on multiple scales and typologies of green space to determine its overall effectiveness in reducing the urban heat.

With a focus on green spaces, land cover types were classified into 9 types: water surface, forest, cultivation, green space, unused area, urban infrastructure, road, residential area and commercial area. The average temperature of the green space was lower about 0.022°C than of whole land use types. The Land Surface Temperature (LST) values in small-scale green spaces (less than 10,000m²) showed the largest distribution. As size of green space increased, distribution of LST values was reduced. It means that changing temperature of large-scale green spaces is less influenced because the broad distribution could be resulted in various external variables such as slope aspect, topographic height and density of planting areas, while small-scale green spaces is more affected from that. The large-scale green spaces contributed significantly to lowering urban temperature by showing a similar mean LST value. Both of concentration and dispersal of green spaces affected the reduction of urban temperature. Therefore, the findings of this research support that creating green spaces in an urban region could reduce urban temperature regardless of the scale.
Decoding the Genotype of an Urban Greenway

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keywords: Urban, Greenways, Research method, Design thinking, Landscape, Planning, Design, Sustainability

The emergent theory and practice of Greenway planning integrate multi-disciplinary theoretical, disciplinary and practical approaches in advancing the thinking on Greenway as an organizational strategy for open spaces in urbanized contexts. The future theory building on the topic thus relies on proper understanding of these approaches and underlying motivations. This clarity on intentions and outcomes of various approaches is facilitative to Practice as well in selection of methods and approaches used for Greenway planning. This paper acts at this intersection and provides clarity on the motivations and leanings of contributory approaches by especially dissecting the approaches underlying the ecology oriented Greenway planning. This article addresses the gaps in understanding through an in-depth study of Greenway theories, practices and ecology-oriented approaches over the past decade. Furthermore, a scientific framework is applied so as to decode the core structure or the genotype of Greenway planning theory and practice. In summary, the article (a) provides clarity to the emergent multi-disciplinary knowledge base, (b) elucidates the genotype, or core principles, of Greenway design and planning and (c) presents a framework for the articulation and presentation of new interpretations of Greenway theory using Stedman’s genotypic and phenotypic classification model.
SensorScapes: Deploying DIY sensors to create poetic and interactive landscapes

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Lucia Phinney  University of Virginia
Allison Lassiter  University of California Berkeley
Bradley Cantrell  Harvard University

keywords: infrastructure, water-energy nexus, resilience, environmental justice, ecosystem services

Environmental sensors generate data streams about landscape dynamics that can be used to create responsive landscapes. This panel shares our convergent strategies for prototyping sensor nodes based on the open-source Arduino hardware and programming language (Arduino 2014).

Beyond gaining a deeper understanding of environmental metrics and contemporary design methodologies, prototyping devices provides an essential 21st century digital literacy (Prensky 2008; Davis and Peters, 2013; Vee 2013). This literacy supports the emergence of a new landscape poetic featuring applied sensing.

Aimed at an audience unfamiliar with the technical aspects of Arduino microcontrollers and coding, our session starts with an overview of the available hardware and software tools. Then we cover our four complimentary approaches to utilizing Arduino within our courses and scholarship, covering our poetic applications of environmental data, methods and materials, pedagogical practices, and unique learning outcomes generated by using Arduino.

1) Phinney will report on her pioneering use of Arduinos to create connections between biotic and constructed territories and to enhance thermal outdoor comfort by seamlessly bridging between data collection, graphic analysis, simulation, design, feedback, and fabrication.

2) Cantrell shares how Arduinos provide a versatile prototyping platform to test real-time feedback loops between ecological systems and landscape interfaces; loops that are then utilized to reimagine new infrastructures that are more tightly integrated and responsive to dynamic environmental processes.

3) Lassiter covers how customized, coordinated networks (meshes) of Arduino-based sensors can be used to generate high-resolution data. Identifying space-time variations within a landscape allows her to craft hyper-local, dynamic design solutions.

4) Lehrman shares technical details and preliminary learning outcomes about deploying Arduino-based ambient landscape displays that reveal eco-technical flows.

We will wrap up our session with a discussion covering:

• Rising to 21st Century landscape challenges through interactive/responsive prototypes and theatric displays
• Empowering landscape users with awareness, engagement, and comfort
• Situating coding, scripting, and hacking in landscape education
• Low cost DIY devices versus scalable/durable, deep efforts for responsive landscapes
• Future research and expanding the field of landscape architecture

Though sensing is an old concept – from surveying topography to monitoring river gauges – Arduino (and the exploding ubiquity of cheap sensors and mobile computing) upends who is responsible for data collection. This enables designers to break from the limitations of designing static landscape with the deployment of sophisticated robots that actively manipulate our landscapes for poetics, performance, and to incite change across the SensorScape.
Human Ecologies: Measures of landscape infrastructure for healthy neighborhoods

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*keywords: landscape metrics, health, walkability, metaanalysis*

This review ties together studies on the qualities of public parks and streets and their relationship to physical activity to draw a unified framework of how to evaluate urban landscape infrastructure on the neighborhood and urban scale. By doing so, we can bring into focus established relationships for future development and redevelopment, and recognize what is being overlooked.

A neighborhood deemed to be walkable has associated implications for community health, environmental justice, and economic vitality. However, how current research characterizes the built environment, or even the spatial limits of the neighborhood and its influence on health, has yet to agree upon standards or methods. While all studies regarding health and the built environment end with a recommendation for interdisciplinary research and action, there are several barriers to collaboration, not the least of which is the lack of common vocabulary and methodology between fields, particularly between research and design.

Urban form’s relationship to health is perhaps the least understood of built environment study. Furthermore, a limited understanding of urban form often leads to studies that are structured around what spatial data is available off the shelf, rather than first seeking the specific data to answer a question. Almost 50 studies and meta-analyses from the public health and planning fields were reviewed to make a direct comparison of neighborhood extents, independent variables, methods of measuring both objective and perceived aspects of the environment, conclusions and contradictions between each study. This comparison also begins to build a framework of scaled interrelationships between variables in the built environment, rather than continuing to consider them as discrete elements with various strengths of correlation on physical activity.

Finally, we examine how research is or is not being integrated into the field via a discussion of recent notable design manuals and handbooks aimed at making communities more walkable or healthier. These translations of research to execution, and the continued study of these interventions, are crucial to form the feedback loop of data, design, and day-to-day healthy living.
Nature Discourses: Meta-paradigms in landscape architecture

Philippe Richard Perron University of Manitoba

keywords: integral ecology, actor network theory

This paper begins by examining what we mean by nature. It is based upon a concern that we use terms like nature and ecology with epistemological specificity that may easily be misinterpreted. Terms like nature operate in discourse networks, in epistemological milieus, competing worlds of ideas and language. In other words, the meaning of a term like nature is dependent upon the epistemological approach that one takes. Confusion over terms like nature and ecology exist because we simultaneously entertain, often unwittingly, multiple discourse networks. Esbjörn-Hargens and Zimmerman have identified over 200 epistemological approaches to nature (Esbjörn-Hargens & Zimmerman, 2009). How can landscape architects begin to make sense of the intersecting and competing discourses about nature?

Nature happened yesterday because nature exists in the epistemological discourses that precede us, as well as in the epistemological conversations in which we are involved. In this paper integral ecology is presented as a way for landscape architects to wade through the complexity of ecological thought. Following from the work developed by Esbjörn-Hargens and Zimmerman in their book Integral Ecology: Uniting Multiple Perspectives on the Natural World, the paper identifies approximately 40 epistemological directions (discourse networks) about nature that landscape architects can engage. How then do we begin to negotiate even this kind of complexity?

In the paper an argument is made for landscape architects to develop their own approaches to actor network theory (ANT), proposing that how we understand the associations between place, context and relational systems is subject to discourse networks that are also in play. It is proposed that landscape architects engage in finding original and flexible ways to invoke ‘meta-paradigms,’ ways to deliberately bring together different paradigms of nature and culture in assemblages with the specificities of place.
Data and Information Affecting Preparation and Practice in Landscape Architecture

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Joel Albizo  Council of Landscape Architecture Registration Boards
Barbara Deutsch  Landscape Architecture Foundation
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Nancy Somerville  American Society of Landscape Architects
Richard Rainaldi  CiviCore

*keywords*: Data; research; findings; distribution; Presidents’ Council

Introduction: This presentation reports on the value of data to the Presidents’ Council, an affiliation of six professional and scholarly landscape organizations in North America (CELA; CLARB; LAF; LAAB; CSLA; AND, ASLA). To do this, executive directors of each organization describe strategies and tactics used to gather, evaluate, and disseminate useful and accurate information to the benefit of private, public, and academic practice in landscape architecture.

Background: The demand for data regarding the preparation and practice of landscape architects became a priority within the six organizations because of the following:

a. The general lack of quantifiable and published data on the profession, including economic impact data and compensation and benefits data (in the case of CSLA);
b. the emergence in the early 2000’s of ranking among accredited landscape architecture schools;
c. the focus of ASLA’s Committee on Education on the demand and supply of landscape architects;
d. the need among CELA’s academic administrators for reliable information on the status of their programs with that of other comparable landscape architecture programs;
e. rapidly expanding global and international issues within the profession; and,
f. LAAB’s need to better ground accreditation standards according to dynamics of the profession and demands from the Council of Higher Education Accreditation (CHEA).

Methods: The panel uses summary data from LAAB’s Annual Reports, CELA’s Academic Information System (AIS), CiviCore’s data management system for LAAB and CELA, and other organizational data bases to summarize what is known about such topics as demographics, budgets, enrollments, numbers of practitioners, priorities and trends within the profession.

Findings: During the presentation the panel reports-out findings verbally and with visuals according to categories a through f, above, and others to be determined during final preparation. It is possible that selected findings may be posted on organizational websites following the 2015 CELA Conference.

Importance: The panel intends for the presentation to enhance understanding and value regarding the assimilation of data, the use of data, the analysis of data, and the application of data within the profession of landscape architecture. It also expects to verify the importance of sharing information while elevating the standards for collecting it. A likely outcome from this strategy would be a reduction in the number of spontaneous, poorly developed and redundant efforts expected to emerge as data become more important. Another likely outcome is improved coordination of strategies and tactics among the organizations in their own planning, management and operations.
Understanding How Students Approach Design; a Qualitative Inquiry

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keywords: Design, Qualitative

“Does that usually work” I asked? He was a third year student in a design studio and he was sitting on his stool, staring at his drawing. “What” he responded? “If you stare at it long enough, does anything magically appear?” It was my sarcastic wit that I now understand was not always appreciated by students. More importantly I now understand that students may not favor the same techniques I had always found useful and that contemplation can be a viable approach to design.

Three primary research questions guided this inquiry:

1. How do students describe how they approach design? (For this study the design approach is defined as the point at which solutions begin to be synthesized)
2. What approaches do they prefer and why?
3. How can faculty help them to become more comfortable and confident designers?

The human brain is far too complex to completely isolate a single variable in any realistic, ethical fashion (Klein 2007). Qualitative research methodology is ideally suited to making sense of a complex situation with multiple variables. It is also particularly suited to answering questions such as “what” and “why” by gathering a wealth of information that provides more in depth and insightful data rather than responses to a specific hypothesis (Lindlor and Taylor 2002) (Cresswell 1998) (Gall, Gall and Borg 2007)

Since design is a complex and multifaceted task the use of a qualitative research methodology allows for the exploration of research questions from multiple directions. This research followed the phenomenological paradigm that “describes the meaning of the lived experiences for several individuals about a concept or the phenomenon.” (Cresswell 1998, 51). Kevin Lynch’s seven approaches to design (Lynch 1971) were used as a theoretical foundation. Interviews were recorded and later transcribed and a stylized coding form was developed to guide the qualitative inquiry. Member checks were also used to validate the findings.

Results indicated that students tend to use several approaches and that they varied with the circumstances; IE aesthetic vs. technical. The research also discovered that students who tended to favor a single approach were often frustrated and confused.

Consequently, it is important for professors to understand that students can often use multiple approaches to solving a design problem. Even though those approaches may not be how they approach design, students should still be encouraged to utilize whatever approach might be appropriate for them or the specific situation.
Mapping Cultural Ecosystem Services and Aesthetics to Inform Landscape Planning Decisions

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*keywords: Ecosystem Services; Spatial Quantification; Landscape Planning; Geospatial Analysis; Aesthetics*

The assessment of ecosystem services and the implementation of them in planning is becoming increasingly important. At the landscape level, the spatial evaluation of these plays a critical role in informing landscape planners about the trade-offs between services, particularly in places where the environment is simultaneously used for natural resource development and social function. The purpose of this project is to demonstrate a method for spatially quantifying supporting, regulating and cultural services. Furthermore, we also provide a comparison between different user groups and the spatial implications of their views’ on planning priorities. While spatial analyses of regulating and supporting services are numerous, the inclusion of cultural services in spatial planning is lacking (Daniel et al. 2011). Cultural services are those intangible benefits provided by nature including spiritual, educational, heritage, and cultural identity values, as well as, beauty and aesthetics (MA 2005; Daniel et al. 2011).

This project demonstrates a method for spatially quantifying ecosystem services, with an emphasis on the spatial quantification of risk to aesthetics from the disturbance of the densely forested region of Kennedy Lake, Vancouver Island, British Columbia. The study area provides numerous services, unique habitat for flora and fauna and old growth, but also includes cultural services such as aesthetics, recreation and cultural sense of place. To understand how forest cover loss could reduce visual quality, we applied a new viewshed assessment method developed by Chamberlain and Meitner (2013). To understand the trade-offs between cultural and other services, we mapped and compared the location and diversity of ecosystem services relative to important scenic vistas. Our intent was to discover if these scenic locations overlap with other services. While no statistically significant correlations among the investigated ecosystem services and aesthetics were found, the degree of richness (or number of services) did vary between viewsheds with the lowest richness found in a culturally important viewshed. This has direct implications in planning, suggesting that certain viewsheds may disproportionately impact ecosystem services. The study provides a method for comparing these services within the context of aesthetics. Our results suggest trade-offs may occur when managing to optimize aesthetics or other ecosystem services from specific landscape perspectives. This methodology can help planners make more informed decisions by visualizing the spatial arrangement of areas with high ecosystem services.
Sense of Place and Community Reconstitution in the Context of Natural Disaster

Ryan Wright Design Workshop

keywords: Prattsville, place, sense of place, place attachment, disaster, recovery, urban design, planning, flood, community, personal narrative, community well-being

It has been shown that alterations to a community’s physical environment can lead to a downturn in social well-being and the dissolution of previously held social norms (Speller and Twigger-Ross, 2009). Moreover, Stedman (2003) speaks to the importance of the physical environment or what Agnew (1987) calls “Locale” and “Location” in determining sense of place. Thus, whether a community is relocating in anticipation of rising sea levels or rebuilding after a devastating hurricane, there are essential concerns about the preservation of its well-being that can be effectively addressed with a clear understanding of the sense of place held by its residents. In other words, to learn a community’s sense of place is to position oneself as a designer to rebuild effectively and in a manner sensitive to that community’s social well-being.

Prattsville, NY was all but washed away by catastrophic flooding in 2011. The remnants of two consecutive hurricanes, Irene and Lee converged on upstate New York and overwhelmed the region’s waterways. This paper uses Prattsville as a case study and presents a methodology for determining sense of place in the context of community reconstitution. It expands upon a version of the “personal narrative” methodology outlined by de Wit (2013) and extends it into the realm of community reconstitution. The data for this study was collected in a series of semi-structured interviews of five Prattsville residents. The interviews were meant to encourage personal narrative in order to elicit sense of place and to discover those physical/social elements of the town that helped produce attachment to place.

This study tested the viability of a methodology for interviewing for sense of place that relies upon soliciting personal narrative and applies that methodology to a new context, one in which the test community is undergoing a process of physical reconstitution in response to a natural disaster. The tested methodology appears to elicit deeply personal and often moving responses to questions about place and offers a chance for individuals to feel as though they have a voice in the rebuilding process. The personal narrative approach to interviewing for sense of place is effective and should be considered an integral part of community reconstitution in the context of natural disaster.
Urban Farming: Are we making more parks, or more parking lots? The urban economic effects of urban agriculture in Minneapolis

Calayde Davey Kansas State University

**keywords:** urban agriculture, urban food systems, urban agriculture policy, urban development strategies, productive urban landscapes, community development, comprehensive planning, local economic development, environmental economics, growth management, planning

Urban agriculture and neighborhood food-systems (UA) are productive urban landscapes that provide important socio-cultural functions for neighborhoods. Proponents claim that urban agriculture provide a range of benefits to communities, such as providing positive health contributions, strengthening community development, providing ecological services and ancillary economic support. However, when compared to other urban amenities such as playgrounds or parks, urban agriculture is perceived as a program with a low economic exchange value. The land that these sites occupy can become more desirable for more economically competitive purposes, and thus supplant the original benefits and functions that the urban agriculture site provided to the neighborhood or community. Urban agriculture sites can be engulfed by increasing exchange-values of surrounding properties and the original use-value to the neighborhood is lost. Furthermore, without regulation and design control on an urban scale, there are many perceived negative associations with UAFS sites also. UAFS fail without adequate policy and planning support. Since urban policy-making, rezoning, and related planning processes are time-consuming and costly it is rational to assume that the economic relationship of urban agriculture and local food systems to urban form is important. Very few studies have examined the economic effects of urban agriculture to urban context. Without evidence as expressed in monetary terms, cities may find it challenging to allocate resources to such public programs.

The research examines the spatial-temporal and economic relationship between productive urban landscapes (urban farms, community gardens and farmers markets) of Minneapolis, Minnesota. The research purpose is to understand the latent economic effect of urban agriculture in US cities, and discuss how urban design and planning can better mitigate the positive and perceived negative aspects of urban agriculture. The research provides generalizable economic evidence for the case of urban agriculture in Minneapolis, Minnesota. The study uses hedonic regression analysis to clarify whether urban agriculture is succeeding in creating any economic effects beyond its commodities in a neighborhood context. Desirability proxies include changes of housing prices and mobility rates of neighborhoods within the city.

These findings expand the theoretical and policy discourse on how investment of public resources aids neighborhood development through low exchange-values systems, such as community gardens or urban farms. In understanding the advantages of low-exchange systems to urban form, context-specific neighborhood strategies can improve urban revitalization and (re)development in larger frameworks.
Understanding Gully Erosion in Heavily-Used Midwestern Landscapes

Katie Burke Kansas State University

*keywords: gully, land management, Kansas*

Gullies often form as a result of land use changes and interrelated factors such as soil compaction, vegetation removal and changes in rainwater infiltration. Gully erosion creates human safety hazards, soil loss, and sediment and nutrient pollution downstream. Many landscapes are affected by gully erosion, creating need for an understanding of gully process to inform management of all working landscapes.

Across the globe, researchers have found a wide variety of gully growth rates and drivers of growth (Poesen et al., 2003), but after the late 1900s, few published gully studies have been done in the United States, and fewer studies have been done in the Midwest and Great Plains regions.

This presentation describes the results of a multi-disciplinary gully study in two heavily-used Kansas landscapes: Fort Riley military training areas, and McPherson County agricultural fields. The purpose of the study was to quantitatively measure rates of gully erosion as well as main drivers of growth to add Kansas gully characteristics to the growing global knowledge of gully erosion.

The method used to measure gully erosion rates was surveying gullies in the field multiple times per year over three consecutive years (2012-2014). Other methods were compiling a database of land characteristics such as soils, antecedent moisture conditions, vegetative cover, slope, and drainage area to attempt to correlate gully erosion not only to rainfall but to other land-based factors. Data analysis will be completed in winter 2014-2015, and hypotheses for main drivers of growth include track length and slope on Fort Riley, antecedent soil moisture in McPherson, and vegetation density in both locations.

Problems surrounding gully erosion are not confined to rural areas like agricultural fields and training areas on the prairie. For example, after a new town was built in the Democratic Republic of the Congo, massive gully erosion occurred alongside steep roads – if the risks of erosion were considered beforehand, the damage might have been prevented (Imwangana et al., 2014). When our study is completed in early 2015, we will be able to apply our understanding of rates and drivers of gully erosion in heavily-used Kansas landscapes to the management of broader working landscapes in similar regions. Preliminary measurements show that gully erosion is complex and inconsistent, which is why a greater understanding of local gully process will help us develop and maintain a variety of land uses more safely and sustainably.
Improving Walkability with Communities

Chris Seeger Iowa State University
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keywords: Participatory action research, crowd sourcing, infrastructure

In small communities, walking is an important transportation mode and a popular social and recreational activity. Improving community walkability requires both an understanding of user perception and behavior and expertise in physical design. Because local leaders may lack this information or not have easy access to it, a University Extension Outreach program for assisting small communities has been developed that reframes expert assessment into a community learning experience using digital technology, user perceptions, facilitated evaluation, and infrastructure data collection.

The methods utilized identify user perceptions of assets, barriers, and opportunities for improving walkability (and bikeability), in addition to documenting how and where they interact with the environment as pedestrians. Participatory assessments lead residents in an exploration of the community, discovering the pedestrian network and how the existing conditions affect human behavior and access. Working from local experience as a foundation for planning, these methods allow residents to make meaningful discovery about community infrastructure while the hard evidence generated in the facilitated assessments of infrastructure anchors decisions about the investment of scarce funds.

This paper presents the methodology utilized to collect user perceptions, evaluate the current infrastructure, and present that information in a format appropriate for both local leaders and the general public, allowing them to make informed decisions regarding changes necessary to improve walkability in their community.
Mapping Sea Level Rise and Storm Inundation using 3Di Hydrodynamic Model in San Francisco Bay Area

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keywords: sea level rise, 3Di hydrodynamic model, inundation, mapping, San Francisco Bay Area

In San Francisco Bay Area, one of the greatest concerns of global climate change is sea level rise (SLR) associated with extreme storms. By year 2100, SLR is assumed to be 1.41 m. In this case, many of Bay Area’s low-lying coastal areas will be inundated. The impact is even more severe as these areas are either populated urban areas or tidal marshes with important ecological value.

Thus, several studies have been done in the Bay Area to map SLR and storm inundation, and to understand the impact. However, these studies mainly use static model (e.g. bathtub model), while storm is a dynamic process. The Bay Area is characterized by semi-diurnal tides every day, and a static model may fail to calibrate this process. Therefore, this study used a 3Di hydrodynamic model developed by TU-Delft, Netherlands, to simulate a near 100-year storm associated with 0, 0.5, 1.0, and 1.41 M SLR over the entire Bay Area. Model inputs include 6-min water level data and 50 m horizontal resolution digital elevation model (DEM). The output is a time series of inundated areas with horizontal extent and vertical depth. The results indicate that SLR and storm inundation may cause major impacts along Bay Area’s coast. This study further analyzed inundation frequency and average inundation depth to get more detailed understanding of the impact. This study also generated an inundation animation from the time-series outputs to help general public understand the process of SLR and storm inundation, making it serve great educational purpose.

This study demonstrates the severity of SLR and helps community leaders and administrators prepare to develop adaptation strategies. This dataset can be further used to study tidal marsh migration, infrastructure vulnerability, accessibility change, etc. The limitations of this study include simplification of hydrology system and absence of other influencing factors (e.g. subsidence). In all, this study and subsequent studies plan to create a high spatial and temporal resolution and accurate SLR and storm inundation database to serve better planning, design, management, and governance in the face of global climate change.
Urban Rivers in Buenos Aires and Sao Paulo: A comparative case study

Brian Davis Cornell University

*keywords:* Latin America, water infrastructure, research, analysis, water quality, public space, stormwater, computation

This paper presents the results of a comparative case study looking at fluvial landscapes in Buenos Aires, Argentina and Sao Paulo, Brazil. The research considers cities and rivers as a single complex with a specific focus on the intersection of public space, water quality, and flooding. These are extremely large metropolitan areas, 14 and 20 million respectively, and the scope and scale of both the problems and potentials can be overwhelming. As such these complexes offer an extreme case of a common condition. As contemporary cities face the twinned challenges of environmental justice and a rapidly changing climate the cleanup and management of urban rivers stands as one of the great tasks currently facing societies around the globe. Urban waterfronts and rivers are the site of much historical industrial development, some of the most important and sensitive ecological zones, and a wide range of human settlements which often simultaneously include the most desirable and the most vulnerable terrain. Because of this they powerfully unite legacies of economic growth, social injustice, toxicity, and environmental degradation.

The comparative methodology combines spatial and morphological analysis with data computation and visualization to gain insight into the interrelationships between public space and water infrastructure performance. Specific methods include constructing a GIS of existing hydrological networks and public spaces and building a water quality model of the river. Computational methods are then used to interpolate between known points and to approximate working values at areas that are shown to be important because of their morphological characteristics. Axial line maps are then used to analyze these key zones for integration and connectivity, relating water infrastructure performance, morphology, public space, and pedestrian movement.

Through this case study two radically different spatial strategies are revealed, one in Buenos Aires and one in Sao Paulo. Each offers lessons regarding the implications of different approaches to managing stormwater, improving water quality, and providing access to the river. As extreme cases of common conditions these complexes offer insights into dealing with issues that are widespread and growing in importance. The initial insights from this research emphasize the importance of a synthetic methodology for understanding the important interrelations between cities and rivers, and reveal spatial strategies in place in these Buenos Aires and Sao Paulo that may offer intriguing models for contemporary cities.
Logistical Urbanism: Interiorization and exteriorization of port activities

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keywords: Logistics; Urbanization; Infrastructure; Landscape

“Logistical urbanization” historically contextualizes and theorizes processes of urbanization catalyzed by logistics in North America as a means towards unlocking new territories of research and practice for the discipline landscape architecture. This paper defines four major periods of logistical urbanization 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 have emerged since 2000: the interiorization and exteriorization of logistics activities that previously predominantly occurred in the centers of existing major centers of commerce, ones most often located along the coast. 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” theorizes the interiorization and exteriorization of logistics towards mega inland ports and higher capacity offshore intermediate transshipment hubs as catalysts of distinct urbanization processes.

While a rich subject in its own right, this research has important implications for the discipline of landscape architecture. The emerging variegated network of flows that coalesce briefly at offshore logistical enclaves or inland zones is calling into question design's inherited vocabulary and categories of analysis for describing processes of urbanization. A focus on density or the redevelopment of abandoned waterfront property, to name a few preoccupations, overlooks major new lines of inquiry and practice for design and urbanism. Logistics is a rich subject for beginning to expose the little understood and underrepresented landscapes produced beyond centers of consumption, whether regionally or continentally, by America’s rising intake of foreign products. This paper investigates interrelated, yet independent, dimensions of this subject in relation to the discipline of landscape architecture including logistical ecologies and new representational strategies.
Landscape Planning and the Human Perspective: A visual quality analysis method

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Mike Meitner University of British Columbia

keywords: viewshed; GIS; visual quality; landscape planning; perception

Visual quality assessment and planning has a substantial history. Assessment methods are used in numerous fields, including landscape management (e.g. Palmer 2004; Smardon, Palmer and Felleman 1986), for the placement of wind turbines (e.g. Möller 2006) and urban design (e.g. Wilson, Lindsey & Liu, 2008). In landscape planning the evaluation of scenic or visual quality is informed by identifying several Key Observation Points (KOP) and using those to develop viewshed analyses to measure and categorize levels of scenic quality. While KOPs can provide a general perspective of the landscape they may not function as a proxy for representing the human perspective, particularly the experience of moving through the landscape. Part of this misrepresentation stems from the original development of a viewshed analysis; viewsheds were originally based on a geographic view and not a human-based view of the landscape (Llobera 2003). While there are a variety of viewsheds available, few connect the spatial analysis to human psychology and perception.

The focus of this project is to showcase new viewshed methods provided in Chamberlain and Meitner (2013), but in particular to demonstrate the method so that planners can use the toolset for their own projects. The research approach design compares the differences between traditional viewshed methods used in visual quality assessment with the proposed new methods. The study area is located on Vancouver Island, British Columbia. A systematic comparison of different sites (KOPs) and routes will be shown in order to highlight how the methods can improve visual quality assessment procedures. For planners and landscape architects the new toolset will provide a more effective method for quantifying visual impact at landscape scales.
Playing Along: A mixed-methods approach to investigating urban play and place

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Blake Belanger  Kansas State University

keywords: urban play, place, immersion, interview, grounded theory

Urban play activities such as parkour, flash mobs, and geocaching are atypical uses of space. Since they are unusual, such activities may enrich a person’s understanding of a space by developing new and different play- and place-specific experiences. The intent of my thesis is to determine the nature of the relationship between urban play and place. This paper presents the methods used to investigate this relationship. My methods leveraged grounded theory, and involved immersion into urban play, associated field notes and interviews, and layered memoing.

The investigation was framed by Thornberg’s informed grounded theory (2012), where findings are constructed from a broad, varied data set. Data collection and analysis were informed by an extensive literature review, which continued to develop throughout the investigation.

Data was collected with two strategies: autoethnographic field notes and open-ended interviews. Autoethnography (Ellis, Adams, & Bochner, 2012) involved learning and practicing different urban play activities, such as building, geocaching, and street theater, with other urban players. While playing, I took field notes to document my experiences as a player. The field notes from this immersion were supplemented with data from interviews with players.

Open ended, walk along interviews focused on the experiences of people I had played with during my immersion. A variety of media were used to collect data during the interviews. Audio recordings of each interview, photographs of salient landscape features and spaces, and the paths of the interviews were recorded.

Data collection and analysis proceeded concurrently. Data was analyzed through informed, layered memoing. Several memoing strategies, such as note-taking and sketching, were employed to process the variety of data types collected. Memos and reflective “memos-on-memos” over time abstracted the data enough to construct overarching themes, which became the findings (Thornberg, 2012; Glaser & Strauss, 1967).

Future papers will present the specific findings of this research. Generally, findings addressed place phenomena and other topics including community, language, and policy. The breadth of anticipated and unanticipated findings suggests that the methods (immersion and interviews) can help designers conduct a comprehensive investigation of a site. Additionally, playing along can inform designers about increasingly popular urban play activities.
Landscapes of Water Consumption

Allison Lassiter University of California Berkeley

keywords: water demand; land cover; NDVI; fixed effects

Many regions are reaching the ceiling of available water supplies, making it necessary to re-think water consumption habits and management practices. California is one such place, with record-setting drought in 2013 and 2014 (National Climactic Data Center 2014), and mounting evidence that greater scarcity lies in the future (Andrew, forthcoming). Yet, California also has a growing urban and suburban population (California Department of Finance 2014). With less water and more people, sustained and systemic reduction in statewide water use is imperative.

In residential areas, better managing outdoor water is a critical component of reducing total urban and suburban water consumption. Outdoor water can comprise as much as 70% of a household water budget (Johnson and Loux 2004). The factors that drive outdoor water use are not documented in many locations, however, and findings from existing studies are often not extensible (Arbués et al 2003, House-Peters and Chang 2011). Further understanding the factors that drive outdoor water use is necessary to inform designs and plans that promote urban water efficiency.

This study evaluates seven years of monthly water data from over 300,000 households in the East Bay Municipal Utility District of California (EBMUD), an area with highly heterogeneous microclimates, housing typologies, and demographics. The analysis focuses on the relationship between household water use and local environmental factors – vegetation, temperature, precipitation, and land form – by implementing a panel data model with fixed effects. The results from the analysis indicate tensions and directions for the future water-efficient city, including possible adaptations to land cover and urban form.
Say It With Numbers: Tell a better story by using statistics to enhance case study research. A mixed method approach to place-based analysis.

Melissa Currie University of North Carolina at Charlotte

Keywords: case study, qualitative research, mixed methods, residential development, Charlotte

In-depth discussions of research methods are often omitted or greatly abbreviated in scholarly articles due to the space limitations of academic journals. Case studies are an effective vehicle for telling important stories that may have broader implications, but how is the research study made relevant, or generalizable, to other places or events? In this paper, I present a detailed discussion of the use of qualitative and quantitative analysis methods applied to enhance case study research. The story behind the development process and resulting built form of Windy Ridge, a relatively new subdivision in Charlotte, North Carolina that was dubbed a “Neighborhood Built to Fail”, presents a compelling story (see Sorensen et al. 2014). The plight of Windy Ridge also came into the spotlight of several national media outlets as a community destined to be “The Next Slum” (Atlantic Monthly 2008). The original case study followed the neighborhood’s development as aided by a city as growth-machine environment, the lapse of proper planning oversight, and the social and physical decay of a neighborhood aimed at first-time homeowners. The purpose of this paper is to demonstrate how the use of statistics, spatial analysis, and additional modes of qualitative inquiry moved the discussion beyond the dreaded “so what?” trap that can ensnare case study research, and into one validated by facts. Most importantly, these facts provided a deeper insight into the issues and questions raised by the observed phenomenon, which allowed for a more complete and accurate account of the experience. The use of mixed-methods research, or the combining of qualitative and quantitative data, is especially applicable in place-based studies of how people and space interact, and augments both approaches by lending credibility to words, and giving data a soul.
Examining Long Term Impacts of Short Term Service Learning Engagement

David Watts California Polytechnic State University: San Luis Obispo

keywords: short term, co-curricular international service learning

The demand for international service-learning opportunities by 2025 is expected to grow by over 250% to an estimated eight million students. This increase is of significance to landscape architecture programs as it is a pedagogical approach that exhibits the actualization of the NF learning style exhibited by a majority of our students (1). A study completed by Myers et al. in 2010 indicated that service-learning engagement had a positive impact on a design student’s overall development. Research has identified a range of expected outcomes associated with students who partake in a service-learning course. These include enhanced classroom engagement, professional skills development, ethical and moral development, and increased self-confidence (2,3).

Specifically, three types of outcomes have been associated with short-term service learning experience including explicit benefits, implicit insights, and future direction (4). The first is readily assessed through observation during the timeframe of the course experience. Explicit benefits can be assessed through observation during the timeframe of the course experience and referencing to the project goals and objectives established at the beginning of the course. The work product generated by the students provides tangible and immediate feedback. Less concrete evidence is generated during the internship experience itself to discern what if any, implicit insights and future direction outcomes are imparted to the students.

This preliminary study will afford insight into both of these outcome categories, by comparing two similar internships. It will examine the issue of timing within the student’s academic career, and whether a singular project is more impactful than the undertaking of multiple projects to affect future directions taken by the participants. Two groups of students participating in a co-curricular, short-term, international service learning internship in South Africa will be examined. The first internship was structured with a single project and the group was comprised of students entering their senior year. The second internship comprised multiple projects and was comprised of students entering their junior year.

Assessment measures will be twofold as answers to the internship reflection questions will be analyzed to assess the implicit insight outcomes, and their senior studio project selection will illuminate the future directions outcome. Students independently define their final design studio project. Preliminary findings indicate a strong corollary between participation in the service learning internship and the outcomes associated with implicit insights and future direction.
Longitudinal, Place-Based, Action Research: Lessons from WPLP and ESLARP

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Laura Lawson  Rutgers University
Brian Orland  Penn State University
Doug Johnston  SUNY Syracuse

**Keywords:** longitudinal research, action research, reflective practice, service-learning, community engagement, environmental justice

**Purpose:** To compare lessons learned from several decades-long, place-based, action-research projects

**Background:** Decades-long qualitative research projects are rare. The literature on longitudinal qualitative research projects in the social sciences (Holland et al, 2006) describes findings made possible by long-term investigation of a single community. This panel will explore implications of such projects for landscape architecture.

The West Philadelphia Landscape Project (WPLP) and the East St. Louis Action Research Project (ESLARP) were initiated in 1987, WPLP at University of Pennsylvania and ESLARP at University of Illinois. WPLP continues (based at MIT since 2000), as does ESLARP (but no longer with participation by landscape architecture faculty, and it was recently incorporated under the umbrella of Action Research Illinois).

**Methods:** Our method is primarily case-based and comparative (Flyvbjerg, 2001). WPLP and ESLARP have been in dialogue since the early 1990s and have similarities: both work in distressed urban areas and address issues of race, poverty, and disinvestment; both aim to build capacity in the local community; landscape projects and service learning have played a central role in both. There are also differences. WPLP has had a single director since 1987, while ESLARP has been led by interdisciplinary teams, changing over time. WPLP has addressed a consistent set of research questions over time, while ESLARP's research mission has shifted with changes in leadership. The role of service learning has been both similar and different: ESLARP has explored the means of empowerment and the effects of service learning, whereas WPLP employed service learning primarily as a method to advance research on urban nature and community design. A comparison also highlights lessons about the pros and cons of longitudinal place-based research.

We will enrich the comparison with two other longitudinal projects: the Orangi Pilot Project (OPP) in Karachi, Pakistan, and the Udzungwa National Park Project in Tanzania.

**Findings:** Anne Spirn will reflect on lessons from 27 years of WPLP and compare those with findings of the Orangi Pilot Project in Karachi, Pakistan, which afford remarkable similarities. Brian Orland will present lessons learned during the early years of ESLARP and how he is applying them to a long-term project in Tanzania. Laura Lawson will reflect on the recent history of ESLARP, especially in its contribution to research on service learning. Doug Johnston will comment on themes that emerge out of the comparison of these cases and will lead a discussion aimed at stimulating audience participation.
Lessons from the Field: Enhancing community engagement

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Lisa Bates Iowa State University
Susan Erickson Iowa State University

keywords: community engagement, interdisciplinary design, community design, rural communities, retail, university outreach

The Iowa Retail Initiative (IRI) was launched in 2013 and funded by Iowa State University as a boundary-spanning partnership to strengthen the accessibility, scope and impact of university outreach to Iowa’s rural communities. By forging new partnerships between the College of Design and College of Human Sciences, University Extension and Outreach, retail businesses, and business organizations, the university is able to more holistically serve retail-related needs of rural communities and small business owners.

While much of the scope of the work of the IRI addresses outreach to help communities and retailers improve business practices and develop retail-related skills, a critical element of the IRI is assisting rural communities with design-related concerns in the built environment. This paper focuses on one of these efforts; the Retail-Scapes interdisciplinary community design studio taught in the Spring 2014. Faculty from Landscape Architecture and Interior Design collaborated to teach this capstone studio that included a balance of students from the Landscape Architecture, Interior Design and Architecture programs.

Over the course of a sixteen-week semester, 24 students engaged with retailers, small business owners and community representatives from three towns in rural southwest Iowa to help these communities both establish a regional identity and come together in a collaborative way during this process. Given the variety of disciplines represented and students’ individual interests, the students’ projects ranged widely in scope and scale providing the client communities and business owners with a rich diversity of project visions. Today, the communities continue to work together with assistance from Iowa State University’s Community and Economic Development Extension Unit staff to implement the students’ visions.

Because most of the students’ previous studio experiences involved hypothetical clients with hypothetical issues, Retail-Scapes provided them with the unique, and often their first, experience of working directly with the client of their proposed designs. Students were required to address the real issues and challenges of their host communities, including programming their projects; this was another unique and first experience for most. As a result, Retail-Scapes proved to be a very rich experience for the students to actively engage with community business owners and residents. Understandably, there were a number of challenges and frustrations along the way. This presentation will discuss these as well as the many successes and lessons learned during this community engagement experience.
Practitioner Profiles: Civic lives, motivations and habits of practice

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Mallika Bose  Pennsylvania State University
Annalisa Raymer  Cornell University

keywords: community engagement, service-learning, praxis, narrative inquiry

This paper asks what can we learn from the practitioner profiles of community-engaged landscape architecture educators regarding their motivations and habits of practice. Further, what do they have to say about landscape architecture education and how it should best prepare students for lives of socially and community-engaged practice?

Socially relevant praxis and working collaboratively with community partners to create innovative solutions to societal problems lies at the core of much of the education and research agenda of community-engaged landscape architectural educators and scholars. They aspire to effect meaningful change in places and communities as well as in their students being prepared for lives in practice. Their lexicon of community design, placemaking, public interest design, and social activist design describes their approach and professional identities. Service-learning and civic engagement defines their pedagogy and participatory action research, placemaking and community-based research their methodologies (Angotti et al, 2011; Bose et al, 2014). They often seek work in places where environmental injustices, inequities and challenges proliferate and where design knowledge is needed but often beyond reach. They can be found in the post-industrial landscapes of Detroit and Cleveland, the disenfranchised neighborhoods of East St. Louis and Camden and the post-disaster landscapes of New Orleans, Haiti and New York City. Collectively, community-engaged educators and researchers are helping to emerge change in the professional roles, methods, and habits of practice of landscape architects. Their praxis resonates with civic and democratic professionalism, environmental justice and social change and is contributing to tangible visible changes in communities as well as to theory making around design and design education’s public value and purposes.

This paper presents the first phase of an ongoing qualitative research project using narrative inquiry to generate practitioner profiles of community-engaged landscape architecture academic professionals (Clandinin, 2007; Peters, 2010). Each practitioner profile is an edited transcript of a narrative interview or oral history illuminating the educator’s values, practices, experiences, challenges and roles. Collectively these profiles are meant to provoke and engender dialogue, analysis and interpretation as well as inspire others endeavoring on this type of work. They reveal differences and commonalities regarding such things as the normative positions these educators are assuming and the degree to which they reflect current educational and practice traditions in both higher education as well as in the profession of landscape architecture. The profiles and insights they convey have particular value to educators formulating community-engaged curricula and learning outcomes.
Community Partnership through Collaborative Outreach Research: Envisioning a multi-use intercity trail in North Texas

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keywords: Community Outreach Research, Multi-purpose Trails, Service Learning, Landscape Planning, Regional Planning, Greenways

It is typical of landscape architectural education models to offer community partnership projects through design studios. However, funded applied research in the form of community outreach beyond the studios must be a critical dimension of what universities have to offer in the future to provide alternative funding for programs/universities to support innovative research and graduate student education in the coming decade. Such community outreach research models are also believed to respond to concerns regarding the disconnect between theory and practice in the design and planning fields (LSA, 2014; Richards 2014; Ozdil 2012; CCSL, 2011; Butin edt., 2010; Hardin et.al., 2006).

The purpose of this research is to review the process and outcomes of a collaborative visioning process by the University Partnership for an intercity multi-use trail system in North Texas in order to discuss the value of community outreach projects through funded applied research. The study, commissioned by the North Central Texas Council of Governments (NCTCOG), is intended to determine the feasibility of a multi-use trail linking the Texas cities of Midlothian and Waxahachie. Such a system is believed to provide safe, alternative transportation options while contributing to healthy lifestyle choices, air quality, recreation, and greater cooperation between the two cities. Such a trail has been discussed by the two cities and Ellis County, and appears as a planned facility on NCTCOG’s regional Veloweb, the 10 county inter-connected 1,728 mile network of existing and planned off-street trails (NCTCOG-Veloweb, 2014; NCTCOG-Mobility, 2014).

This research follows analysis of existing conditions through the review of relevant research and literature, existing mapping, aerial photography and GIS data. Alternative trail system routings linking the two cities are identified and further studied through on-the-ground observation and photo documentation. Diagrammatic plans are prepared, with a summary of key opportunities and constraints relative to trail system feasibility. These findings are then reviewed by the client group, key stakeholders and community leaders, and the feedback is factored into identification of a recommended trail route. Concept-level plans and illustrations of the extent, features and character of the recommended route are prepared, as well as opinions on probable costs and short and long term implementation strategies (AASHTO, 2012). Final recommendations are provided in report and presentation form to the communities.

In conclusion, the presentation not only reviews the lessons learned from the processes and outcomes of the research but also discusses such community outreach models to accommodate both academic and professional interests.
How the 1960s Incite and Limit Collaborative Design Today

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keywords: Larry Halprin, Karl Linn, evolution of collaborative design

Larry Halprin and Karl Linn led landscape architecture into participatory design in the 1960s, requiring new skills in design and collaboration. This integration, in turn, required clearly articulated processes unique to their efforts which they produced as the RSVP Cycles (Halprin 1969) and Building Commons and Community (Linn 1968, 2008). Their methods formed the foundation for community design both inspiring and delimiting how younger participatory designers worked. Both Halprin and Linn incited radical change, but focused on different values and produced different results. Many of their methods are essential today; others have been advanced. New methods have evolved in response to recent social issues.

The purpose of this research is to develop methods appropriate for present democratic design challenges. Specifically the goal was to uncover what made these two approaches distinctive and what aspects of their processes and techniques are most useful today. The method included interviewing both men and reading books and articles through which they discussed their processes. Their methods were then compared to each other and to three published sets of more recent criteria for participatory design excellence (Hester 2001).

There were twelve factors that appeared in all three sets of criteria. These were used as a yardstick of comparison and evaluation. The criteria include: 1. Include the excluded, 2. Reverse environmental injustice, 3. Advance the state of the art in theory and practice, 4. Influence the outcome, 5. Deal with difference, 6. Engage the designer, 7. Integrate complex and oppositional thinking, 8. Make place regional, 9. Enhance place based community, 10. Change power structures, 11. Address ecosystem failures and loss of biodiversity, 12. Provide society alternative visions. As one example, the criteria to “include the excluded” distances Linn from Halprin. Linn sought out the marginal, poorest communities to improve poverty-stricken lives through community commons. Halprin often selected experts, leaders and power brokers for his workshops to increase creativity in his design process. Linn and Halprin were true to core values of participatory design, trading off one objective for another. Both advanced the state of the art but created widely varying design outcomes. Both articulated intentions outside the above criteria, and these will be highlighted. In cases where neither Halprin nor Linn addressed a criterion, a search of literature identified landscape architects who have more recently contributed advances in participation (Iacofano 2001). As a whole these comparisons provide a useful framework for learning participation skills most needed to do exemplary collaborative design today.
Engaged Pedagogy in Design Education: Faculty perceptions of community engagement in landscape architecture

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keywords: Community Engagement, Engaged Scholarship, Design Education

Colleges and universities have been linked to society since their inception. In recent times this linkage has come under scrutiny as society’s expectations of higher education have become more expansive and diverse. Over the past decade, there have been various shifts in pedagogy and scholarship in higher education, including the shift towards increased civic responsibility. One such shift is the role of universities and the communities they serve. This shift toward partnership and reciprocity is termed engagement. Community engagement has emerged as an important academic strategy used to enhance and complement traditional learning methods in higher education. According to the Campus Compact, the number of faculty members who include community engagement as part of their teaching, research, and service has increased (Campus Compact, 2012). While faculty are encouraged to incorporate community engagement into their work (Colby, Ehrlich, & Stephens, 2003), nominal research focuses on the perceptions of faculty members in landscape architecture on community engagement. This research explores the current state of community engagement within landscape architecture and identifies the benefits and barriers that foster or inhibit faculty from using community engagement as part of their teaching, research, and service.

The following research questions guided this study:

1) What are faculty attitudes towards and perceptions of community engagement in landscape architecture?
2) How does community engagement affect teaching, learning, and scholarship in landscape architecture education?
3) How do faculty in landscape architecture share their community engagement work?

This study employed a mixed methods research design. Two sequential phases were utilized. The first phase consisted of faculty responses to the Community Engagement in Landscape Architecture Education (CELAE), which consisted of 70 questions. The second phase consisted of in-depth interviews with faculty who self-selected to participate in the qualitative phase of the study. Descriptive and inferential statistics were used to analyze the quantitative data, and content analysis was used to analyze the qualitative data.

Findings indicate faculty members in landscape architecture believe that community engagement has a positive impact on student’s educational experiences, provides opportunities for research and scholarship. Faculty also reveal how faculty in landscape architecture define community engagement in regards to other terminology that is currently used in higher education to describe working with communities to solve problems. Findings from this study may be used to help landscape architecture faculty members design and develop efforts to help promote community engagement as part of their teaching research and service.
Educational Success through Civic Engagement: Transforming a dangerous by design street

Jason Walker Mississippi State University

Keywords: service learning, design pedagogy, complete streets

Currently, the design professions, allied organizations, and government entities are promoting complete street approaches to street design. This paper discusses how a service-learning studio summer camp (studio school) collaborated with a municipality to reimagine an urban street that was dangerous by design. Studio School’s primary objective is to engage underserved students to succeed in meeting the state’s curriculum framework and graduate high school. The summer camp’s goal was for the students to address math, language/arts, and science criteria while working on a hands-on design problem to improve traffic calming at a busy intersection. Historically, this segment of the study street functioned reasonably well due to its context being low-density residential. However, beginning in 2004 the area began a rapid transformation from residential land use to vertical mixed-use with high levels of activity. In just a few years, patrons frequented the restaurants and bars located on both sides of the street. From 2007-2012, five instances of a motor vehicle crashing into pedestrians occurred along this section of street. In the spring of 2012, following the last incident, the municipality approved creating a two-way stop with curb extensions as traffic calming measures. In conjunction with the city’s planned improvements, the studio school camp proposed a street mural as an additional traffic-calming measure. The street is on an economically, environmentally and culturally significant ridge that runs from downtown through the university, a distance of approximately 2.5 miles. This ridge, along with nearby springs, influenced the early settlers to establish a community. Prior to Anglo-Saxon settlement, this area was home to the Choctaw Indians. The students’ mural design references the places cultural history through the painted symbol that means “continual happiness through all stages of life”. The mural’s purpose was two-fold: aid in traffic calming and express a sense of joy that brightens up the intersection for passersby. The students’ implemented the mural in the summer of 2012 and helped turn a once dangerous street into a safe pedestrian destination without a single accident between cars and pedestrians reported. Furthermore, the studio school campers got excited about learning and embraced a hands-on, project focused learning environment. These students are capable, but perhaps they need a choice of educational venues and alternative pedagogies if they are to reach their utmost potential as learners. Likewise, being involved in a project that integrated civic engagement might encourage them to become active citizens in their neighborhoods.
El Norte Studios: Inciting change in a foreign land and in foreign students

Gabriel Diaz Montemayor University of Texas at Austin

keywords: applied design studios, collaborative studios, international studios

This paper reflects upon 3 different advanced design studio experiences in Northern Mexico in their strengths and weaknesses to incite change both locally and in students.

Landscape Architecture, as a discipline, is only taught by 2 undergraduate and 4 graduate programs in Mexico, a country of 118 million people. None of these programs are in Northern Mexico. “El Norte” (“The North” in English) is mostly arid and its culture towards the natural environment is defined by harsh environmental conditions. Fertile lands are limited and the idea of green is an imported idea where lawns still prevail.

In recent years, many Mexican cities have improved their urban planning institutions by decentralizing these from local governments. These new institutions have gradually updated urban plans and codes. These plans are guided by sustainability concepts which include a new importance and focus on ecology, open/public spaces, water management, urban risk assessment, and incentives for mixed use and public transportation. Some plans, like the Los Cabos Urban Plan, are even guided by ideas striving to achieve an urban structure based on natural systems. Also relevant is an interest to guide programs and public works towards “poverty perimeters”. This change has proven difficult to be locally accepted amongst the political class, developers, and builders. Many of the innovative proposals remain written in paper only, while the status quo of urbanization continues or waits to be exhausted.

Traditional professional practice continues to have architects working on Landscape Architecture projects. This is why some planning institutions are willing to partner with Landscape Architecture studios due to the lack of local professional expertise.

Three advanced design studios are used as case studies to map the repertoire of challenges found when working from the discipline of Landscape Architecture, with foreign students, in Northern Mexico. Students are confronted with a foreign professional system. In the cities of Nogales, San Jose del Cabo, and Chihuahua, students worked with contrasting social and environmental realities on the ground. Working from conceptual ideas framed in local urban plans, the students developed site specific projects intended to be both singular but prototypical. The projects are used both to promote initiatives but also to visualize design ideas.

This paper compiles and synthesizes these experiences and different levels of impact. It will be delivered back to local studio partners to help projects, by sharing failed and successful steps, on their way towards implementation.
A Service-Learning Partnership and a Participatory Process to Enhance Small Urban Spaces in Waco, Texas

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Scott Shafer  Texas A&M University
Monica Wyrem  Texas A&M University

keywords: service-learning, participatory process, design project, community development

Service-learning and participatory process are useful tools but there has been little research on actual outcomes. This paper examines the effectiveness of a service-learning project, a common strategy in community development, using Waco, TX as a case study. This project started with a need expressed by Waco’s Public Improvement District (PID). The PID wanted to consider ways to enhance public spaces to make the downtown more walkable and appealing. They reached out to the Department of Recreation, Park and Tourism Sciences (RPTS) at Texas A&M University.

In this study a participatory process addressed the needs of the PID and provided a learning process for students. At the initial stage, RPTS undergraduate and graduate students enrolled in a park planning and design course inventoried the downtown area. Following the first on-site visit, students discussed their ideas with guidance from the leadership team (graduate students and professors). A stakeholder meeting with approximately 40 representatives from different organizations in Waco’s downtown was held with undergraduate students acting as facilitators. Student teams took input and spent five weeks creating design concepts. At the end of the term a second stakeholder meeting was held where presentations were made. Stakeholder feedback and student evaluations were used to judge the value of this project.

Despite a relatively short period of time the service-learning project had value for both students and stakeholders. Potential redevelopment sites were identified and concepts were created. The PID has adopted and is implementing design ideas related to wayfinding from a previous service learning project and expects to implement change based on concepts developed for this project. Student feedback has clearly indicated a feeling of empowerment and importance in the process that has had positive educational outcomes. However, this project was a challenge for professors, students, and stakeholders in terms of identifying a level of appropriate detail in concepts. Students’ concepts typically conveyed broad ideas about changes to existing public spaces. The PID response was a desire for more detail and direction regarding recommended changes and a prioritization of ideas.

It is critical to clarify realistic goals among partners. Community stakeholders need to be aware of the role and capability of service learning activities. Products often have limitations in terms of useful detail but can effectively motivate communities toward action. On the other hand, educators need to balance educational goals with meeting stakeholder/community expectations.
Creating Community Ties via a Greenway Trail System

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**keywords**: Community Engagement, Greenway, Trails

Bullitt County has been growing for the last 20 years, unlike other rural counties in Kentucky. The growth is occurring in specific parts of the county due to limitations of natural and built characteristics. Despite its growth, formal public parks comprise less than 1% of the total land use and are located in three major urban areas within the county. Citizens travel to Bernheim Arboretum and Research Forest at the far southeastern end of the county or adjacent counties for recreational activities. A group of local citizens, concerned about unplanned community growth and lack of recreational opportunities, reached out for assistance with a long-term vision that could benefit the entire county. The county’s elected officials unanimously voted to fund a bike/hike route study in a county with little planning. In collaboration with community partners, this study sought to lay the groundwork for a greenway connecting regional assets in and around Bullitt County.

Greenways and trail systems provide various opportunities to users for different types of activities and can further increase connectivity for environmental, social and economic purposes (Ahern, 1995; Searns, 1995; Fábos, 2004). Greenway planning also provides opportunities for communities to plan ahead in the re-shaping of their built environments. However, coordination, collaboration, and cooperation between local agencies, organizations and community members can be challenging to implement greenways (Ryan et al., 2006).

The purpose of this research is to provide six potential bike/hike trail routes using different scenarios that the community members suggested that could be feasible for implementation. The study area and four focus points were defined and revised with the community. We gathered and analyzed data for community infrastructure and geographic features while utilizing GIS and the least-cost path model to identify the following routes: 1) following streams and ridge tops, 2) connecting most number of neighborhoods, 3) going through least number of parcels, 4) shortest route, 5) least maintenance cost, and 6) scenic route.

The computer generated trails fell within a two mile boundary in the study area. Trail placements varied widely in certain sections while some routes overlapped despite the range of landscape characteristics. Qualitative methods were employed to determine routes that further reflected community input and findings from onsite visits. Since the initiation of this project, there is heightened interest from individuals, community leaders, businesses, and corporations to establish connectivity, strengthen identity and enhance quality of life countywide, while moving forward with the project.
Our Changing Climate: Community partnerships for resilience

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keywords: climate change, community partnerships, resilience networks, social networking

The impacts of climate change are well known to the academics who study them. To the average individual, however, predicted environmental change can be difficult to grasp, especially when they are described through regional and global effects such as species loss, ice cap melts, seasonal temperature and weather changes, and sea level rise. There is a need to better understand the sometime-subtle, local, and everyday ways in which people are experiencing climate change, as these impacts are often uneven, disproportionately impacting socially and economically vulnerable populations. In particular, children and youth (and particularly youth of color and youth living in areas with high rates of poverty) are disproportionately impacted by climate change globally; these youths will inherit the issues associated with global environmental change and are often excluded from the dialogues and debates that shape their built environments. This paper presents the early phases of a multi-phase environmental design project aimed at addressing these issues through an intervention which will engage youth in exploration, documentation, and dialogue about the local effects and experiences of climate change.

Generously funded by the University of California Humanities Research Institute (UCHRI) and in collaboration with several San Francisco Bay Area community-based organizations, the project team seeks to engage community youth in the design and application of a digital community network entitled, ‘Our Changing Climate.’ The design of the network includes a combination of existing social media networks with which youth currently engage (ie: Facebook, Instagram, Twitter) to share user-generated narratives and images of local climate change impacts (such as flood events, stressed vegetation, and/or excessive heat) integrated with existing regional climate change data (such as anticipated sea level rise, temperature, and/or air quality change). The digital network will also host neighborhood-scaled, detailed landscape and architectural maps, illustrations, and renderings of anticipated impacts as a further platform for community discussion. Over time, the collection of community-generated images and narratives, alongside curated neighborhood-scaled maps, illustrations, and renderings will create a compelling testimony for the need for local action on resilient adaptation planning and policy.
The Vietnam Veterans Memorial App: Reflections on making the prototype

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Martha Hunt  Ball State University

keywords: immersive learning, community engagement, collaboration

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. This presentation will address 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. 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.
COR: Testing grounds

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keywords: public outreach, community engagement, city partnerships

In 2005, REBAR studio fed quarters into a lonely parking meter and turned an empty parking space into a small public park for the day. What started as a spatial statement about reclaiming urban space from cars grew into a permanent public place-making tool for cities across North America. In 2014, the Capital of North Carolina will have its first community parklet. Two parking spaces, about 225 square feet, will be transformed into a new landmark for the City of Raleigh (COR). The design for the parklet is a collaborative effort among faculty and students from the College of Design at North Carolina State University, the Urban Design Center in downtown Raleigh, DECO Raleigh and several local businesses. A five week seminar on construction, materials and methods evolved into a temporary, pop-up park for the City. Recycled materials from local construction companies, slated for the landfill, will be re-purposed into seats, planters, bike racks and art walls. The ground plane is a stage for music and entertainment, but also an infiltration system for stormwater run-off. Over the summer, the public attended several outdoor critiques of student drawings, models and full-scale mock-ups. Over 200 people responded to a survey requesting public input on the design. A unique and extremely exciting feature of the plan is to offer the opportunity for designers, artists, musicians, builders, food growers, landscapers and educators to apply to use, adapt, modify or supplement this space. Murals, gardens, classroom activities, sculpture, small inventions, are all part of the programming in the flexible space. The urban site will be monitored for one year by landscape architecture students as a public outreach project, encouraging intergenerational play. Research will be conducted by collecting data on how the site is being used and the effect it has on economic redevelopment.
Vicissitudes of Service-learning in Ecological Restoration Projects in the Southeastern US

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*keywords: service-learning, reflection, DEAL model, restoration*

Service-learning (S-L) is an important pedagogy that supports learning objectives in landscape architecture courses. Service-learning projects are guided by faculty who manage student interactions with stakeholders. Faculty and students perform a valuable service for the stakeholders, yet they may not fully reflect on the intersection of their activities and course objectives. How do faculty capitalize on these uncertainties and promote meaningful learning opportunities? A land grant institution in the southeast utilized a model to encourage rigorous student reflection. This model espouses the use of description, examination and “articulated learning” to encourage faculty and students to do more than simply reflect (see DEAL model, Ash and Clayton, 2004). In one example, over a dozen graduate students participated in a semester long, elective course that assisted stakeholders with off campus environmental restoration and enhancement opportunities. Projects included the enhancement of a shoreline, forest conversion to support endangered animal species and design alternatives for a bog restoration to repair habitat for threatened and endangered species. All of the projects included stakeholders and an end of the semester review juried by external professionals and licensed landscape architects. Students self-reported that the S-L experiences reinforced learning objectives, enhanced subject matter, improved presentation and writing skills, and increased their marketability in their profession. Additionally, their reflections indicated how they would apply their knowledge to new situations. Although working on real projects with stakeholders may be unpredictable, students reported that enhanced learning outweighed the vicissitudes associated with complexities stemming from applied projects. Implications of enhanced reflection activities indicate that faculty and stakeholders can help students learn their craft and escalate critical thinking skills on future projects.
Developing a Black History, Arts and Cultural Park in West Texas

Louis Mills  Texas Tech University

keywords: Black History, Museum, Art Park, Service Learning

Prior to 1970, East Lubbock, Texas was a thriving Black Community with diverse businesses, residents and public facilities. The Avenue A and 19th Street Intersection was a primary gateway to the City before construction of the Interstate 27. After 1970, construction began on this highway to Amarillo, and forever changed the neighborhood, eliminating major traffic into this sector. As in numerous communities across the country, this construction fragmented the community and has pushed economic decline which has not ceased.

Recently, Community Leaders have tried to conceive a project for the intersection to highlight the unique elements and provide a “gateway” to the city through the development of a cultural park/Black History Museum.

This service learning project started as an Urban Design Project at Texas Tech University with 4th year and graduate design students in Urban Landscape Design. The project was in coordination with the East End’s Community Group, the Roots Historic and Cultural Arts Foundation. The student and community group worked through the Fall Semester 2013 to develop site plans for the project site which comprised properties four acres in size and included a former Pharmacy Building. The object was to create site plan ideas that would include: a Black History Museum, section on Buffalo Soldiers stationed near Lubbock, and a park providing for unique art and sculpture displays. As a capstone project and new tourist destination area, it provides a means to upgrade the standing of the neighborhood. The community group met several times to determine how to implement these student designs. The students and professor responsible for the project met with this group and implemented their design objectives in the site plan. This input fostered a strong site plan and concept development.

The success of the project enabled The Roots Foundation to be awarded federal community development funds to construct the project and also garner significant outside private funding. In November 2014, the project is being bid on by the city and therefore will actualize the goals for the community group to celebrate their unique contributions to the area in terms of history, art and culture.

The design and community design process is an excellent case study on how a successful and unique neighborhood project is conceived, designed and implemented. The interaction of students and stakeholders would be a superb example how to affectively complete a local project and involve a service learning exercise that benefits the community.
Service Learning By Tapping into Virtual Studio

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keywords: service-learning, video conferencing, multi-institutional and cross-cultural collaboration

This study aims to examine the role of video conferencing technology in service-learning studio instruction and its benefits associated with enhancing community engagement in the process and students’ learning experience.

As opposed to the traditional master-apprentice studio model, service-learning studio promotes inquiry-based learning through the process of engagement and direct student-community interaction. However, the typical methods of student-community interactions used in studio instruction, such as interviewing residents and attending community meetings, are often arranged at the start or the end of a project leaving the time in between taught rather similar to a conventional studio class (Lawson 2005). To address the pedagogical issue and assure sustained engagement throughout the entire process, this study taps into the idea of virtual studio. The concept of virtual class/studio has been adopted to landscape architecture curriculum and its effectiveness has been proven in terms of barrier-free delivery of course material (Li and Murphy 2004) and cross-cultural learning (Hou, Kinoshita, and Ono 2005). In both cases, the online technology was used to deliver or exchange visual and textual materials as substitute of face-to-face interaction. However, the video conferencing technology used in this study, GoToMeeting, provides an effective interactive web interface for in-situ design activities, thus complements face-to-face interaction.

The studio project is multi-institutional and cross-cultural where students from the University of Georgia and Rutgers University collaborate with an African American community, New Communities, for an agricultural education center in Albany, GA. Based on participant observation, focus group interviews, and post-studio survey, this study evaluates the effectiveness of the technology in a service-learning studio in two specific areas: 1) increasing community participation and satisfaction of the final studio outcome, and 2) providing the students the complete experience of design-imaging, representing, and testing (Zeisel 1984) in which the students not only formulate design ideas and communicate them to the community partner but also engage in interactive testing of their design through on-line collaboration with the community partner.
The Meadow: Building a model for STEM outreach through landscape and art

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Linda Duke  Beach Museum of Art
Rhonda Janke  Kansas State University

keywords: native plants meadow, informal STEM learning, art-science connections, visual thinking, reflective dialogue

This paper presents reflective dialogue on the results and challenges of building a new, interdisciplinary university-community outreach model for informal science, technology, engineering, and math (STEM) learning. Against a backdrop of interest in how art may contribute to informal learning in STEM fields (Alvord and Friedlaender 2012), an accredited landscape architecture program has taken a lead role in building a new university STEM outreach model. The model, which uses visual thinking strategies (Housen 2002, Yenawine 1997) to coach university STEM researchers to communicate their work using concrete, sensory resources of a campus art museum and an adjacent designed meadow landscape, is in the early stages of implementation.

Proponents of engaged campus practices, Kecskes and Foster, note a clear distinction between engaged university projects that create contextual change and those that create structural change (2013). The Meadow outreach model has three major goals, two possible within the existing university context: to integrate arts and science inquiry for public gain; and to deepen campus and museum users’ awareness of the surrounding eco-region. A third goal requires structural change to the way the campus conceives of, implements, and maintains landscapes: to provide a thriving example of a low-water, low-chemical landscape on the college campus.

To date, the collaborative team of landscape architects, STEM researchers, artists, and museum professionals have planned and built a meadow of native plants, proto-typed an interpretive touch table display, and developed a series of visual thinking workshops to prepare university researchers to engage middle-school aged children in learning key STEM concepts. Underpinning this effort is a planning team composed of representatives from each sub-organization: the university’s museum, landscape architecture department, a variety of STEM departments, and university grounds maintenance staff.

The authors begin with background on the organizational structure and implementation to date of the Meadow outreach model. Second, following the tradition of “reflective dialogue” in participatory action research (Scott and Weeks 1998), the authors present findings from open-ended interviews with partners in each organizational sub-set (art museum, STEM faculty researchers, and campus grounds maintenance), compiled and analyzed using ethnographic methods. Last, the authors reflect upon challenges to the structural change needed to sustain a non-traditional campus landscape and chart the next steps for this collaborative project. If successful, this outreach model may be broadly replicable by other universities.
Eight Bridges Road: An interdisciplinary approach to critical service learning through design + build

Paul Russell  Clemson University  
Daniel Harding  Clemson University

keywords: design build service learning

In July of 2013 the South Carolina Botanical Garden (SCBG) received 9” of rain within a 4-hour period. Researchers estimated that rainfall equaled that of an approximate 878-year storm event. The SCBG experienced over $250,000 dollars of infrastructural, trail erosion, plant collection, and building damage. The most significant damage occurred along the Natural Heritage Trail, which had four of its primary access bridges along the trail destroyed by the excessive flooding.

With the charge to partner with the SCBG, its volunteers, administration, and community stakeholders, Clemson’s Community Research and Design Center engaged in a semester long research and design investigation on how best to rebuild eight pedestrian bridges along the SCBG Heritage Trail. Through then lens of an interdisciplinary service learning, design + build studio landscape architecture and architecture students embarked on a multi-scale approach to determine how best to design for equal storm events, including watershed management strategies, best construction practices and implementation in sensitive ecologies. Additionally, the studio experimented with public art installations, integrated way finding strategies, as well as community engagement as a means for bringing to surface issues of watershed health and management.

In Service Learning in Design and Planning, Agnotti, Doble, and Horrigan write, “Service learning shifts the site of learning from the classroom or studio to the community but involves much more than a change in venue. And they argue that, “situating academic activities in the community requires the development of committed academic-community partnerships, open communication, shared goals, reciprocity, and continuing reflection. Service learning can integrate a community’s needs to address a problem with the academic need to provide critical learning experiences. However, it must also create a new relationship between academic and community partners in which the contributions of both partners are understood and valued. (Agnotti, Doble, Horrigan pg.2,3 2011).

This paper is a case study approach investigating the analysis, conceptual design, construction documentation and design implementation of an interdisciplinary design build + service learning studio. Additionally, the paper will examine the community partnerships, open communication, and the ideas of reciprocity and reflection relative to the case study project as essential and critical components within the real of a critical service learning intervention.
Together We Design: Landscape architects offer their single best techniques for truly transactive form making

Randolph Hester  University of California Berkeley  
Jeffery Hou  University of Washington  
Diane Jones Allen  Morgan State University  
Laura Lawson  Rutgers University  
David de la Peña  University of California Berkeley

**keywords**: transactive design, techniques

This panel brings together accomplished participatory designers who teach and practice community design today to share the techniques they consider most effective in achieving truly collaborative form making with people. Each panelist will present, in detail, the one technique he or she thinks is most effective that enables the designer and the community to work together to create the actual design of landscapes. The focus is on the act of shared form making as opposed to listening, setting goals, developing a program or carrying out citizen science. Each panelist will present a brief paper describing his or her technique with step by step instructions of how it is prepared and carried out. The instructions should be precise enough for others to use the technique. Each technique will be accompanied by a case study that demonstrates the technique’s use and an evaluation of the strengths and weaknesses of the technique, contexts in which it is more and less useful, how it has evolved over time, and what each panelist learns from this technique compared to other techniques.

In spite of its increasing acceptance within democratic cultures, the methods of participatory design often remain so vague that others cannot reasonably replicate the process. The goals are so varied that a favorite technique in one case may be counterproductive in another. In recent CELA Conferences young activist scholars have been more articulate about their techniques and the context in which they are successful: there is now a critical mass of such work, but it has infrequently been brought together in a forum for critical discussion. This forum initiates what likely will result in a publication of a catalogue of best transactive design practices, precise descriptions of techniques and critical evaluation of each. Such a publication would significantly advance this field.

Presenter1 will present his “Work with what the participants have”; presenter2, her “Kitchen table work session”; presenter3, his “El Carrito: Go where the people are”; presenter4, her “Making, making, making a gravel road, a bench, a smart bus shelter”; and presenter5, his “Drawing upside down, drawing out the sacred”. Others will be asked to join the panel in a continuing effort to develop a catalogue of techniques.
Caught in a Crux? Lessons Learned from a Long-Term Service-Learning Partnership

Julie Stevens Iowa State University

keywords: Developing Partnerships Cruxes

In an article titled Meaningful Relationships: Cruxes of University-Community Partnerships for Sustainable and Happy Engagement, Trae Stewart and Megan Alrutz, use the metaphor of romantic relationships to review the ‘cruxes’ of service-learning partnerships. The cruxes remind us that there are key points in any relationship/partnership where we make choices about how we will participate and if/how we will move forward. This article outlines ten cruxes, or pivotal points, in a relationship that ultimately present ideas, tensions, and questions worth considering in university-community partnerships, specifically within service-learning models.

This presentation employs a project currently underway by the author: a partnership between the Department of Landscape Architecture at Iowa State University and the Iowa Correctional Institution for Women (ICIW) as a lens to critically review several of the cruxes defined by Stewart and Alrutz and defines additional cruxes NOT identified by Stewart and Alrutz. The author’s experience with these cruxes will provide valuable information to those managing or developing service-learning projects and community partnerships.

While the partnership being reviewed in this presentation did not experience all ten cruxes defined by Stewart and Alrutz, we have experienced some relationship highs and lows. For example, “Crux #4 Naming What You Need and Want” suggests, “It is important to engage in active efforts for each partner to understand the needs, strengths, goals, limitations, expertise, and self-interests of the other partners, and then design efforts to reflect those things, including clear expectations” (Roehlkepartain & Bailis, 2007). (Stewart and Alrutz)

Stewart and Alrutz encourage “both parties to name their bottom lines, even when it feels risky.” In some cases, the project goals and expectations are clearly defined, but how do partners name their needs and wants when a project is not clearly defined or continues to evolve as the partnership grows? We could not have anticipated the trajectory that our partnership would take and therefore were unprepared to ask for specific needs or wants at the onset of the project. At times this has led to frustration but we have learned to communicate our terms and expectations with each phase of the project thereby allowing the partnership and outcomes to advance and incite change with time and mutual trust.
Participatory Landscape Design and Community Based Participatory Research: A natural partnership

M’Lis Bartlett University of Michigan

keywords: participatory design, action research, teens and stewardship

This presentation describes the evolution and outcomes of a study that utilized a participatory design build project with youth as the platform for a participatory research project to examine collective efficacy of teens in terms of landscape stewardship. In addition it provides recommendations for others interested in collaborating with community partners via an action research process.

Action research, community based participatory research (CPBR), public scholarship, and engaged pedagogy have in common the concept of a shared process of study and action in which the researcher addresses an issue of interest to the community and the community is engaged in various parts of the research process (Israel et al. 2005, Fals-Borda 2001). As such, these research methods have much in common with participatory or community based design for changing landscapes. Participatory landscape design is a collaborative process of place-making that draws on expert and local knowledge empowering participants to act on local environmental issues of interest via understanding, critique, care and action (Hester 2006; Hayden 1995). The complimentary goals of participatory research and participatory design create a strong argument for using one to inform the other.

A CPBR study was facilitated in conjunction with a design build project at an urban Midwestern middle school. Framed as project to teach urban environmental education through gardening, the participatory design process became an evolving curriculum based on outcomes from the research study. At the same time, the research study, initially designed to explore increases in environmental knowledge through design evolved to explore the construction of collective efficacy for stewardship through participatory design. The collaborative partnership strengthened the respective partners’ project goals and research outcomes.

Survey results from the most recent project indicated that participating in the design process during the school year had minimal impact on the students’ sense of collective efficacy for landscape stewardship, and in some cases their sense efficaciousness decreased. However, it was found that experience specifically with construction and volunteer service in the community, strengthened students’ efficaciousness towards local landscape stewardship. Interviews following the summer design build project report students’ interest in future stewardship activities and reveal insightful reflections on how improving local landscapes may change how others perceive about their community. These findings suggest that it is important for youth not only to envision new spaces in their community, but that helping create, build and steward these places can help build a long term stewardship ethic.
Engaging Children in Haiti: Growing food on rooftops with recycled waste materials

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Christopher D. Ellis University of Maryland

keywords: Haiti; Rooftop Agriculture; Water Purification; re purposing waste; public health

To people who have yet to visit Haiti, the magnitude of the solid waste problem is difficult to describe. From mile to mile, street after street, piles of garbage along the roadside are strewn out from the city of Port au Prince to the outlying villages. Filling gutters canals, sidewalks, and streets, the landscape of waste presents a difficult public health problem for a developing country with very modest means.

At the same time, severe poverty means that access to diverse food sources is out of reach to most Haitians. One way to begin addressing this socio-environmental problem is to find productive uses for discarded objects to support local food production. Plastic water bottles, rubber tires, rice sacks and other waste items could be used to build structures that satisfy basic human needs such as the production of food and the purification of water. A team of designers, aid workers, and local school teachers are working together to implement rooftop agricultural production using these ubiquitous yet unwanted items. While removing objects from the waste stream, the design incorporates rubber tires, plastic bottles, rice sacks and other common waste materials locally available to construct vegetable planters using simple and easily understandable construction techniques that can be replicated and carried out by local residents.

The children at a local school in Saint Louis de norde are being taught how to build individualized planting structures and how to use them to grow vegetables for themselves and their families. Previous research demonstrated rooftop gardening in Haiti but the construction techniques used materials that must be purchased and required metal fabricating equipment that cannot be implemented by school children. Without a reliable funding source for materials and access to expertise and equipment, it is difficult for these systems to be adopted widely. The purpose of this study is to examine the effectiveness of teaching school children how to construct and individualize their own food growing containers using simple construction techniques that make use of materials that can be found discarded in vast piles along the side of the street. The goals are to achieve wide spread adoption of rooftop vegetable gardening, at no significant cost, while making use of unwanted materials.
SUSTAINABILITY
City Sink / Sync City: A multi-scalar approach to addressing waste water infrastructure

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keywords: public art, social practice, community engagement, waste water infrastructure, environmental awareness

Waste is an often over-looked component of urban environments, as the majority of infrastructure which manages it is designed to remove it quickly and invisibly. Despite the discomfort of waste as subject-matter and the invisibility of its infrastructure, most major U.S. cities can boast an infrastructure with thousands of miles of sewage piping and a capacity of hundreds of thousands of gallons of waste water managed daily. This paper discusses these urban systems and the waste they manage as the subject of public art, with a specific focus on the process of engaging communities in best management practices and greater environmental awareness. It traces significant examples of the practice in the United States, outlining key design components for engaging the public with the uncomfortable topic of waste materials and waste infrastructures, and explores the application of these techniques to a case study project in the City of San Jose, California. The case study utilizes public art and social practice to raise awareness of the city’s waste water infrastructure, in collaboration with San Jose’s Department of Transportation (DOT), Environmental Service Department (ESD), Public Art Projects (SJAP), and two pilot communities.

Through case study analysis, the authors identify three critical components to address successfully the multiple scales contributing to the physical, environmental, and social conditions impacting San Jose’s waste water infrastructure: 1. Integration and collaboration with not only ESD and DOT management, but also the maintenance crews, first responders, and dispatchers involved in maintaining the infrastructure; 2. Integration and collaboration with existing community groups to identify relevant neighborhood concerns and goals; 3. Production of a suite of multi-scalar art interventions to connect scales, locations, and audiences and not relying on a single public art piece. Thus the authors conclude that raising awareness of invisible urban systems requires fully integrating with both service providers and the community served, and employing a range of interventions at strategic locations.
Change Is of The Essence, Regenerating of Brownfields

Bahareh Bathaei
Mohammadreza Saadati Roudbardeh

keywords: sustainable urban conservation, landscape regeneration, green-space, brownfields, brick kilns

Tehran, capital city of Iran, has witnessed extensive industrial development since the last century. As numerous industrial sites have been established during this period. Due to the changes in production mode, many of these industrial sites have changed to abandoned zones. Although these sites once have been outside the city’s boundary, now most of them are surrounded by commercial and residential buildings and are laid inside the urban context. Today, these neglected sites are known as “industrial brown-fields” and have turned into one of the main challenges for Tehran’s urban management.

The brick kilns is located at the foot hills of Alborz mountains, south west of Tehran which have a great potential for increasing the green open spaces in the city. The regeneration strategies for these kilns are treated from the landscape architecture point of view. In this approach the main body of the site which has a rich collective memory for the local residents is kept without any transformation because of its visual values. The interventions are based on the physical and psychological environment. Development of this site has emerged as a core feature in strategies to regenerate urban areas. Bringing it back into use tends to be primarily a “good thing” that will have broader economic, environmental and social benefits. In order to achieve a sustainable development, natural, social and economic aspects should be appraised with the same care spent on aesthetic assessment. The project also contribute in many ways to personal and community quality of life, particularly in terms of enhancing scenic beauty and neighbourhood appeal, improving access to trails, recreation space and nature, boosting community pride, removing blight, improving physical fitness and raising property values.

This Paper tries to provide an insight towards the main principles of brown-fields regeneration. A site of brick kilns is chosen as a case study so that the resulting principles could be replicated. More specifically the goals are:

- Restore urban open spaces by regenerating urban potential of brown-fields on green spaces in particular, and brown-fields sustainable redevelopment in general;

- Recovering neglected spaces, such as brick kilns for achieving sustainable landscape and better quality of life for users and community residents;

- Improve social and environmental qualities in the urban landscape by identifying a functional role for the site; and

- Correlate functions and activities within the site for reusing previously developed plots of land with socio-economic and aesthetic advantages.
Urban river valleys and greeneries shaped in the environment around them have always been one of the most important natural elements which made possible the establishment of cities and also guarantied the development and sustainability of cities. These valuable resources, in addition to having quite distinct features from other natural resources of city, benefit from outstanding environmental, recreational and sportive features too.

Expansion and penetration of river valleys into the urban textures and therefore “availability” could be mentioned as of those most characteristics of urban river valleys.

Darabad river valley—one of Tehran’s northern river valleys- has high potentiality for improvement the urban open areas and recreational areas and is accountable in responding to ecological, recreational and sportive demands of citizens.

In this article, the standpoints of landscape planning and designing are reviewed using the previous experiences of urban planning and designing of those similar examples . Obtained results would be utilized for method of intervention in “Darabad” valley that are presented in forms of solution, strategies, limited scale projects as well as short term, medium term and long term planning programs.

since the urban river valleys and the green land formed around them have always been among those most important elements that links man, city and nature to each other as well as being considered as basic components in sustainable urban development; therefore the principal objective of present paper can be defined as an approach to achieve a method and/or mechanism for interventional interaction in river sides’ echo parks. Achieving this objective would bring sustainable environment development of cities and end up in an improvement in quality of life and satisfaction of citizens; In addition to providing a way for preservation of environment for future generations via sustainable landscape design.

Further subjects of achievements would be:

- Future of this place turns out to become friendlier regarding environment, sociality and economically.

- Improvement in mutual interaction between users and valley, between city and nature, in terms of environment, recreation and culture.
Signature Projects and Health Promotion: Meeting the goals for physical activity

Jane Futrell Winslow University of Texas at Austin

keywords: green infrastructure, physical activity, sustainable design, health promotion

Significant or ‘signature’ projects exemplify innovative and creative design solutions responsive to urban conditions through best practices for sustainable design. The incorporation of green infrastructure in these complex aggregated, performative landscapes is being promoted as a guiding principle with multiple benefits, including ecological and human health. Through a comparative case study of two New Urbanist mixed-use infill projects, this paper explores the opportunities and challenges for implementing strategies and best practices to promote human physical activity, and the potential for such projects to act as catalysts to affect change citywide.

The New Urbanist mixed-use projects occupy former municipal and military aviation facilities - the Robert Mueller Municipal Airport in Austin, Texas and the Lowry Air Force Base in Denver, Colorado. While New Urbanist communities have been promoted as planning and design solutions for many of our most pressing health problems including physical inactivity and poor diet, critics contend that planning and design guidelines are overly stringent, excessively form based and overlook ecological planning concerns.

The study employed qualitative methods at both the municipal and project scale. A content analysis of comprehensive and functional master plans was conducted for green infrastructure, parks and transportation elements in each city. Data collected were evaluated to assess the interrelationship of green infrastructure and physical activity within and across plans at the municipal scale. Findings were then analyzed for consistency with project specific design guidelines and master plans to identify opportunities and challenges within existing normative frameworks of policy, disciplinary boundaries and urban form. Semi-structured interviews were conducted with municipal planners, landscape architects and project development personnel to understand the positive associations as well as challenges encountered in the planning process and design approvals for the projects.

Findings suggest strategies for incorporating physical activity have been implemented within each project, although green infrastructure supporting such activity inconsistently reflects best practices. Translating scale from municipal policy to project implementation presented multiple challenges, including regulatory agency resistance to innovative stormwater management solutions. Connectivity from each project to other city destinations appeared incomplete, suggesting that aggregating infrastructure citywide faces substantial challenges.
Rethinking the Ravine, Jacmel, Haiti: Examining inclusionary infrastructure planning strategies

Diane Jones Allen Louisiana State University

keywords: infrastructure, inclusionary, context sensitive, sustainable

Jacmel, Haiti, the major city in the South East Department was devastated by the earthquake, of January 12, 2010. Not only were lives lost, but Jacmel lost infrastructure, including roads, entire neighborhood districts and water systems. The district suffering the greatest damage was the Du Centre-Ville Historique de Jacmel. This district is defined on its eastern edge by a ravine, a 40-foot deep, wooded drainage channel that serves as the case study site for this research. The ravine drains much of the historic market and district, directly into an outlet adjacent to the port on the east, leading to the public beach on the west. Historically this beach has attracted visitors and locals because of its clear waters and wide sandy edges against a dense urban framework. A problem caused by the international and NGO driven earthquake recovery effort was the disposal of thousands of cubic yards of non-degradable plastics and other materials that avalanched into the ravine. Rain surges in Haiti cause periodic washout of this material onto the premier public beach and into the Caribbean Sea. The result has been a catastrophic collection of debris in a City without a recognized public landfill. Renovation of the beach area has ignored and not addressed this problem, as new promenades of tile and landscaping are installed beside a garbage strewn shoreline.

The point of this research is not centered on the obvious ecological and technical solution of building a sustainable water filtering system, which can be done, but is centered on the development of an inclusionary approach to such a system, allowing the citizens of Jacmel to fully own and embrace restoration of the ravine. The people advising the national government on tourism strategies ignored the ravine and its impacts in the rebuild. Those most affected were left out of this planning. In the case of the earthquake in Haiti, many depended on unreliable infrastructure systems design and planned by others. This research proposes new strategies for local engagement in recovery and infrastructure rebuild efforts. This work will put forth an inclusionary, holistic, context sensitive approach framed around social and environmental justice principals. Some of the methods will include developing a familiarity with the complexity of the community, developing a conscious partnership, and fostering an exchange of knowledge. My research will center on a culturally specific context, using locally directed strategies to transform place in sustainable, imaginative, and compelling ways.
Finding Recombinant Urban Corollaries for Regional Ecological Communities

David Hopman University of Texas at Arlington

keywords: urban nature, native plants, ecological retention

The purpose of this presentation is to explain the rationale, methodology, and preliminary results of an ongoing research effort to find aesthetically qualified native plants communities suitable for ecological retention structures in North Texas. The goal of the research is to find native recombinant (freely recombining) communities suitable for a variety of urban conditions. The methodology of the study is proposed as a way to determine a plant palette that is a middle ground—suitable for metropolitan development typically designed by landscape architects—that provides some of the ecological and environmental benefits of native prairies in the Midwest while also addressing aesthetic requirements.

An example of the methodology applied to retention structures began with a list of 760 plant species compiled over a 30 year period by the Botanical Research Institute of Texas (BRIT). The first phase of qualifying the list for use in the study began with two assumptions. First, only perennial plants were selected to make the communities more resilient in the small patches typically found in urbanizing areas. Second, only plants native to the Dallas/Fort Worth area were selected in order to add the important component of ecological services to the environmental services that are usually the priority in ecological retention structures. The second phase of selection applied over 50 criteria to the remaining plants to gauge their suitability for development. 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 communities. Criteria such as texture, line, form, and height in these carefully selected communities form pleasing season long combinations without the need for regular maintenance and separation into zones of carefully controlled monocultures. The first test community was installed in the summer of 2014 in a 2,000 sf. ecological retention structure created for an ongoing research project directed by Dr. Fouad Jaber of Texas A&M University. The North Dallas structure is testing the viability of the species selected, their horticultural and aesthetic compatibility, and their effect on water quality measured against several years of baseline data for the structure. The baseline testing was done with sand and compost in the structure but very few plants. Inflow, outflow and soil water volumes are continuously monitored to estimate volume reductions as well as loads now that the plants have been installed.
The Journey of Water on a Chessboard

Dietmar Straub University of Manitoba

keywords: Urban and Rural Area, Industrial Farming, Water Retention, Water Purification, Fertile Lands

Almost all projects in landscape architecture and urban design involve storm water and the application of a wide range of different strategies, methods and techniques of managing it. One of the lessons the author has learned in more than 20 years ‘practicing with water’: treat this precious resource well right on place! This journey with water begins in the prairies. Water retention and water purification have a key role.

Manitoba is famous for its wheat, its water and its horizon. Fertile soils and thousands of creeks, rivers and lakes in seemingly endless plains are sources of food and energy and thus also a mainspring of the economy in this Canadian province. Today we reap the hugely negative long-term environmental impacts caused by industrial farming. Lake Winnipeg is listed among the most eutrophic lakes in the world and Winnipeg, a city in the midst of the Red River Lowland, is a particularly wet place with annual periodic flood issues. Knowing the history of the conversion of wet prairie into industrial farmland makes one understand ecological consequences on a large scale.

Designing with the wet in the prairie describes a specific research interest which embraces the entire urban and rural area without regard for municipal boundaries. Topics of discussion and investigation are: The role of landscape architecture when dealing with industrial farming and watersheds; drainage systems and environmental history; agriculture and deforestation; ecology and economy; plug and prairie; private and common; and chessboards and topography. A series of design studios taught by the author focused on these water issues. The studio journey always started at the Red River, continued along the Rat River and led step by step into the finest branches of the prairie vessel system. The watershed of the Rat River became a research laboratory for retention and purification prototypes. The illustrations in this presentation create access to inspiring and engaging examples of landscape design in the prairie highlighting the value of good design in creating and sustaining vibrant landscapes.

The fertile lands in southern Manitoba are both a blessing and a curse. Treating ‘water well right on place’ means for a city like Winnipeg to consider agricultural land not only for food production - certainly a sensitive topic since farmers have a strong lobby in Manitoba. Nevertheless the environmental impacts crying out to finding acceptable solutions on the issues and landscape architects can play a key role in this.
Potential of Community Gardens for Sustainable Urban Development in Izmir, Turkey

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keywords: sustainable urban development, community gardens, urban agriculture, developing countries

Community gardening is an accepted urban agriculture activity in many countries in the world and recently, community gardens are the most frequent examples of urban agriculture in Turkey as well. The purpose of this graduate thesis study is to evaluate the use of community gardens as a tool for sustainable urban development in the Izmir metropolitan area which has social, economic and environmental issues due to rapid and unplanned urbanization. The potential of existing community gardens in Izmir metropolitan region were investigated in the concept of “urban agriculture” with two case study sites in Bornova and Buca.

In this graduate thesis study, more than one research method was used to illustrate the potential of community gardens for sustainable urban development in Izmir. This mixed method approach includes historical research, interviews, and diagramming. Two community gardens in Bornova and Buca districts in Izmir, Turkey are chosen as case studies. Both districts are more attractive to the communities that are keen on gardening activities in Izmir. Both districts are highly populated areas within Izmir, and have different demographic characteristics and support organizations. This perspective provides the designation of different user types of community gardens in Izmir. Observation of these sites and users (the gardeners) is part of the research method, as well as a standard survey and open discussion.

According to the findings in this research, Bornova and Buca community gardens were evaluated as case study sites considering that both community gardens have different physical and social characteristics to provide some solutions for rapid urbanization issues of Izmir. The data that was collected form observations and interviews on the sites was used to determine two different typologies. Typologies of the community gardens were considered for new establishments of community gardens in different districts of Izmir metropolitan area at the local and regional scale. These typologies were illustrated to address the hypothesis, the use of community gardens as a tool for sustainable urban development may have a potential to relieve social, economic and environmental issues due to rapid and unplanned urbanization in the Izmir Metropolitan Area.
PLANTING HOPE _ Meeting Canopy Targets

Anna Thurmayr University of Manitoba

keywords: Canopy Targets, Tree Protection, Public education on tree planting on private property, Better nursery stock, Qualified personal trained and experienced in taking care of trees, heritage and future, Open space master planning

Winnipeg in Manitoba is a city full of trees. You find trees in streets or boulevards, riparian forests alongside rivers, trees in parks and urban forests. Trees create and give shape, provide shelter and discretion. They function as ‘air condition’ for a city, its buildings and inhabitants. In summer trees provide shade and in winter sufficient light and protection from cold winds. Viewed from the airplane Winnipeg looks like a city in a park. With a total of 8 million there are more trees than inhabitants. The dominant tree species is the elm (Ulmus americana). Planted almost a century ago many of them are nearing the end of their life cycle. Furthermore Dutch Elm Disease endangers their continued existence more and more. One does not want to imagine Winnipeg without those magnificent trees, so what to do before too late?

Trees have become part of political news in North American cities. Toronto has set an ambitious goal to increase the tree canopy coverage from 28 per cent up to 40 per cent by 2057. In Chicago, the current major pledged to increase tree planting by 30 per cent. In Sacramento, California, residents get free shade trees if they approve to plant and maintain them in the proposed locations. What can be learnt from these examples?

Planting trees is the most creative measure to overcome the dilemma but meeting canopy targets involves more than political promises. It includes the preservation of existing trees, the public education on tree planting on private property, better nursery stock, suitably qualified personnel trained and experienced in taking care of trees, and most of all a holistic vision of where to plant and how to provide soil and space. It is important to engage as landscape architects in this urban design discussion otherwise it is left to local initiatives or arborists. This presentation showcases Winnipeg as a city of trees and sketches out possibilities to confront tree loss due to age, disease, absent protection or failed planting concepts. Quantitative findings are supplemented by qualitative case studies and linked in order to discuss the burning issue from the professional perspective of landscape architecture. Historic and recent open space master plans will be at the heart of the investigation.
Activating Energy Capacity of Vacant Urban Land

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keywords: vacant, vacancy, energy, capacity, power, sustainable, St. Louis

St. Louis has an incredible resource at its disposal - acres of publically owned vacant land, around 10,000 parcels. Vacancy tends to be seen as a challenge to city continuity and a sign of failing urban development. However, St. Louis and the larger mid-west region is highly conducive to plant, solar and wind-based energy systems. This forms an opportunity to rethink the form of the city based on an energy-driven approach to urbanism and to challenge the current, limited framework of development traditionally associated with economies brought by new building infill and increased employment. Our work attempts to re-frame vacant land in terms of possible energy capacities and expand the term “land value” so that natural resources, environmental quality, social sustainability, livability, spatial and aesthetic concerns are included, if not made primary, over speculative revenue-generating potentials alone.

The urban geography is currently described by segregated energy production and distribution. In St. Louis, 81% of the city’s power comes from coal. 97% of this coal is transported into the city from the Powder River basin in Wyoming – over 1000 miles away. This basin extracts 80 unit trains per day of coal to power plants all over the United States. Each unit train contains 100 train cars, meaning 8000 train cars leave here per day. Each train car carries 100 tons of coal which produces only 20 minutes of fuel for a city like St. Louis. The St. Louis power company Ameren spends 650 million dollars every year to bring St. Louis’ coal in on the trains. The city consumes 40 million tons of coal per year. This creates a fragmented landscape of charged and unequal zones dependent on a polluting and limited resource. As in most American cities, there exists in St. Louis an unsustainable dependence on this costly, environmentally destructive power source.

Our approach reads the land as a generator of energy and measures potential value of using vacant land for renewable energy as a new revenue stream for the city. We propose a new type of urbanism that ‘gives back’ in multiple ways to the deurbanizing communities around it and is replicable at multiple scales, from parcel to neighborhood, city and regional. Our intent is to redefine perceptions of vacancy as a resource of flexible pockets that have capacity to accommodate and stimulate a new, scalable form of urbanism based on an energy-driven approach.
Integrating SITES V2 Into Design Studio Curriculum

Melinda Appold Purdue University

keywords: SITES, LEED, Suitability, Sustainable Sites Initiative V2, Landscape Architecture, Teaching Curriculum

Sustainable Sites Initiative (SITES) V2, has recently been released with improvements that position it to make a dramatic difference in the practice of landscape architecture. Accordingly, educators must now consider the most effective way to integrate the principles, practices and prerequisites of SITES into the vocabulary of landscape architecture students.

Being LEED certified is almost a requirement now if one plans to practice sustainable landscape architecture. Young professionals coming out of school will be at a disadvantage if they do not have experience navigating this initiative.

SITES’ point system unavoidably standardizes design to some extent, so the inevitable question then arises: How do we give our students opportunities to gain experience with the SITES document without curbing their creativity?

Considering the best way to integrate SITES into the curriculum, our LA department decided to begin with the junior design studio. We began by introducing selected sections of SITES into the semester-long design studio, with specific sections selected based on the particular focus of that studio. The students completed their designs and then took the final two weeks of the semester to update their final product based on the SITES prerequisites and credits. The students gained insight into SITES and an understanding of how the document can be incorporated from the beginning.

The SITES document is changing the practice of landscape architecture. Love it or loathe it, it has taken a hold in the landscape architecture industry. Is your program providing your students with tools to stay equipped with this sustainable initiative? Join us for an examination and discussion of the application that SITES offers in the pedagogy of landscape architecture.
Alternative Energy Scenarios: Planning opportunities for Western US

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Betsy Byrne Envision Utah

keywords: Distributed renewable energy generation, wind power, solar power, sustainable planning, Cedar City UT

As the world’s population rises and becomes increasingly more urbanized, there is a greater demand on our resources. Current energy production practices are based on resources with finite supplies and are associated with environmental impacts such as greenhouse gas and particulate emissions, water resource use, and resource extraction. In contrast, renewable energy production is based on free, continually replenished sources with relatively few environmental impacts. Distributed renewable energy generation involves producing energy close to the point of consumption. The distributed generation model increases energy autonomy at the local level. Distributed renewable energy generation is fairly common at point of use. However, it is not common at the community scale, at least here in the U.S. Communities that wish to pursue local energy generation as a strategy to increase energy autonomy may not be aware of what resources they have at hand either in the form of renewable energy sources or in terms of available land for energy production, nor an understanding of how much of their energy consumption could be met by locally produced energy.

This study explores the potential for local solar and wind energy generation on publicly owned land in Cedar City. To organize the analysis, the three basic targets of energy production goals were established: generate twenty-five, fifty and one-hundred percent of the current electricity consumption of Cedar City. The available public land was analyzed at two scales: within the municipal boundary and within 8 kilometers of the town boundary. Six scenarios were developed to represent different amounts of land given over to energy production, and the amount of energy produced by each scenario was calculated. Within town, the opportunities for energy generation were fairly limited, though some strategies, such as installing solar panels at the point of use, would have value. In contrast, by expanding the scope to include an additional eight kilometers around the city, parcels of land were included for energy generation that would make a significant impact on the annual energy consumption of the city. This study highlights the need for planners and landscape architects at the city level who can take an active role in energy planning by identifying resources, evaluating alternatives, and make strategic decisions on land and resource use.
URBAN DESIGN
Parking Retrofits within Historic City Centers and the Potential Effects on Their Walkability: A comparison of San Luis Obispo and Davis, CA

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keywords: parking retrofits, historic cities, walkability

Automobile parking in city centers can have a positive or negative impact on walkability, depending on the approaches used. Impacts appear especially relevant in historic places that have a well-established walkable public realm that persists from a pre-automobile era. This research focuses on two questions: 1) What approaches to parking retrofits have been undertaken within two historic, walkable cities in California? 2) How have these approaches impacted walkability within these cities?

Walkability is generally associated with streets that have a human scale, a sense of enclosure, and buildings that have minimal setbacks from sidewalks, affording an energized environment for pedestrians (Muzzi, 2003). Parking along the street, while causing some vehicular congestion, is seen as having a positive effect on walkability in that cars serve as buffers between people and traffic (Marshall et al., 2008). Surface parking lots are generally seen as detrimental due to increased curb cuts that break pedestrian flow. However, surface parking can vary; some lots are tucked inconspicuously behind buildings that line the sidewalk, preserving most of the qualities that create a walkable street. Other surface parking is placed between the building and the sidewalk, disrupting these walkable qualities. Parking garages are seen as another possible positive solution in city center parking retrofits, depending on the approach. If the first floor of a multi-floor parking structure contains retail and commercial spaces abutting the sidewalk, a walkable environment is preserved. Parking garages with parking on the first floor can create unattractive and unusable zones for walkers (Shoup, 2011, Muzzi, 2003).

All of these parking approaches are present to some degree in the cities of San Luis Obispo and Davis, two small college towns in California known for their compact, walkable downtowns. Ten blocks from the central core of each city were evaluated based on types and quantity of parking available. Comparisons assessing the extent of walkable qualities present were made using a scoring instrument that measures urban design qualities related to walkability (Ewing and Handy 2009). Overall, San Luis Obispo appeared to have a higher quality of walkability than Davis, most likely due to this city’s predominant placement of surface parking behind buildings that line the street and use of a parking garage that incorporates street level commercial property. Discussion of specific variable results between the two sites will be presented.
Investigating Commercial Pedestrian Spaces Based on Form-based Codes

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keywords: form-base code, pedestrian spaces, design elements

A form-based code is a regulation generated through controlling physical form of buildings and spaces, which is different from traditional zoning plan that is functional oriented. Form-based codes have been viewed as effective tools for smart growth strategies, responding to the urban sprawl problems raised due to conventional zoning guidelines. Recently, form-based codes have become widely used in North America, with rapid increasing adoptions by different communities since 2003. Considering its popularity, it is essential to know the working mechanism and applicability of a form-based code. In this study, we use eight key elements selected from general form-based code to investigate commercial pedestrian spaces at Yorkville in Toronto, Canada. These eight parameters include: continuity of building façade, distance between buildings and sidewalks, ratio of building height to the width of a street, parking arrangements, open spaces, welcome entrances, attractive windows, and street plantings. Specifically, we use these eight parameters to investigate and analyze the degree of matching between the elements used in Yorkville pedestrian spaces and those required by the general form-based code.

Yorkville is a popular shopping district in Toronto, Canada, with an area of around 2,000,000 square feet. Most streets in Yorkville are consisted of two lanes for general traffic; however, they are highly walkable and encourage pedestrian experience.

Buildings are one to three stories, serving as shopping stores, restaurants, hotels, etc. Besides the study of those eight parameters, a user-generated photography based analysis is employed to identify the characteristics that attract visitors. By searching photos posted by visitors on Flickr website representing positive street experience, approximately 3,000 photos, we are able to observe and analyze the elements perceived in those pedestrian streets. The results of this study characterize the features of popular pedestrian spaces that match those in the general form-based code. In addition, we identify the elements that are required by the form-based code but are not evident in the photo pool, and the elements suggested by visitor’s photos but are not mentioned in the form-based code. These mismatches also suggest several possible improvements over the current form-based code.
City vs. Suburbs: A comparison of public greenspace availability at differing residential densities

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keywords: Parks, play, greenspace, density, active living

Purpose: Recent demographic trends suggest that people are choosing to live closer to the center of cities at higher densities. There is debate as to whether this trend will continue. Skeptics believe that suburbs will remain the destination of choice as Millennials start families. One reason cited for this is the lack of places for children to play outside in dense areas. The purpose of this study was to inform the debate with empirical evidence on actual differences between the availability of public green spaces in places with differing densities.

Background: The study used the adjacent Maryland counties of Prince George’s and Montgomery, with a 2010 combined population of over 1.8 million people. Census tract densities range from less than 100 to over 40,000 people per square mile. A GIS inventory of park and open space lands was used to compare the availability of green space and park amenities within proximity to locations with high, medium, and low densities.

Methods: For each county, GIS was used to locate the centroids of (1) the ten census tracts with the highest density; (2) the tract with the median density and the five tracts closest in density above and below it; and (3) the ten tracts with the lowest density. The following was determined for a 1/3 mile buffer around each centroid: number of greenspace locations, size of greenspace tracts, total acres of greenspace, and distance to the nearest greenspace. In addition, the occurrence of specific amenities such as playgrounds, picnic shelters and sports fields within each buffer was tabulated.

Findings: Centroids in tracts with the highest density averaged more greenspace locations and shorter distances to the nearest greenspace than centroids in tracts at the other densities. High density centroids were also more likely to have a playground within their buffer. However, high density centroids had lower total acres of greenspace, and were less likely to have sports fields.

Importance: People living in high density locations were more likely to have public greenspace within walking distance of home than others. They also have an equal or better chance of having a playground nearby, and the nearest greenspace is likely to be closer to home. However, the lack of large tracts and the presence of fewer total amenities may contribute to the general sense that dense areas lack opportunities for outdoor play. These findings illuminate the reality of urban vs suburban living conditions.
Urban Design and Health Equity

Kristine Miller University of Minnesota

keywords: urban design, equity, social justice, health

Purpose and Background: The purpose of this study is to examine the potential of health as a lens for understanding the role of design in creating more equitable cities. Design is a way of representing ideas and information, imagining futures, and transforming systems and places. Practitioners of urban design, landscape architecture, architecture, and planning shape our public decision-making processes and direct physical change in the built environment. Throughout history, these changes have often led to cities that are stratified by race and class, which has disproportionately created negative impacts on residents of low-income and communities of color. As professionals legally bound to serve the public good, landscape architects and urban designers must find ways to transform their disciplines and practices so that the benefits and costs of their work are fairly distributed.

Methods and Findings: This paper is part of a larger qualitative study that examines the relationships between the concept of equity and the practice of environmental design in cities. Equity is as a lens for understanding the relationships among design, diversity, and social justice — a way of understanding why negative impacts occur and how we can do better. Equity is an ethical principle — it is a position on what is good and right. Equity can be defined as “fair and just access for all”. To quote health equity researchers Braveman, and Gruskin:

“… equity…is the absence of systematic disparities…between groups with different levels of underlying social advantage/disadvantage—that is, wealth, power, or prestige. Inequities…put groups of people who are already socially disadvantaged (for example, by virtue of being poor, female, and/or members of a disenfranchised racial, ethnic, or religious group) at further disadvantage…”

Equity research and scholarship is generally tied to different disciplines for example health, transportation, and education. Each equity field points to ways in which the design of cities directly impacts people’s ability to access resources and opportunities and also points to ways that the skills, knowledge, and values of landscape architects can help build more equitable systems and places.

While this study is ongoing, early findings based on a case-study analysis of the health impact assessment of the Green Line in Minneapolis and St. Paul Minnesota, show that the comprehensive definition of health provided by health equity researchers may provide means for evaluating proposed projects and for re-imagining the discipline and practice of urban design.
Long and Narrow: City Walk Providence

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Tanya Kelley L+A Landscape Architecture

keywords: long and narrow, City Walk, Providence, urban design, bicycle trail, pedestrian path, equity

This paper is a case-study of the ongoing public process and strategic design of City Walk Providence. The case-study will outline the history, urban strategies, and spatial principles of the project from initial conceptualization in 2006 as the East-West Greenway to its recent incorporation into the Providence Comprehensive Plan and the 195 Commission Plan as City Walk Providence - an eight-mile-long linear sequence of urban landscape spaces that provides more equitable access to new urban assets along the Providence waterfront.

The genesis of the project was an alliance among a private foundation, a neighborhood association, and design professionals to investigate a lateral connection between Upper South Providence (which had been severed from waterfront access by the construction of Interstate Highway 95 in the 1960s) and the new development along the Providence River and the area opened up by the relocation of Interstate Highway 195 in 2013. This initial one-mile-long plan has expanded to a proposed “long and narrow” eight-mile-long project as additional constituents and objectives were identified through community workshops and outreach to elected officials, transportation advocates, cultural institutions, and neighborhood associations.

The plan for City Walk Providence, which was established in a report issued in November 2014, now connects two important public parks in Providence: H.W.S. Cleveland’s masterful late 19C Roger Williams Park and Albert Veri’s mid-20C century India Point Park. Along its route, City Walk Providence connects eight different Providence neighborhoods of varied economic, historic, and topographic characteristics and incites change in the mobility patterns of the city in order to address economic disenfranchisement and spatial isolation.
Sustainable Urban Design Strategies for Historical Urban Landscapes: Case study of Iznik City (Turkey)

Canan Cengiz Bartin University
Bülen Cengiz Bartin University

Keywords: Historical urban landscape, urban design, Iznik City, urban sustainability

Historical cities are the cultural sites which carry the traces of the features of the former civilizations including social and economic structure, life philosophy, architectural style, mind of settlement and aesthetic sensitivity. In choosing a land for these cities; geographical location, social events and natural structures were determinant factors and different urban planning models have been emerged. Within the context of preservation and continuity require the physical characteristics of historical environments to be more longevous than their functions to be revitalized according to the present and future conditions depending upon the technological developments, urban identify and the changing needs of the society.

In this paper, Iznik City (Bursa, Turkey) which is very significant center for religion tourism is investigated in terms of urban design of its historical structure. In this study, natural and cultural strategically factors that play a leading role in forming settlement texture in the city were presented. Also reflections of different civilizations hosting the city throughout the history and effects of changing social structure to the development of the city were studied. For this purpose, it is intended to determine the problems and conservation measures needed to be taken and practices to be done within the context of preservation-continuity-improvement balance. Finally, urban design strategies for historical urban structure of Iznik City are proposed related to preservation, improvement, revitalization and tourism.
Legible Space: Narrating new everyday public landscapes

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keywords: landscape narrative, public space, everyday, legible spaces

This paper examines contemporary practices in the production and use of public space and considers the implication for future design and public policy. Beginning with an understanding that place making is a fundamental practice focused on assigning meaning and use to the spaces around us, this paper establishes a framework for making sense of and understanding contemporary “everyday” public spaces - built and unbuilt, temporary and long standing, contested and embraced – and what they can teach us about everyday material practices of 21st century life. Specifically, the author is interested in creating an understanding about how we interpret, share, critique, and modify landscape narratives. Of particular interest is the question of legibility, or comprehensibility, and if landscape are capable of shaping sustainable urban places, practices, and policies. Building from the notion that “what we see is what we know,” this paper explores the role of narrative, creating a framework for understanding the multiple voices present in contemporary public space. Following the three-part framework of the seminal book, Landscape Narratives: Design Practices for Telling Stories by Matthew Potteiger and Jamie Purinton, this paper explores landscape narrative theory, practice, and stories looking at contemporary “everyday” public spaces such as the night markets, spaces of protest and resistance, street memorials and shrines, and the roles they play in everyday life.
Beyond Walkability: Activating urban delight along the Tennessee River

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**keywords:** Urban Design, Kinesiology, Health and Wellness, Design for Movement

The New Urbanist directives for walkability derived from Olmsted, Jane Jacobs, and others succeed in illuminating the necessity for pedestrianizing the post-industrial city. While critical as minimum standards, the discussion is limited. Designing urban space to engage multiple movement possibilities expands its potential to promote health. Chattanooga, as a case study offers a palette of successful hardscape elements that physiologically, psychologically, and sociologically engage the user. The urban waterfront edge not only encourages walking, but also promotes dancing, jumping, traversing and climbing; in short, offering a public gym for community participatory motion. Spatial analysis and observations of human behavior patterns in engaging with this urban space has led to detailed design topology for movement and motion.

Chattanooga, Tennessee is touted as a miracle city. Transformed from one of the most polluted, unhealthy, racially divided and crime-ridden cities into a tourist destination with an exciting waterfront edge, it offers a case-study in smart planning and design. Master planned and designed by Lynch and Carr with designed segments by Hargreaves, elements are integrated into the waterfront experience that offer physical engagement to promote wellness through movement and exercise. Moving well beyond formulaic walkability principles, the design fosters delight in motion through employing broad stroke urban design techniques described by Cullen, Lynch and Halprin. The Chattanooga experience entices, and makes inevitable the desire to move. Embedded ballroom dance steps in the sidewalk encourage pedestrians to take a spin, public art pulls users through spaces to get a closer look, historic readings are embedded into structures for movement that both define space and tell important stories of displaced native communities, and the infinite landscape view of river and mountain are highlighted through path, framing, and siting. The landscape itself is encapsulated and made accessible.

Physiologically diverse patterns of motion offer opportunities to engage multiple muscle groups and cardio-vascular workouts while traversing the waters edges. Stairs of different heights and spans, exciting intricate ramps that encourage running, climbing structures, designed stones to jump across, multiple and varied hardscape options for navigating slopes, excitement in criss-crossing the Tennessee River, and hills and mounds to run up and roll down.

Through both recording designed elements and observing use patterns a systematic topology of movement is developed to illuminate urban design elements and structures, and their effect in promoting movement that reveals, delights, and promotes wellness.
The Student Farm Design Project: A design framework for student farm landscapes on public university campuses

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Keywords: design, sustainable food systems, edible landscapes, urban agriculture, sustainable agriculture, campus planning

Student farms on college campuses continue to gain in popularity (Leis et al., 2011), and new higher-education programs in sustainable food systems are being developed throughout the U.S. (AASHE and SAEA). Organic farms, community supported agriculture, permaculture, and urban agriculture gardens are a few of the edible landscape models established on campuses, primarily initiated and managed by students as projects to learn by doing (Leis et al., 2011). These food projects embody multi-prong missions, including education and outreach, demonstration, research, farm-to-table, community food production, and food donation. In addition to these, student farms, along with other green infrastructure landscapes play important placemaking and landscape performance roles in the context of campus sustainability initiatives and planning (Mathews et al., 2012).

Current literature on student and campus farms has primarily focused on curriculum, administration, facilities, and experiential learning aspects of farm start-up and operations (Parr & Trexler, 2011; Biernbaum et al., 2006; Markhart, 2006). However, there has been a gap in the literature looking at physical design, spatial relationships of farm features, social spaces, the land use context, and campus farm aesthetics. As new student farm projects are developed at higher-education institutions, in what ways are design features important for efficient operations, placemaking, attracting participants, and integration into the campus fabric?

The Student Farm Design Project investigated design and meaning of student-initiated farm projects at public higher-education institutions. An issue-based case study methodology was used, including examination of 6 established student farms. Methods included exploratory semi-structured interviews with farm managers, faculty advisors, and student participants, on-site observations, and spatial analyses. In addition, an online survey instrument was used to investigate design of additional student farms throughout the U.S. In particular, the study looks at 1) design features for creating sustainable student farms, 2) the role of time and space in the form and function of student-run farms at land grand institutions, and 3) the benefits and challenges of student farms in the context of campus landscape aesthetics planning. This paper presents a design framework for creating sustainable student farm projects at colleges and universities, focusing on physical landscape design features and spatial patterns to develop student farm futures that reimagine the campus landscape aesthetic and connect the campus community to food systems.
Cairo, Dubai, Muscat; Effects of globalization and modernization on urban landscape change in the Middle East

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keywords: Middle East, Egypt, Emirates, Oman, Globalization, Modernization

Much of the Middle East, including the Sultanate of Oman, Egypt and the United Arab Emirates, have been influenced by Western design thinking, accompanying the time of European trade expansion in the early 19th century, reflecting intentional efforts by national rulers and design professionals to adopt Western design ideology. Both Abu-Lughod and Abouseif offer implicit hypotheses related to historical landscape globalization, referencing the adoption of European colonial planning and design philosophy throughout the Middle East in the 20th century, and the early effects of globalization, which continue in contemporary landscape architecture of the Middle East today (Abu-Lughod, 1971, and Abouseif, 1985). Other critical scholarly writings by contemporary academics and professional practitioners recognize the influx of international and global influences on traditional Middle Eastern Landscape (Abd Eraouf, 2001 and Rafaat, 2002).

The intersection and overlap of modernization and globalization as essential contemporary processes is broached by historians Hirst and Thompson in describing economic globalization as a component of internationalization originating in the Industrial Revolution (Hirst and Thompson, 1999). Hopkins, in turn, describes an historically ancient process evidenced through the diffusion of culture, technique, and information well beyond national boundaries for millennia in all parts of the world, associated with the spread of religion, military hegemony, agriculture and technological innovation (Hopkins, 2002).

Acknowledging the conference theme of change this research addresses issues of Middle Eastern urban landscape change, landscape flexibility and contemporary urban landscape response to modernization and globalization processes. Specifically, this research examines significant landscape interventions in three cities representing a diverse and significant range of contexts and histories in the Middle East: Cairo, Dubai and Muscat. We argue that urban landscape change and response to processes of modernization and globalization is embodied in the landscapes and surrounding context of the Al-Azhar Park and Grand Egyptian Museum in Cairo, Burj Kalifa and the neighborhood parks of Dubai; and the Sultan Qaboos Grand Mosque and the Oman Botanic Garden in Muscat.

Results of these case study assessments suggest significant flexibility and diversity of landscape response in these landscapes, supporting de/globalizing effects for different urban populations related to support for traditional work and local economies, social participation and equality, and cultural identity. The results suggest that strategic development of urban landscape by global institutions can effectively redress the deleterious effects of globalization.
Making New Natures: Constructed and transgressive ecologies in urban renewal

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**keywords**: post-industrial landscapes; urban renewal, urban nature; emergent ecologies; environmental justice, High Line

Contemporary discourses on “sustainable”, “green”, “resilient” cities employ ecological vocabularies, ideas and concepts to develop, frame and justify projects and processes of urban renewal. Labeled as “progressive and promising approaches to creating nature in cities” they attempt to “restore” or “re-invent” ecologies.

New York City’s High Line has inspired a surge in efforts to ecologically restore strategically located disused industrial infrastructure and has become the de-facto model for urban redevelopment on post-industrial sites.

This paper analyzes and situates such projects within dominant trajectories of urbanization and existing global patterns of urban transformation, and helps to understand how they also function as political-financial instruments that intensify experiences of social and environmental injustice. While aesthetically different, they share an aesthetic commitment to artifactualizing nature, foregrounding security concerns, excluding marginalized people, and contributing to what Harvey calls “displacement by dispossession”.

It interrogates how the design and aesthetics of the High Line and similar projects construct and instrumentalize ecologies that produce environmental subjectivities, and how these spaces reflect and produce uneven investment in nature across urban landscapes.

Guattari’s assertion that “ecology is as bound up in issues of social and economic power, demographics and political struggles and engagements as it is operating in relationship to environmental forces” serves as a fundament to develop and present a framework that critically counters and contextualizes the contention that “landscape architecture is in a unique disciplinary and practical space, being equally informed by ecological knowledge as an applied science, as a construct to manage change, and, within the context of sustainability, as a conceptual model of cultural production or change.”

This framework recognizes that the High Line is similar to the other ‘mega’ projects and lasting material legacies which characterize the urban built environment and tend to reproduce inequality at broad scales and over long temporal horizons. It suggests the need for designers to critically consider what is ecologically displaced through such projects, and be alert to ways that ecology can be instrumentalized in forms of development that deepen social polarization.

It presents an alternative approach that re-engages and re-conceptualizes urban materiality, looking towards urban assemblages (McCann & Ward 2011), metabolisms (Heynen et al 2006), or networked ecologies/infrastructures (Graham & Marvin 2001) thus reterritorializing the fabric of urban space (Gandy 2014, McFarlane & Rutherford 2008).
Ditch Urbanism: Water infrastructure in the Middle Rio Grande Valley

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Jesse Vogler  Washington University

keywords: Desert, water, infrastructure, urbanism

The desert is a landscape of limits. Scarcity of water resources requires social, physical and political strategies for survival. The design and management of water reveals a desert society’s relationship to the land, to one another, and to resources.

Within the Middle Rio Grande Valley of New Mexico, 1,200 miles of irrigation ditches weave through the residential neighborhoods of Albuquerque, skirt the industrial zone at the base of the escarpment, and flow alongside heavily trafficked commercial streets to deliver water to the remaining agricultural fields in the valley (MRGCD, 2014). Often overlooked, the irrigation ditches are a functional part of the engineered hydrologic network in the valley aimed at containing the river, draining the land and strategically delivering water to crops.

Irrigation ditches were historically the backbone of settlement in the region and formed the basis of the arid society. In the late 1600’s the first spanish land grants in the valley divided the land so that each individual parcel would have access to water from an irrigation ditch. This settlement pattern was replaced by one oriented to the road and railroad infrastructure during the 1880’s. This both symbolically and physically shifted the town from an orientation to water and agricultural lands to a railroad town oriented to national markets and commerce. The shift away from a water culture toward a car culture grew after World War II and Albuquerque has grown into a sprawling city of 1 million people.

This presentation will analyze the historic role of the ditches in shaping Albuquerque’s urban environment as well as the potential for the ditches to shape the future of the city. This will be accomplished through 1. analysis of historic maps to understand the shifting urban relationship with the water infrastructure network, 2. mapping the current water infrastructure network, 3. exploring the design possibilities for the ditches to become a framework for a new open space network that reorients the city to the water resources.
Who Cares What It Looks Like If It Can Kill You? (Can Landscape Assessment Play a Role in Dealing with Local Brownfield Planning?)

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keywords: Local Brownfield Program, Difficulties experienced, Expert interview

In the past, most brownfield clean-up has focused on large, highly polluted Superfund sites. This left many smaller, less polluted sites (often in urban or suburban areas) relatively neglected. In recent years, the focus of brownfield policies and programs in the United States is changing from the clean-up of national priority sites to the reuse of local brownfields. In this new environment, the reuse approach to design and community engagement has become more important. Although approaches used to assess national priority sites are well established, clear approaches to assess and manage local-level brownfields or to engage nearby communities are relatively difficult to find. As an early attempt to develop approaches to deal with local brownfields, the objective of this study is to identify difficulties experienced in existing local brownfield programs. To accomplish this, brownfield program managers of many localities (Roanoke, VA; Portland, OR; Toledo, OH; Phoenix, AZ; Lewisville, TX; Arlington, TX; and New Bern, NC) were interviewed regarding the issues they perceived to be important related to local brownfield assessment, management, and community engagement. The interview questions were about their experiences and roles in brownfield programs, specific projects if any involve community input, challenges they have encountered when working in brownfield projects and with local community, and overcome experiences.

The expert interviews reveal that the majority of local brownfield programs are using “contamination barrier check” procedures, which certify safety through historical documentation and physical sampling of brownfields. This has been regarded as a habitual procedure to allay the concerns of developers. However, as a result of using this procedure, the interviews revealed that the main challenges to development come from a stigma against brownfields and the exaggerated fear that people have about potential hazards of contamination. Another difficulties come from an emotional barriers such as the community’s mistrust and skepticism of city governments. To overcome these, several interviewees indicated that it is critical to provide people with visions based on community values and input.

These preliminary results imply that, to overcome the stigma and fear problem, it is important to have an assessment frame that reveals more than simple contamination risks and includes reuse opportunities of brownfields, including aesthetic considerations. Also, it suggests the need for community engagement in the process.
Incorporating Time: The necessity of adaptive approaches for successional ecological design

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keywords: Succession, Urban biodiversity, ecological design

We describe the necessity for the incorporation of adaptive processes for the design of ecosystems in the urban landscape. At the site inventory phase of a project site, coupled with local ecological knowledge, the trajectories of vegetation succession can be deduced from existing plant forms. While a designer may be involved in or write a project’s long- or short-term management plan, we propose that the spatial forms of vegetation succession can extend into project management. Definitions of design/build in architecture and landscape architecture imply a solving of issues as they arise in the construction phase. We propose a system of design/manage wherein forms are determined and established in the design and construction phases, but plant materials are allowed to express themselves through time, extending and blurring the lines between construction phases and management.

Three successional test projects are presented to illustrate the outcomes, benefits, and shortcomings of an adaptive design approach. The Gum Pond Exhibit, a constructed wetland, at Crosby Arboretum in Picayune, MS is the first example of adaptive design (Blake 1992). Three years of bank vegetation development are reviewed. This review dictates subsequent design decisions affecting the following years of development, and an iterative process continues until dynamic equilibrium (Huston 1994) is reached. Three years of prairie green roof development indicate that a dynamic system allowing community fluctuation leads to unforeseen and no less desirable outcomes than comparable areas planted with the same species in prairie restoration demonstration plots in fallow farmland. Green roofs developed with no plant management intervention while the demonstration plots experienced moderate weeding.

The value of tracking successional development in the earliest stages following construction is that relevant feedback regarding the ecological condition of the site is provided. By answering questions regarding the types of plants that emerge at early stages, later successional stages can be predicted and more accurate timelines can be created. We argue that in many situations, and especially where increases in urban biodiversity are desirable, allowing successional phases to reveal themselves before all decisions are made leads to more diverse plant community outcomes.
Bio-centers: Ecological sanitation and renewable energy harvesting in informal settlements

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Eric Zencey University of Vermont

keywords: Informal Settlements, Eco-sanitation, Nutrient Cycles, Biogas, Kibera, Urban Metabolism, Slum Upgrading, Bioslurry

Purpose: This fieldwork-based case study examines Bio-centers, the innovative eco-sanitation strategy and design solution developed by the Umande Trust in informal settlements in Nairobi, Kenya.

Background: Worldwide, 2.5 billion people live without adequate sanitation and suffer from consequent health and morbidity effects. Many of these 2.5 billion live in “informal settlements” in urban areas, where the density, poverty, and lack of effective political administration make urban infrastructural development especially challenging.

Bio-centers, piloted in 2007 and expanded to 84 installations by 2014, address sanitation problems in concert with other needs. Rather than public latrines that collect human excreta for processing elsewhere, Bio-centers are multi-layer structures that use anaerobic digesters to process excreta on-site, producing two valuable by-products of immediate use to the population near the facility: methane for cooking and bio-slurry compost for agricultural production.

In addition to improving sanitation, this re-localization of significant portions of the nutrient-and-food-and-waste cycle keeps nutrients in closer circulation to the population benefiting from them, which reduces transportation and energy costs and improves food security. As constructed, Bio-centers have a ground floor with toilets, showers and kitchens, and a second story that offers rental spaces for community and commercial purposes, including such functions as churches, business incubation, and community kitchens. Bio-centers thus layer multiple wealth-generating uses into a communal ecological sanitation facility, which becomes an anchor or node in the community.

Method: This fieldwork-based case study employs geospatial mapping, on-site interviews, and Bio-center usage data obtained from Umande Trust.

Initial Findings: Bio-centers serve as a sustainable business model for community groups, which provide, in addition to urgently needed sanitation services, further business incubation and renewable energy sources. Other notable findings are that Bio-centers have successfully connected adjacent pit latrines to existing anaerobic digesters thereby converting them to an eco-sanitation model while enrolling pit latrine owners rather than competing with them.

Importance: As built structures that embody an integrated view of humans-in-natural processes and aim to benefit the public by effecting several complementary but distinctly different outcomes, Bio-centers offer crucial lessons for infrastructure design in informal settlements. Situated as a hybrid between a productive landscape and an architectural topology, Bio-centers provide a paradigmatic example of ways in which landscape architecture can redefine the problematics it addresses, thereby allowing the discipline to increase its contribution to the monumental challenges facing informal settlements.
Inciting Change from the Ground Up: Using digital fabrication and university design center partnership to innovate trail design for low-income communities, a Las Vegas case study

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Keywords: urban design, landscape architecture, corian, healthy community, las vegas, digital fabrication, adopt-a-trail program

The Cedar Trail in Las Vegas lies within a low-income community, below average on health metrics. The two-mile trail, designed to take pedestrians and cyclists to local infrastructure such as school and parks, and regional assets through the ‘Neon to Nature’ system, has ubiquitous graffiti and kindred types of vandalism. The resulting perception of this trail by community residents is that it is unsightly and unsafe. In its dilapidated condition, due to lack of public funding to support maintenance of the damaged infrastructure, the trail gets little use. As research proves, and this trail shows, trail use declines due to real and/or perceived dangers caused by the dilapidation. In the paucity of government and community involvement, a non-profit center, a university unit, and community design center partnered to gain resources to test a new paradigm for trail planning, design, construction and management. We explored if a change in the paradigm of trail design, construction and maintenance can make a trail a point of community pride? Can a university design center, partnered with the nonprofit sector, gain resources, and advocate and sustain change in how we plan, design and maintain our community infrastructure? Can a well-designed trail incite use by the community, and in turn, increase the health of the residents?

In this presentation, the authors will describe the first phase of a two-phased design-research, planning and construction project exploring the three questions noted above. We will present the findings of the first two questions through the Cedar Trail case study. Cedar Trail has usual problems plaguing urban trails with respect to design, maintenance and use; making our findings potentially replicable. Our findings include that a university design center can be a powerful partner for communities and nonprofits as a project partner to successfully gain resources, and advocate for changing the public realm through design innovation supported by research. We will show how digital fabrication can be used to lower initial and lifecycle costs of public wayfinding infrastructure. Digital fabrication can also facilitate quick and affordable prototyping. This speed helps with design innovation as community members and city officials can see design options and give feedback several times in the design process. These feedback loops increase community engagement and support. In construction, we innovate with Corian. We found that Corian is a viable material for outdoor use in signage; relatively inexpensive, durable to weather, and resistant to graffiti when detailed properly.
Peripheral Territories: Identifying future sites for the contemporary city

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Sara Kjaersgaard University of Western Australia

keywords: Periphery, peri-urban, ex-urban, Sydney, Perth, future

Peripheral metropolitan landscapes – also called peri or ex-urban – often defy simple categorisation and are poorly understood. Neither exclusively urban, suburban nor rural, but frequently comprised of all three, their embedded intrinsic complexity and values are frequently overlooked in favour of meeting the demands for new suburban development. This paper offers a study of two Australian cities that are expanding into their peripheries: Perth and Sydney. These two growing centres are extending into their peripheral landscapes, replacing precious farmland and fragile ecologies in a globally repeated pattern. We examine the impacts of new suburban growth upon various social, cultural, economic and ecological assets contained at two opposite ends of the continent; and, specifically explore what value landscape architectural design research could provide as a tool for uncovering and communicating these values.

The paper explores a morphological approach to the peri-urban environs of both Perth and Sydney. It seeks to identify, categorise and speculate new typologies for urban growth, challenging the current model of greenfield development that treats the expanding landscape as tabula-rasa. The typologies demonstrate the value of a hybridised landscape type that has potential to accommodate existing and yield important new functions for the future growth of the city at its edges. The research undertakes a comparative visual survey of these two cities peri-urban condition, articulating its complexities and richness and in turn revealing diverse socio-ecological and cultural qualities. This morphological approach reveals various typologies and reframes the contemporary city outwards towards its hinterland rather than inwards towards its civic hearth. The typologies demonstrate the potential of future sites for the contemporary city to occupy. This future occupation utilises the dynamic, evolving and robust landscape of the periphery as a key indicator and exhibitor of for these sites.

Our intent is to demonstrate how the peripheral landscape is unique to each city and that a visual survey is an appropriate tool for comparison of this terrain. By revealing typologies and therefore new ‘value’ to the periphery, new landscape types can be equally (if not more so) identified and commanding of the edge.
Interstate 11 Supercorridor: Changing infrastructure design processes and products - a case study

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keywords: urban design, interstate 11 corridor, infrastructure, urban planning, las vegas, habitat protection, wildlife overpass, driverless cars

Federal transportation legislation known as MAP-21 – Moving Ahead for Progress Century incited study for an interstate corridor (I-11) connecting Las Vegas, Phoenix, Tucson and Nogales. The I-11 will complete an efficient link to Mexico and Canada. Can this new interstate corridor change the 20th century paradigm by implementation of smart and sustainable technologies guided in a framework of context sensitive design? Interdisciplinary teams at three universities examined segments of this corridor through research, planning and design methods of architecture, landscape architecture, urban and regional planning, and real estate. An advisory group of engineering in private practice and the academy, environmental non-profits, and government agency officials supported this team in their supercorridor pilot study.

In this pilot study, we tested the corridor planning and design process. Can planning and design methods lead the engineering process? Through structured, post-presentation interviews, we found that engineers, agency officials, and community groups understood the value of design thinking and context sensitive planning/design as an important part of the initial investigation of interstate corridor infrastructure. This represented a departure from the 20th century ‘engineering first’ method.

In our study, our planning and design models verified a critical thesis of the government report on the Interstate 11:

“There is considerable support for the study of a multi-functional Corridor that provides multi-modal transportation opportunities and houses assets that require similar rights-of-way. Utility (including transmission lines and telecommunications) and energy (including liquid/natural gas, fiber/dark fiber, wind, and solar) options and other emerging future opportunities are candidates for shared or combined rights-of-way or easements... The Corridor can be a smart or ‘green’ corridor of the future - a new model for the movement of [energy,] goods and people...”

In addition to showing how the design process and designers can lead in providing the parameters for infrastructure solutions, we will demonstrate the viability of the Interstate 11 corridor and the thesis above. We must rethink how we build interstate corridor infrastructure. The old interstate corridor model is obsolete due to environmental changes due to climate, shifting driving habits, and ubiquitous new transportation and energy technologies such as driverless cars and types of renewable energy. We will show through the corridor segment from Las Vegas to Wickenburg, AZ how these new technologies may be deployed over time in an emergent system to promote human and habitat health in different contexts.
Infrastructural Change: A Los Angeles studio

Kathleen Kambic University of Colorado Boulder

keywords: water access, rivers, urbanism, infrastructure

In the past few years, Los Angeles has emerged as the canary in the mineshaft for environmental issues. Plagued by wildfire, water shortages, traffic jams and all types of infrastructural problems, the city is ripe for radical interventions. Based on an unsustainable past and heading toward an uncertain future, Los Angeles is filled with opportunities to examine existing infrastructure and reimagine a more ecological and humanistic city.

Built on the idea of the Cyborg City, after Donna Haraway’s Cyborg Manifesto and other authors such as Kazys Varnelis, the Los Angeles studios at CU Boulder address the city as a symbiotic living system, instead of a concrete jungle. Haraway (1991) defines it well when she states, “... a cyborg world might be about lived social and bodily realities in which people are not afraid of their joint kinship with animals and machines, not afraid of permanently partial identities and contradictory standpoints” (154). The Cyborg City is made up of both human and natural systems working in concert in unforeseen ways. For instance, entities like the Los Angeles River are no longer ‘only’ natural. They include vehicular infrastructure like bridges and viaducts, power lines, pathways, fences, and sewers.

In the Cyborg City studio, the Los Angeles River played the primary role of site, where students could address conditions on the river itself: its concrete banks, trash islands where trees grow, algae growths, disconnected riparian zones, point-source pollution. These conditions were paired with human concerns of access, both across and into the river, cleanliness, and use, to create dynamic solutions to problems of pollution, inequitable use and access, and underutilized marginalized spaces.

The studio designed a series of watershed interventions that addressed the needs of the growing populace of Los Angeles, dismantled traditional infrastructural systems for more innovative, individualized and optimized approaches, and renovated the watershed of the City. Ranging from constructed wetlands, to flood mitigation strategies to pollution sinks, the studio work created a truly hybrid human/ecological river corridor. This presentation will show work from the studio, discuss successes and failures, and posit questions on the future of urban infrastructure from a landscape architecture perspective.
Upstream From the USA: A study on shared solutions for infrastructure and public space in Mexican border cities

Gabriel Diaz Montemayor University of Texas at Austin

keywords: polyvalent water management systems, border cities, public space, multi-modal transportation, urban planning

The Mexican border cities of Tijuana, Mexicali, and Nogales are connected to the USA by the shared international border and landscapes draining from Mexico to the USA. While in the US side there are water treatment plants, sedimentation ponds, and other water management systems; on the Mexican side exists a different situation. The waterways cut through neighborhoods, industrial, and agricultural areas with minimal management and infrastructure. Most of these neighborhoods are low-income communities. Industries and agriculture drain to creeks. However, these corridors are one of the few remaining spatial opportunities for new public spaces, public services, and mobility alternatives with a capacity to improve the quality of life of the population. The creeks could also add water management infrastructure to reduce pollution and flooding risks downstream. The local urban planning departments have envisioned to leverage this opportunity. But, these have not been executed and remain latent projects in the public works repertoire which favor car-oriented infrastructure when deciding for implementation.

This paper compares the existing plans, designs, and initiatives related to water management and public space in Mexican border cities. The study establishes a set of criteria to simplify the communication of the potential benefits—social, environmental, and eventually political—of these projects for decision takers such as the city council, the planning council, and the mayor.

Interviews and past collaborations with the planning directors of these three border cities confirmed the difficulty to implement projects of this nature. Mayors and city councils, as elected officials, fail to see the diverse advantages of projects which are not as visible as the status quo of transportation infrastructure. Urban expansion prevails and directs public investment. The pairing of water management—as a means to produce public space of quality—with urban development needs to be made visible to stakeholders and administrators. Particularly in the sense that doing so is not a large additional investment on top of typical practices.

The federal urban development policy is Mexico has recently changed. It intends to revert a centrifugal expansion pattern to a centripetal. This study seeks to reveal the potential of water management and public space networks in relationship to this new policy. The political viability for these systems is studied in the mapping of socio-economic conditions, relating infrastructure and public space with need. But also, relating the potential networks in their capacity to articulate existing and future urban development.
Designing for the Inevitable :: Amphibious Honolulu Waterfronts

Judith Stilgenbauer University of Hawaii at Manoa

keywords: Urban design, ecological urbanism, sea level rise adaptation, amphibious waterfronts

Sea level rise and ground water inundation will profoundly affect Honolulu’s waterfront in the not-so-distant future. This session presents operational strategies for rising sea levels and speculative ecological urbanism concepts developed during two recent urban design studios held at the University of Hawaii at Manoa School of Architecture.

Sea level rise is generally projected to reach 1 foot by 2050 and 4 feet by 2100, which means that large parts of Honolulu’s urban infrastructure and densely populated neighborhoods will be inundated. The various fast-moving, existing shoreline development and transportation plans do not sufficiently acknowledge the numerous, unavoidable flooding vulnerabilities. It has only been recently that Hawaii legislators have begun to discuss the effects of climate change on the shoreline of Oahu and its neighboring islands.

The speculative, conceptual planning and design work presented in this session addresses rising sea levels through forward-looking ecological urbanism concepts for resilient, amphibious waterfronts in the Waikiki and Ala Moana neighborhoods of Honolulu. The utopian design projects propose conceptual urban solutions that respond to climate change, inescapable shoreline adaptations, flooding and inundation, environmental degradation, inequality, as well as issues related to Honolulu’s aging urban infrastructure.

Lessons learned from this academic urban design work further and broaden the contemporary discourse on resilient urban waterfront development and long-term planning strategies for a sustainable Hawaii.
INCITE CHANGE | CHANGE INSIGHT

THEME TRACK
Through their studies of denser living, can landscape architecture undergraduates experience not only a change of insight—a deepened appreciation of the design construct—but also an incitement to change their own residential preferences? The literature highlights changes in student values and opinions through education (Magee 2009; Mariani & Hewitt 2008; Zipp & Fenwick 2006; Greene et al. 1999; Ehman 1980), and it has been suggested that specifically in architectural education, knowledge and values are acquired simultaneously as students adopt the values embodied by the professors and their pedagogy (Stevens 1995). Enriched educational experiences such as study abroad can be particularly effective in shaping student attitudes (Umbach & Wawrzynski 2005; Douglas and Jones-Rikkers 2001). In this study, two groups of landscape architecture students were surveyed on their understanding of basic terms and personal preferences related to residential compaction, the latter through “trade-off” scenarios that contrasted loss of personal spatial amenity with the benefits of compaction (after Lewis & Baldassare 2010). The treatment group, who had studied and experienced denser housing during studio and study abroad, showed significantly greater levels of insight and preference for compact living than the control group yet to complete the same exercises. An inductive content analysis of interviews with the treatment group (see Thomas 2003) revealed that the majority were negative toward compaction prior to their studies, but highly supportive afterwards. The design studio and contact with the professor played a part in this shift in values, but it was the cultural immersion in dense communities, particularly overseas, that had the greatest resonance. Apart from the longer-term benefit of opening up the possibilities of compact living to these future housing consumers, the on-site experiences enriched these students’ design process with empathy, enthusiasm, and confidence that the concept was translatable into tangible, enjoyable places.
Surfing the YouTube: How social media is changing landscape research

Benjamin Shirtcliff Iowa State University

keywords: YouTube; Adolescent Behavior; Skateboarding; Unstructured Play Activity; Public Place; Urban Design; Social Media; Descriptive Research Methods

Accessing insights from underrepresented populations, such as adolescents, remains a persistent challenge in the research and design process. The paper will investigate the utility of online videos of user-posted materials as an innovative research tool. Unlike traditional in situ approaches to studying human behavior and public space, online videos permit access to multiple sites based upon the population or activity of interest. The approach is similar to studies of behavior using unobtrusive observation—where participation or interviews might interrupt the activity under observation or where access to the setting of the activity would otherwise remain inaccessible to the researcher.

Methods. The use of YouTube remains largely untapped in urban design research, yet it is well situated amongst a discipline well versed in using visual research methods to understand the relationship between behavior and design. The following paper describes how anonymously posted online videos of adolescents skateboarding in 17 public, open spaces in New Orleans, LA were collected and coded for further analysis. Collectively, this culminated with 104 unique videos that contained 278 individual scenes gathered from online video search engines such as YouTube.

Findings. Videos were reliably coded (k>.75) for prosocial behavior and risk-taking behavior across locations which varied in terms of physical features, social groups, and urban context, showing that YouTube content could, indeed, provide useful data. Overall, the findings have important implications for research into the use of public space by underrepresented populations, alternative activities, or spontaneous events. The innovative strategy could incite positive changes in research methods in landscape architecture and urban design by employing strategies that access relevant streams of human behavior through online sources.
Edible Sacramento: Soil Born Farms as a community-based approach to expanding urban agriculture

David de la Peña University of California, Davis

**keywords:** Urban agriculture, community engagement, alternative food networks, community gardens, permaculture

Urban agriculture (UA) has taken root in Sacramento and its relatively quick rise owes much to the efforts of the nonprofit Soil Born Farms. The organization’s transition from farming vacant land to becoming a nonprofit and regional UA advocate highlights the potential of grassroots organizations to create spaces of engagement and resistance. This paper focuses on calls for UA’s expansion and the appropriate roles for government, nonprofits, and designers. In particular, it addresses efforts to expand UA through top-down design and policy initiatives, and it responds to critiques that UA may be misused to further the neoliberal project. As this study shows, Soil Born’s ability to mobilize UA networks has exceeded the city’s capacity to bring about systemic change. With a focus on incrementalism, relationship-building, and food systems education, Soil Born has helped establish networks that have mobilized citizens, urban farmers, gardeners and gleaners to remake Sacramento as an edible city. This paper concludes that institutionalizing the existing, dynamic grassroots networks and practices would significantly diminish their impact, and that top-down design approaches and critiques of grassroots efforts may be misplaced. Furthermore, landscape architects can play an important role in designing UA at multiple scales, but they must be grounded in a familiarity with local actors and practices in order to be relevant.
Making Change: Designing a new model for climate change interpretation and experimentation

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Chris Wien Cornell University
Sonja Skelley Cornell University

keywords: Urban agriculture, community engagement, alternative food networks, community gardens, permaculture

Many people are aware of climate change, but have limited understanding of what climate impacts to expect, and what effects these impacts may have on their local environment. This uncertainty is often accompanied by frustration about the ambiguity of climate change as something that is intangible and therefore out of our control. With these concerns in mind, faculty in landscape architecture and horticulture in partnership with Cornell’s botanical garden developed a project to make climate change impacts more visually and experientially available to visitors. The result was the installation of (to our knowledge) the nation’s first interpretive “climate change garden” demonstration with the explicit intent of increasing visitor interest in and understanding of climate change.

Botanical gardens have an established record of data collection and research on plants and climate and are poised to share climate change knowledge with the public (Primack and Miller-Rushing, 2009). This paper outlines our process for defining an emerging garden genre, and how to link the science of climate change to a dynamic and compelling interpretive and demonstrative garden installation in a botanic garden setting. It describes the project as an installation of carefully selected planting beds embedded in both a high tunnel greenhouse (with degrees of control over temperature and precipitation) and an ambient open-air installation for comparison. It discusses lessons learned in combining experimental inquiry with interpretive design, while navigating the logistical constraints of crafting the right message for visitors to a garden of tomorrow within the opportunities and constraints of the world as it exists today.

Three overarching interpretive goals for the installation were crafted with the objective of affecting visitors’ experiences and attitudes by a) informing visitors about climate change and what they can expect; b) physically demonstrating possible changes and impacts to plants so that visitors can understand them; and c) providing an interactive opportunity for visitors to interpret climate impacts by documenting their observations. This project also has a longer-term goal; as something of a “designed experiment” (Felson and Pickett, 2005, Felson and Pollack, 2010), the physical, botanical, and visitor experience data collected and observations made will be used to “tune” the installation’s performance and impact, and may ultimately inform more significant experimental research investigations into resilient landscape planting selection and design (Hunter, 2011).
Considering Climate-Adaptive Design: Artificial glaciers in Ladakh and Zanskar

Carey Clouse University of Massachusetts

keywords: Artificial Glaciers, Ladakh, Zanskar, India, Climate Change

During the course of the past three decades, subsistence agricultural villages in the Himalayan mountain range have witnessed ever-shrinking glaciers and an increasingly erratic supply of glacial meltwater. Having relied on these reserves for centuries, farmers have more recently been pressed to find new ways to irrigate their crops. In this context, the incorporation of artificial glaciers into watersheds can help to control the flow of glacial meltwater, and in doing so, presents just one of the many creative ways Himalayan communities are adjusting to climate change. These large-scale landscape infrastructure projects efficiently store and manage glacial meltwater by using annual freeze-thaw cycles and large holding reservoirs to contain and disperse glacial runoff. Although these landforms have been designed by engineers rather than landscape architects, they contribute to a larger body of climate-adaptive design solutions that suggest a way forward in the face of the unstable environmental pressures of the future. As landscape architects and designers look for opportunities to intervene in the climate crisis, the artificial glaciers of northern India present a tested model of climate change adaptation to build upon. It would be hubris to believe that geoengineering experiments, including those that mold the landscape to create seasonal ice reservoirs, could miraculously solve the devastation brought about by global climate change. Yet, the artificial glaciers in Ladakh and Zanskar provide one example of the emboldened design schemes people are willing to try, given the dire circumstances that they face in their home environment. In this context, the disciplines of architecture, landscape architecture, and urban planning would do well to pay attention. Then, perhaps, the design process could become a useful tool in the face of climate change: eliciting creative responses and exploring survival strategies on a changing planet. This paper outlines findings from field research in the two regions between 2013 and 2014. Using interviews, photographs, drawings, diagrams and an extensive literature review, the artificial glaciers are explained in detail. Then, connections are made between this example of climate-adaptive design and the future of the profession of landscape architecture.
The Miller Garden: A growing architecture of trees

Julian Raxworthy University of Cape Town

keywords: Landscape architecture, growth, plant morphology, Modernism

The Miller Garden is often discussed as an icon of Modern landscape architecture, particularly for its planting. Meyer, Hildebrand and Bleam all discuss the role that vegetation plays in shaping space, as an analogue for architecture. This way of discussing vegetation mirrors that of Kiley’s colleague, James Rose who developed a language for plants as space shapers, and drew a taxonomy of plant forms. However while Kiley and Rose both dealt with plants in a new way, neither they nor the Beaux-Arts language that they replaced, accounted for growth. For plants to have forms that can shape space, they must first grow and develop an “architecture of the plant”, which results from “the accumulation of apical meristems by the plant and their subsequent activity”, and exhibits the kind of forms that concerned Rose and Kiley. Correspondingly we could say that growth is implied in a plant’s architecture, where the form is “prochronism”, a record of growth. This paper will re-read the Miller Garden in terms of growth by examining historic photographs that show the development of plants and the changing spatiality that resulted. It will then also re-read the writing of Meyer, Hildebrand and Bleam about the vegetation in the Miller Garden in light of not a static form of trees but a changing tectonic of growth, using a combined language of spatial structure and plant morphology.
Radicalizing Land Suitability Studies for Urban Agriculture

Jody Beck University of Colorado, Denver

*keywords: urban agriculture, land suitability, food sovereignty, GIS*

While there are many benefits to urban agriculture and the evaluation of the productive capacity of underutilized land that support its expansion, current efforts do not have the potential to change our food system at a scale that would significantly improve the health of our population, our democracy or our environment. Land suitability studies that begin with the radical goal of food sovereignty are needed. The vast majority of existing land suitability studies focused on urban agriculture begin with identifying available land, narrowly defined. Land suitability studies grounded in a proposal for food sovereignty will be based on the amount of food that needs to be produced for a city’s population rather than the categorization of easily available land. Given the degree to which we currently subsidize a broadly devastating agricultural system, there is no reason to assume that we could not subsidize an urban agricultural system that improved health in its broadest definition rather than maximizing profits for multi-national corporations. Taking food as the starting point for the land suitability study will require making assumptions about the future diet of the population. While this may seem heavy-handed, it is not unlike public health proposals and efforts to improve the health of our country. Another difference between the proposed more radical land suitability study and the typical studies now done is that land availability cannot be constrained by political jurisdictions. The food sovereignty based study needs to find the food shed that is fitting to the population, rather than limiting food production by what land is available within a certain frame of political control. The former reflects the reality of human habitation, the latter reflects mere historical accident. This proposed study also needs to consider land available for season extension technologies such as greenhouses and low-energy storage facilities. Lastly, the land suitability analysis proposed needs to include more than just food production but also include an analysis of land available for a food processing and distribution network. This presentation will detail the methodology and initial outcomes of a recently funded pilot study which initiates a GIS based land suitability study for metropolitan agriculture based on the goal of achieving food sovereignty for the Denver metropolitan region. It is expected that this presentation will radicalize the insight we as researchers have into the potential for urban agriculture and incite changes to the foundational assumptions with which we begin our work.
Is Change Needed?: Why do the United Nation’s Sustainable Development Goals sound so familiar?

Lauren Stubbs University of Florida

keywords: international development, core values, social, Sustainable Development Goals

At this very moment, there are more than a billion people around the globe with inadequate access to drinking water. There are two and a half billion human beings that live in environments without basic sanitation. Each day, more than 22,000 children die because they fail to overcome the challenges of living in poverty. In a continued commitment to addressing these challenges, United Nations (UN) delegates from around the world gathered at the 2012 Rio+20 Conference to identify what now constitutes the seventeen categories for the Sustainable Development Goals (SDG’s). These goals represent the most pressing needs in international development. On the frontline of this international charge to meet the SDG’s are highly committed individuals including engineers, community development specialists, public health professionals and environmental scientists. But where are the landscape architects? When these fundamental issues of sustainable development are held to light, it is clear that a significant majority stem from the very concerns that define the discipline of landscape architecture (environmental health, social justice and well being, access to clean water and basic infrastructure). Born in an era particularly devoted to social welfare, the discipline of landscape architecture was founded on the same core values that are essential to the mission of the SDG’s. Olmsted was driven by empathy for those suffering under the somber impacts of the gilded age and rapid urbanization of the American landscape. While dedication to social concerns continue as an integral part of the discipline, how would the contemporary practice of landscape architecture change if we specifically focused on the kind of social reform advocated by the SDG’s? How do landscape architecture’s core values aid in addressing the challenges and needs that face modern global populations? Using the SDG’s as indicators and project types, this research seeks to illuminate the potential for landscape architecture to tackle the very problems identified by the UN and to gauge whether or not and to what extent landscape architects feel empowered to affect change. This presentation shares survey findings from a pilot study that measures landscape architects’ contribution to international development specifically within the related parameters set by the SDG’s, and starts to identify landscape architecture’s ideal role in international development. The intent is to advance the theory and application of actions that alleviate human suffering and advocate change on behalf of marginalized communities the world over.
Inciting Change in our Culture: Tracking the changing vector of research in landscape architecture

Lee-Anne Milburn California State University-Pomona

keywords: Research, design, landscape architecture, longitudinal study, culture

At this very moment, there are more than a billion people around the globe with inadequate access to drinking water. There are two and a half billion human beings that live in environments without basic sanitation. Each day, more than 22,000 children die because they fail to overcome the challenges of living in poverty. In a continued commitment to addressing these challenges, United Nations (UN) delegates from around the world gathered at the 2012 Rio+20 Conference to identify what now constitutes the seventeen categories for the Sustainable Development Goals (SDG’s). These goals represent the most pressing needs in international development. On the frontline of this international charge to meet the SDG’s are highly committed individuals including engineers, community development specialists, public health professionals and environmental scientists. But where are the landscape architects? When these fundamental issues of sustainable development are held to light, it is clear that a significant majority stem from the very concerns that define the discipline of landscape architecture (environmental health, social justice and well being, access to clean water and basic infrastructure). Born in an era particularly devoted to social welfare, the discipline of landscape architecture was founded on the same core values that are essential to the mission of the SDG’s. Olmsted was driven by empathy for those suffering under the somber impacts of the gilded age and rapid urbanization of the American landscape. While dedication to social concerns continue as an integral part of the discipline, how would the contemporary practice of landscape architecture change if we specifically focused on the kind of social reform advocated by the SDG’s? How do landscape architecture’s core values aid in addressing the challenges and needs that face modern global populations? Using the SDG’s as indicators and project types, this research seeks to illuminate the potential for landscape architecture to tackle the very problems identified by the UN and to gauge whether or not and to what extent landscape architects feel empowered to affect change. This presentation shares survey findings from a pilot study that measures landscape architects’ contribution to international development specifically within the related parameters set by the SDG’s, and starts to identify landscape architecture’s ideal role in international development. The intent is to advance the theory and application of actions that alleviate human suffering and advocate change on behalf of marginalized communities the world over.
Incite Change Through Writing and Action: Lawrence Halprin and the ethical construct for landscape architectural practice

Judith Wasserman University of Georgia

keywords: Halprin, Landscape Architectural Ethics

Lawrence and Anna Halprin are known for the innovative RSVP Cycle process, promoting spatial choreography to invite motion and participation. Lesser known is their ethics of engagement and the necessity of value-laden creative production. To illustrate, an essential step in the RSVP process includes Valuaction – determining the value of each action as an essential step in design, art or planning.

Anna Halprin credits the influential University of Wisconsin’s Hillel Rabbi Max Kadushin as the initial guiding force in shaping the couple’s lifelong commitment to engaged action. Famed as a rabbinic scholar and Jewish ethicist, Kadushin’s work applied the Jewish ethical code to daily life and action. For Lawrence Halprin this ethical and intellectual construct for landscape architectural practice was promoted through writings, lectures and political activities relevant to the diverse societal and environmental concerns of the era in which he lived and worked.

With a critical eye, Lawrence Halprin’s work is a social commentary on change and development in a transformative time. Church and Halprin promote the benefits of outdoor living for the Californian while chiding the traditional backyard design as an outmoded colonial construct, Halprin disparages unregulated growth in 1960’s California equating the “television antennae-sprouting” roof-tops and houses as Malthusian “…faceless, nameless, surrealist horror”, he promotes design intent with ecological principles through creating “…communities as places to live which are as inevitable in their biological structures as our needs,” and seeks to solve the urban destruction of the highway interchange through reframing the issue and seeking its deeper significance. His talk at the Transportation Roundtable at the Urban America, Inc. conference positioned transportation and movement beyond an engineering question. Instead he engaged a personal narrative describing an experience of motion, release, and the mythological journey of escape. His 1968 call for integrated planning processes in New York City demanded racially integrated inclusion, while last minute revisions of a talk on environmental design at Yale responded to the tragedy at Kent State. Applying early lessons of Kadushin, Halprin’s work went well beyond design production. Through promoting the benefits of landscape architectural works from an ethical context, Halprin served to broaden the view of the benefits of design and planning as a community service profession.

Writing through time, Halprin continually engaged challenging contemporary issues. Through his intellectual gaze Halprin offered insight as to the place of a value-laden landscape architectural practice, and the role of designer as ethical problem solver.
Outside Insiders: Examining chronic homeless meta perspectives on nature

Douglas Purdue University of Georgia

keywords: homeless, health, perception, values, design, nature, social networks, surveys, mapping

While much design literature exists on both nature’s benefits to human physical and mental health, and also on homeless attitudes toward urban environments, shelters, and services, much less has been written at the intersection of these topics, i.e. nature’s possible benefits to homeless health, or homeless attitudes toward nature. This lapse is critical, for in planning and design homeless services, many designers and providers discount the importance of nature to homeless and the intricate role nature plays in informing and supporting important homeless mobility and social networks. This paper describes the process, findings, and significance of a study undertaken to better inform designers and the approaches used to design homeless spaces and services. The study builds on an earlier study that mapped potential homeless mobility and physical social networks. These mappings were shown to a group of chronic homeless and individuals were asked to mark routes that they used or knew about. No personal information or sensitive location information such as dwellings was requested or recorded. The individuals were also asked to review an image inventory of diverse space types (open, wooded, park, garden, infrastructure, etc.) collected from the mappings and then select images they considered to be ‘natural’ spaces. For their selected images, they were asked questions that examined their knowledge, attitudes, and relationships with the image subjects. The responses were recorded and evaluated. Knowledge responses were used to create a vocabulary and syntax of homeless perspectives on nature, while feelings and relationship responses were categorized and used to develop a graduated index of positive and negative values for natural spaces. Preliminary findings suggest that the chronic homeless have an intimate knowledge of their landscapes and broad appreciation for natural spaces that includes both function and beauty. Rather than feel threatened by natural spaces, chronic homeless feel at home within them and seek them out for many of the same reasons non-homeless do. This suggests responsibilities for designed spaces and services to maintain homeless access to natural spaces, even as they offer pathways out of homelessness, supports design and services extended into the landscape, where chronic homeless feel comfortable, and present opportunities for leveraging access and exchange through broader societal goals such as conservation and recreation.
Christchurch User-Generated Urbanism: Small actions inciting big change

A. Ghigo DiTommaso University of California Berkeley

keywords: Post-Earthquake Recovery, Christchurch, Tactical Urbanism, Iterative Place-making

Since the aftermath of the first of the four major earthquakes that hit the eastern coast of New Zealand’s Southern Island between September 2010 and December 2011, the city of Christchurch has been continuously fighting to recover from the socio-economic repercussions of the seismic events at many levels. One of the most noteworthy success stories is that of the initiatives to reactivate the city’s public space. Determined not to let their city’s public life unravel, a cohort of local citizens, designers, artists, and government officials has been working incessantly to revitalize the city’s core through a broad range of temporary place-making interventions. Compensating for the limited available resources with a large dose of creativity, the group has curated more than one hundred small-scale, short-term, self-funded experimental projects that harness cultural activities and the arts to enliven the city commons, directly engaging the community in the implementation. Coalescing around organizations such as Gap Filler, Life in Vacant Spaces, and Greening the Rubble, as well as the annual ‘FESTA’ (Festival of Transitional Architecture), the group has fostered a movement and made their city a world epicentre of user-generated urbanism. While some New Zealand governmental authorities still see Christchurch’s user-generated urbanism only as an interim remedy preceding the implementation of more traditional larger-scale, longer-term urban design projects, it is clear to many that the movement is transcending the post-disaster condition in which it originated, and has the potential to become a lasting model for participatory urban design in the city and beyond. This study offers the first thorough assessment of three years of bold placemaking experimentation, rigorously addressing both its strengths and its weaknesses, evaluating its role in inspiring and informing urban design for the years - and city life - to come. Despite the limitations and challenges that the study identifies, we see the Christchurch movement as a living manifesto for a novel practice of city-making, inciting change for their community and for global cities at large. The text of the study will be supported by an extensive collection of images collected from the GapFiller archive and photographs taken onsite directly by the author.
INCITE CHANGE | CHANGE INSIGHT
FILM TRACK
**Animating Poetics of the Konza Prairie**

*Jon Hunt* Kansas State University

*keywords: Drawing, Sketching, Animation, Mixed Media, Film, Observation, Reflection*

The images and text in “Poetics of the Konza Prairie: Animation” were developed over two years through routine, weekly visits to the Konza Prairie (a dynamic tallgrass prairie and long-term ecological research center adjacent to Manhattan, Kansas). In this landscape, I engage in ecological research, journal writing, and image making that records and illustrates my changing perceptions and enhanced experience of the Konza Prairie.

Image-making is an important part of the process. When on the Konza Prairie, I walk the landscape and I sketch. As I apply graphite to paper, I use my hands to smudge the medium, blending form with atmosphere. Stretching to grasp the emotive essence of the Konza Prairie, I reject all biased notions of the site, using graphite, gouache, charcoal, and encaustic to record, support and communicate my perceptions and the genius loci.

Animation reveals connections between atmospheric qualities, the changing qualities of place, my emotional responses to the current conditions, and evocative aspects of space and environment. Incorporating mixed media activities within the visuals builds relationships between different qualities of space and time while slowing my process, forcing me to stay on the prairie and experience the landscape longer and more intensely. It allows me to capture textural qualities and overlay key lines of diagrammatic information to identify elements that aren’t seen, without interference or visual “noise”.

The presentation will include a five-minute film that focuses on pencil and mixed media drawings in an animated format. The animation uses traditional hand-drawn, photo-transfers, and rotoscoping animation methods. The images are aligned on a peg bar for registration, image captured, and sequenced digitally.
Film as Inquiry in Landscape Architecture Research

Phoebe Lickwar University of Arkansas
Katya Crawford University of New Mexico
Austin Allen Louisiana State University
Anne Whiston Spirn MIT

keywords: filmmaking, multimedia video, photo-roman, research methods

Purpose: To explore and reflect on the use of film as a medium of inquiry in landscape architecture through the comparison of several different methods.

Background and Methods: Filmmaking is an underutilized method of research in landscape architecture. While the medium has been recognized as a particularly potent strategy for representing landscape, it is rarely employed within the discipline as a means to research landscape. Recent experiments by sensory ethnographers (Sarah Pink, Lucien Castaing-Taylor, Véréna Paravel) and videographic geographers (Matthew Gandy) have embraced film as a means to analyze human-environment relations through sound and image, maximizing its sensory rich characteristics to explore the cultural, historical, and material aspects of landscape. Rather than being conceived of as an act of documenting or representing that which is known, filmmaking in this context is understood as an avenue for discovery, a means of accessing what lies hidden, and a way to reconstruct narrative through critical inquiry.

Several landscape architecture faculty (Lickwar, Spirn, Crawford, Allen, Boone, Gunn, and Langhorst) have demonstrated that film can be used to create a new understanding of landscape, as a shared cultural construct, through the participation of individuals, particularly those whose voices have been marginalized in the past. The constructed nature of landscape, and the politics of its occupation, becomes evident when these voices are heard. In the making of the film, the researcher acts as narrator, weaving a story gleaned from material that may include, but is not limited to personal interviews, photographs, archival records, maps, drawings, and sound recordings.

Findings: This panel explores several approaches to filmic inquiry: photo-roman and documentary film, including multimedia video. Each approach is illustrated by the panelists’ work: Phoebe Lickwar and Katya Crawford (clips from Looking Down: Rediscovering Urban Ground), Austin Allen (clips from Livable Claiborne Communities and The Necessity for Gathering), and Anne Whiston Spirn (clips from Fatima’s Story, When Learning is Real, and A Way to Fix Things).

The panelists will discuss the significance of film within the context of their research and address themes that have emerged out of a comparison of methods: 1) expectations and outcomes, including surprising revelations, 2) compression of time and space, 3) collaboration between researcher and participants, 4) researcher as translator, and 5) avenues for dissemination.
The Prairie Club + Redefined

Christopher Baas Ball State University

keywords: Immersive learning, Prairie Club, film shorts

In the early decades of the twentieth century a group of Chicago professionals united to hike, climb, and play in the natural landscapes surrounding their city. Regionalist landscape architect and member Jens Jensen named them the Prairie Club after the vast native grasslands that stretched across America’s upper Midwest. The club’s favorite place to visit was the Indiana sand dunes on the southern shore of Lake Michigan. This dramatically picturesque landscape provided escape from Chicago and its sprawling industrial satellites. In 1921 club member Theodore Jessup described the dunes as the ‘work of one hundred times one thousand years, by such artists as glaciers, water, wind, and sun until you find there a park, perfect, beautiful; a fairy land; a land of dreams; a land of remoteness; a land of solitude.’ When factories and growing cities threatened to consume this landscape, the club championed its protection. The Indiana Dunes State Park and the Dunes National Lakeshore are the legacy of the club’s efforts to conserve and celebrate this amazing landscape.

Throughout the spring semester of 2014, twelve Ball State University students celebrated the club’s accomplishments through film, animation, art, and children’s books. The students were participating in an immersive learning project sponsored by the university’s Virginia Ball Center for Creative Inquiry. The center’s brand of immersive learning entails interdisciplinary teams of students, a faculty mentor, a partner from outside the university, and the creation of a product. Participation in the center promotes collaboration between students that, due to the traditional division of academic curriculums, do not have opportunities to interact. The students participating in this project represent seven university departments: Landscape Architecture, Planning, Art, Biology, History, Music, and Telecommunications. They created eleven film and animation shorts describing the natural and cultural landscapes of the dunes, artwork that advertised each short, and two children’s books. This project has received an ASLA student Honor Award.

This CELA abstract proposes to present four film shorts (approximately 15 minutes of film) that best express these student’s accomplishments as Virginia Ball scholars. Accompanying the film will be a brief presentation of Ball State University’s immersive learning program, examples of the artwork promoting each film short, and insights into the faculty mentor’s experience.
Alternative Images and Cartographic Cinema

Brian Cook University of Georgia

keywords: mapping; cartography; film; technology; representation; design; urbanism; media

This paper documents the research and project accomplished by students working in La Paz, Mexico, led by the director from Wide Open Office, who struggled with the limitations of traditional architectural media and broke into film as an exploratory ‘mapping’ technique. While the group researched contingent relationships within the city, it became apparent that the market system (and many other aspects of the city) was tied to things that could not be represented by linework and/or text. There became a need to translate poetic qualities of social life such as touch, speed, stress, mood and personal relationships. In order to capture these connections, the maps transformed from line and text drawings into a collaborative project between the students and a local film director.

This project emanates from the suggestion by James Corner in his essay ‘Operational Eidetics’, that landscape architects, architects and urban designers need to “revise, enhance, and invent forms of representational technique that might engender more engaging landscapes than the still-life vignettes produced by much contemporary practice”. Designers have grown an affinity toward using particular tools as media, and these tools prescribe limitations on the documentation of their subject, as well as their ability to communicate. Corner points out that we should be cautious of a homogenous approach to mapping and media. The “inadequacy of techniques and instruments to imaginatively incorporate the rich interplay of processes that shape the world,” he says, has “failed to embrace the full complexity and fluidity of urbanism, and of culture generally.”

The film was in fact able to include more human (less abstract) and social elements in its inventory, and ultimately affected the conceptualization of the final urban project. But many other unexpected results emerged as well. Comparative to the linework maps made by the students, the film was more accessible to the general public and facilitated larger discussions and community engagement. Also, the media infrastructures such as YouTube and Facebook allowed for easy distribution. Finally, the project is now publicly archived, serving as a baseline reference for future generations.
Macon A Moveable Feast: LA Videography + Community Activism in Alabama

Jocelyn Zanzot  Auburn University
Daniel Neil  Troy University Rosa Parks Museum

keywords: Landscape videography, Mobile Studio, community-based design, participatory action research

Film and video have finally arrived as tools for understanding and communicating landscapes, as well as active agents of design. In fact, in a very short time, LA’ cinema or or LA’ shorts, filmic essays and competition entries have evolved from marginal explorations to central landscape architecture practices. Macon a Moveable Feast, a Mobile Studio production, unpacks and evaluates cinematic and cinaesthetic strategies in community-based design, from the field in Alabama. The project raises critical concerns and key potentials for future studies and applications of film in inciting change and changing insight in pedagogy, practice and policy.

The featured case study seeks to understand why Macon County Alabama, a landscape uniquely rich in agricultural history and self-sufficiency, is not at the forefront of the regional local food movement. It is the story of a yearlong movable feast in one of America’s most historic and economically challenged counties. The ways in which the historic legacy of George Washington Carver and Tuskegee University are interpreted and implemented by contemporary citizens, the legacy of institutional racism and the abuse of governmental agency, and its impacts on optimum health and total quality of life, are brought to the forefront for critical evaluation and discussion by all participants.

In this film Mobile Studio explores a concept of participatory action design that positions communities as equitable partners and peer researchers within the complex issues surrounding food health and security. The feast as public event invites diverse community members to the table to share a meal, opening opportunities to discuss the related issues of food security and identify key partnerships for future collaborations. As the feast moves across the county, the moving image contextualizes the work in the local landscape. The produced narrative telescopes between the intimate and the systemic, the existing and the proposed, building a case for both policy change and new landscape infrastructures.

The diverse encounters of the feast: the farmland and farmers, the market and makers, citizens, students, civic leaders, designers and implementers are shared during the project via social media and assembled here in the space of film to share with diverse audiences. This meta landscape movie investigates food health and celebration in Macon County Alabama to advance optimum health, and shares a set of observations about the emerging role of landscape videography to incite change and change insight in community action research and community-based design.
Documenting Hunts Point: A South Bronx Community in a Changing Climate

Richard Roark  OLIN
Sahar Coston-Hardy  OLIN

keywords: Climate Change, Participatory Process and Film, Activism, Hunts Point

An integral part The PennDesign/OLIN Rebuild By Design community climate adaptation proposal was the development of an authentic and participatory public design process. The purpose of the initiative was to document and illustrate climate change impacts upon the Hunts Point neighborhood and the Hunts Point Food Distribution Center, a major center of employment and a critical food supply hub to the New York City tri-state region. The design team employed the medium of film as an illustrative and landscape analysis tool for the design team and a method to empower communication for the South Bronx Community of Hunts Point. Three brief, topically specific videos were developed to illustrate threats from sea level rise and climate change, to communicate the design proposal and document community input as well as portray the unique culture and qualities of this working, industrial neighborhood. The Filming techniques included interviews and narratives from neighborhood residents, food distribution service workers and community advocates explaining the issues and opportunities in this neighborhood.

The filming process itself was participatory with young members of “The POINT” Community Center, a local South Bronx organization, participating in the documentation of the neighborhood. As a result of participation in this project, youth activists honed visual communication skills and completed video pieces that documented the character of their neighborhood from their personal vantage points. The completed video projects were shown at a large community event. The design team videographer provided each of the activists with a video camera to document aspects of their community. The videos took the form of short, living narrative vignettes with transitions into an “Interview style” with testimonials from members of the community.

The process of filming community stakeholders generated several favorable outcomes for the project. It focused the design team on the priorities of the community and served as a valuable record of community input. The information gathered on film was considered superior to conventional notational summaries and photographic documentation because the film content could directly convey the interviewees’ concerns as well as the environmental conditions through direct recording. Lastly, the films served as an ongoing communication tool to convey the aims of the resiliency project.
Animation Outreach: A Cross-disciplinary, Experiential Approach to Promote Landscape Architecture

Matthew James  South Dakota State University
Cable Hardin  South Dakota State University

**keywords:** Motion Graphics, Experiential Learning, Cross-disciplinary Collaboration, Landscape Architecture Promotion

To “incite Change | Change insight,” those connected to landscape architecture need to be change agents on behalf of our discipline. Data suggests “employment of landscape architects is projected to grow 14 percent from 2012 to 2022” (“U.S. Department of Labor” n.d.). The American Society of Landscape Architects (ASLA) has rightfully participated in outreach to define landscape architecture, communicate types of projects, and engage teachers and students in the profession by revealing its impact (“ASLA,” n.d.).

When you pair this outlook with ASLA outreach efforts, it’s important to explore creative ways to define and promote landscape architecture. The purpose of this submission is to collaborate in a cross-disciplinary and experiential approach to define, promote, and celebrate landscape architecture using animation “shorts.”

One of the most direct methods of experiential learning is creating an experience that combines needs of a client with the skills of the student in a learning project. In this case, as a faculty member in landscape architecture (the client and producer), I worked with South Dakota State University animation faculty member, Cable Hardin (the creative director) and his students to use the conference film track opportunity as a final project.

This project provided learning benefits that are rooted in adult learning theory. Rogers (1969) noted that experiential learning can be facilitated when the student participates in the problem based learning process and has control over its direction. In this fashion, the animation class was asked to complete short films that are pieces of time-based media including movement, graphics, and text that promote landscape architecture and inform and inspire.

Over the semester my collaboration included: presenting to the class to define and describe landscape architecture and the vision for the submissions, connecting animation students with content for their work, engaging in email critiques, making mid-project, in-person critiques including myself and students from our landscape architecture program, and attending the final animation presentations that led to the final selection for conference screening. This cross-disciplinary approach created an appreciation for each discipline and a shared pride in the final products.

The learning outcome of this project combines an enriching cross-disciplinary experience with relevant experiential learning. The importance of the submission is that those of us connected to landscape architecture have the potential to be advocates of our discipline using creative means. In this case, a producer, creative director, and animators generated content to “incite Change | Change insight.”
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