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Orland, Brian
Ortega, Daniel
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Watts, David
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Table of Contents

The proceedings of the conference include an abstract book and a CD-ROM with full papers. The abstracts include those for presentation and for exhibit, and were peer-reviewed. The full papers were optional submissions and were not peer-reviewed.

Acknowledgements ..... ***iii***

Abstract Reviewers ..... ***iv***

Communication and Visualization **1**

Animating Landscapes: Communicating Sustainable Design through Dynamic Visualization . 2

Common Ground Film: Crossroads and Confluences 3

Communicating Watershed Processes in a Parking Lot 4

Design Narratives Employed to Shape a Talking Landscape 5

Transience in the Urban Arctic 6

Interactive Landscape Planning Revisited: New Visualization Technologies Provide Opportunities in Participatory Planning 7

Landscape and Visual Impact Assessment Tools Commonly Used in the Siting and Approval Process for Wind Farms 8

Landscapes of Longevity: Using Narrative as a Research, Visualization, and Communication Tool to Unlock the Longevity Puzzle 9

On Time: Creating a Critical Role for History in Landscape Design 10

Planning, Civic Engagement, and Design Approaches to Climate Change and Sea Level Rise: Issues, Examples and Initial Lessons Learned from Maryland and its Eastern Shore 11

Real 3-D Visualization for Geodesign 12

Remnants, Remains, Ruins and Traces: Documenting, Managing and Interpreting Culturally Significant Landscapes Within the Context Of An Active Industrial Landscape. 13

Times, Spaces, Movements: Robert Smithson, Film, and the Invention of Landscape 14

Urban Sketchers: Snapshot of a Global Movement 15

Visualizing Low Impact Development: Strategies, Methods, and Lessons Learned 16

A Model for Adjusting Technology Curriculums in Landscape Architecture Programs: Synchronizing Professional Demand with Pedagogical Framework 18

Adaptive Infrastructures: Developing Multidisciplinary Courses to Design Resilient Coastal Communities 19

Assessing Scholarship Among Tenure Track Landscape Architecture Faculty 20

Assessing the Value of Dual Design Degrees for Landscape Architects: Learning from Professionals in North Texas 21
Benefits and Challenges of Curriculum Mapping in Landscape Architecture 22
Common Ground Between Architecture and Landscape 23
Creativity in Design Students: The Results of a Semester-Long Intervention 24
Developing “InSite” for Insight: Inverting Landscape Analysis Instruction to Measure Place. 25
Dichotomy in Education: Practitioner vs. Theorist 26
Diversity and Inclusion in Landscape Architecture: Successful Strategies From the Single-Sex Design Schools for Women 27
Engaging with History: An Experiential Pedagogy for Teaching Landscape Architecture History 28
GeoDesign: The New Paradigm for Landscape Architecture Education 29
Hot Weather and Little Time: Teaching Green Design in a One-Week Non-Residential Summer Program: What Can Be Achieved with High School Students of Varied Backgrounds? 30
How to Sketch (more) 31
Igniting Creativity in the Design Studio: Continuing the Conversation 32
Incubate, Don't Fixate: Fostering Insight Problem Solving in Design Studios 33
Integrating Research and Teaching 34
International Student Charrettes - Creating Opportunities for Student and Faculty 35
Landscape and Longevity - Performance in the Public Realm 36
Landscape Architecture Education in China: A Synopsis and Review of Milestones in the 20th and 21st Centuries 37
Landscape is an Organization of Systems 38
Making as Applied Creative Thinking and its Effect on the Synthetic Landscape 39
Making Materials Matter in Landscape Architecture Education 40
Mapping China's 20th Century Landscape Architecture Design Education 41
Meditation on Matter: Making Art in the Landscape Architectural Curriculum 42
Mid-Career Doctoral Education: A Reflective Account 43
Novel Landscapes: Challenges and Opportunities for Design Education 44
Panel Session: Rethinking Landscape Architectural Documentation Instruction 45
Paradigms of Design Education in the United States Between 1900 and 1930: The University of Pennsylvania, The University of Illinois, Harvard University 46
Pinterest and Pedagogy: Fostering Beginning Design Students with Cloud Collaboration. 47

Preparing for a Successful Dialogue with the NSF 48
Provisioning Cities: Provisional Strategies 49
Recruiting Tomorrow's Professionals: A Student Perspective 50
Resilient Design Education 51
Shine Bright Like a Diamond: Teaching Strategies for Moving Beyond the 'Scenic' 52
Site Visits in the Digital Era…Are They a Necessity? 53
SQWater: Design Pedagogy for Slum Cities 54
Stormwater Instruction in the SEC's Landscape Architecture Departments: a Comparison with SITES Criteria. 55
Teaching Grading in the Landscape Architecture Accredited Curriculum; Integrating Traditional Manual Methods with Emerging IT Techniques 56
Teaching How to Draw Landscape Experience 57
Teleology, Emergence, and the Landscape Studio 58
The Quest for the Measurement of Creativity in Design Education 59
The Role of Motivational Strategies in Improving Student Learning in the Design Studio 60
The Three P's: Plants, Planting Design and the Profession 61
Through the Eyes of an Outsider: Design Research in a Globalizing World with International Curricula 62
Toward an Ideal Traveling Learning Community 63
Transformative Learning Impacts of Study Abroad Over Time 64
Updating a Studio-Based Curriculum with Blended Learning Practices 65
Using Social Media and Blogs to Enrich the Introduction to Landscape Architecture 66
$20 per m^2 or The Magical Transformation of an Everyday Landscape 68
A BLUEprint for Stormwater Infrastructure Design: Implementation and Efficacy of LID 69
Bicycle Greenways Embedded with BMPs Address Park Poverty, Pollution, and Aquifer Recharge 70
Carefully Regulated Fun: How Playgrounds That are Risky, Creative, and Artful are Meeting American Standards 71
Morphogenesis in the Landscape: Dusty Inflatables 72
Taes Annex Building Water Smart Program 73
The Inspiration of Chinese Traditional Farming Practices for Rainwater Harvesting 74
A Forgotten Giant: The Life and Contributions of Dr. Charles Fountain 76

Accelerated and Decelerated Landscapes 77
Acre: Envisioning a Baja Resort Experience on the Cross-Roads of Design, Productive Landscapes, Cultural Heritage, and Local Community 78
Beauty Isn't Simple: Examining the Complex Role of Beauty in Climate Change Photography 79
Beyond Urbanisms: Re-Making the Contemporary and Future City 80
Borderlands in Landscape Architecture: Parque San Martin 81
Chinoserie Landscape in the United States (1870-1920) 82
Common Canopy: Planting the Boston Common 83
Community as Virtue-the Place of Native Spirit 84
Design and Technology of the Dutch Polder City 85
Design and the Evolution of the American Mind 86
Ecotopia Hits the Ground: Constructing / Re-Constructing the Second Biosphere 87
Enduring Imprints: the Civilian Conservation Corp and Virginia State Parks 88
Fear and Loathing in the Tropics: An Intellectual History of Latitudinal Angst 89
HWS Cleveland in North Dakota: Island Park and the Shadow of a Century Without Landscape Architects 90
Interpretation of Urban Park Design Characteristics 91
Layers of Landscape History: Using New and Conventional Methods to Assess Historical Layers 92
Lenses of Practice: Disciplinary Cultures in Design and Planning 93
Mid-Twentieth Century Modernism and the Invention of "Microclimate" 94
Mission Santa Barbara Visually Explored 95
Modern Korean Park as Discursive Space: Metaphoric Naming and Metonymic Renaming of Yongdusan Park 96
Myths of Progress 97
New American Wilderness 98
Notes for an Encyclopedia of Ground 99
Panoramic Site Analysis and Chicago's West Parks 101
Personalizing the Parkway: Women's Memorial Groves Along the Mount Vernon Memorial Highway 102
Placing Cuentos (Stories): Visually Based Artifacts and the Formation of a Chicano/a Community in East Los Angeles, California 103
Race and Place: The Visible and Invisible Spaces in Southern African American Yards 104

Reclaiming Identity: Palatka, Fl - Gem of the St. Johns River 105
Regional Identity and Landscapes of Death 106
Restoring a Modernist Landscape: A. D. Taylor's Rauh House 107
Roberto Burle Marx and the Botanical Garden 108
Second Nature: Trees, Forests, and Landscape Architecture 109
The Ancient Roman Promenade: Gendered Performance 110
The Force of Things: Constructing the Panama Canal 111
The Jardin-Anglais as Public Self 112
The Sublime in Modernist Landscape Architecture: Dan Kiley and the Artificial Infinite 113
Theorizing the Efforts of Merging Ecology and Aesthetics in Landscape Architecture 114
This is Not a Site 115
Threat and Challenge Regarding Cultural Heritage in Rural-Urban Area Under Chinese Urbanization Background – A Case Study on "Three Hills and Five Gardens" in Beijing 116
Touring the DMZ: Demilitarized Values and Representations of 'The Environment' 117
Townmaking as Foil, from Brazil to The World's End 118
Turkey Run State Park and the Hoosier Imagination 119
Transparency in Theory, Discourse, and Practice of Landscape Architecture 120
Underground Ecologies 121
Urban Barn-Raising: Activating Collective Ritual to Promote Communitas 122
Urban Gradient: Boundary Interfaces on the Watery Horizon of Change 123
Why the American University Campus Matters! 124
"Park Seventeen" Residential Roof Garden: Landscape Performance and Lessons Learned 126
A 'Texas Three-Step' Landscape Performance Research: Learning from Buffalo Bayou Promenade, Klyde Warren Park, and UT Dallas Campus Plan 127
Anticipating Change: Positioning the Profession of Landscape Architecture as a Leader in Climate-adaptive Design Services 128
Assessing Residential Landscape Performance: Visual and Bioclimatic Analyses through In-Situ Data 129
Contrary Remediation: The Contrary Creek Design-Build-Destroy Performance Sculpture 130
Defensible Metrics 131

Developing a Bottom-Up Methodology for the Valuation, Management, and Preservation of European Landscapes: the EUROSCAPES Project. 132
Discuss on Creating Synthetic Evaluation Index for Landscape Planning of Horticulture Shows 133
Evaluating Public Amenities at Stormwater Management Demonstration Projects in Philadelphia, PA 134
How Does It Change After One Year? A Comparison of Benefit Composition of the Landscape Architecture Foundation's Published Case Studies in 2011 and 2012 135
Landscape Performance Assessment of Urban Wetland Park Planning and Design: Case Study of Wuzhou Wetland Park in China 136
Landscape Performance Measures for Stormwater Retention, Biodiversity, Urban Agriculture and Industrial Reclamation in Germany 137
Landscape Performance Series Case Study Review and Analysis: Strengths, Weaknesses, and Prospects 138
One Project at a Time: Measuring Social Performance for LAF Case Study Investigations 139
Plants for Stormwater Retrofits: Aesthetics, Performance, and Maintenance 140
Urban Soils Remediation and the Use of Organic Amendments 141
Using a Delphi Method to Develop Criteria for High Performance Public Spaces that Contribute to Community Sustainability 142
Waterfront Ecologies: Opportunities and Challenges of Assessing Site Performance 143
A Theoretical Method for a Net Zero Waste Alabama 146
Adaptive Landscape Planning for Climate Change: A Case Study of Water System in Wenshang, China 147
Agrowatersheds of the Atlantic Northeast Megaregion 148
An Approach to Improve Coastal Resilience Through Planning and Design of a Recreational trail: A Master Plan for the Mississippi Coastal Heritage Trail 149
Applying Local Multi-Pond Systems to Manage Stormwater in the Development of Mountainous Cities: A Case Study in Liangjiang New Area, Chongqing, China 150
Assessing the Ecological Value and Residents' Perception of Farm Pond Habitat Conservation 151
Attitudes and Methods for New District Development - Case Study of Longwan Central Business District Landscape Planning and Design in Huludao City 152
Central Park's Woodlands: The Urban Forest Reimagined 153
Creating Multifunctional Working Rural Landscapes Through Collaborative GeoDesign 154
Ecosystem-Based Marine Spatial Planning: Assessing Methods Used to Evaluate the Balance of Ecological Concerns with Human Use 155

Ephemeral Water and Concrete Attachments in Arid Landscapes: Exploring Attitudes to Water in the Los Angeles Aqueduct Watershed 156
Examining the Role of Green Roofs as Supplemental Habitat for Avifauna Especially Migratory Species 157
Greenway: A Landscape Planning Strategy for Urban Transformation in China 158
Greywater Policies and Perspectives in the Southeast United States 159
Hydrological Cell Networks: Integrating Public Space into Wetlands through Parametric Modeling 160
Integral Resiliency: Vacant Land as a Catalyst for Merging Surge Protection Infrastructure with Landscape Connectivity 161
Landscape Design and Planning: a European Perspective 162
Lines in the Sand : Landform Interventions for Adaptive Arctic Responses to Climate Change 163
Melt with Nature - Beijing Future Scientific Technology City Landscape Planning and Design 164
Method of Xeriscape Planning in the Arid/Semi-Arid Regions - Chifeng West Mountain Scenic Region Landscape Planning 165
Post-Industrial Ecology -The Road Less Traveled 166
Prairie Green Roof Establishment and Diversity: Measuring the Potential Outcomes for Increasing Species Richness and Evenness in Southeastern US Urban Ecosystems 167
Regional Landscape Planning Studios: Assembling a Process and Discovering Methods 168
Resilience Thinking in Landscape Planning: A Transdisciplinary Conceptual Framework 169
The Fiery Landscape 170
The Pastoral Symphony: Harmonizing Rural Development with Rural Identity 171
Testing Nonlinear Relationship between Water Quality and Urban Land Uses in Watershed using Generalized Additive Model 172
A Child's Endeavor: Harmony in the Healing Environment 174
A Framework for Participatory Urbanism: Drawing from Experiences in Barcelona 175
A Landscape in Transition: The Reinvention of the Presidio in San Francisco 176
A Typological Study of Green Streets in Relation to Land Use Contexts 177
Alternative Views of Landscape Change and Human Intervention: Implications of Cross-Disciplinary Narratives on Design Pedagogy 178

An Understanding of Singapore Nature as Heritage and its Implications in Man-Nature Interaction in Public Parks 179
Calculating Green Infrastructure Benefits on - Human Health and Well-being 180
Challenges to Re Imagining Landscape after Disaster 181
Children's Perception of Walking Environment in New Urban Neighborhoods 182
Colonizing the Urban Wilds: Invader or Pioneer? 183
Community-Oriented Visual Assessment as a Framework for Brownfield Management 184
Comparison of Child versus Parent Reports on Attitudinal and Perceptual Variables Related to Walking to School 185
Correlates of Functional and Perceptual Properties of an Outdoor Campus Environment and User's Sense of Relaxation 186
Cultural Landscape Connections: The Presence of Sense of Place in Landscapes of Longevity 187
Disproportionate Conditions of Natural and Built Environments on Children's Active Travel to School 188
Effect of Fountains on Piazza Usage 189
Examining the Relationship between Access to Tree Canopy Cover and High School Student Performance 190
Exploring Collective Efficacy through Participatory Landscape Design with Urban Minority Teens 191
Fracture, Gather and Generate: Signifying Value and Risk in the Fractured Landscapes of North Dakota 192
Fragmented Water: Political Fragmentation in Local Governance & Water Resource Management 193
From Past to Present - The Change of Urban Waterway Landscape Planning and Design in Northern China 194
Grounding Diaspora: Negotiating between Home and Host 195
How Can Social Participation Process Shape and Foster Unique Landscape and a Sense of Ownership? 196
Identity through Food: Food Sensitive Planning in the Municipality of Ridderkerk, The Netherlands. 197
Implementing Traditional and Modern Potentials in Participatory Urban Landscape Design in Iran 198
Interrelating the Factors Affecting Mental Wellbeing: Proximity to Green Spaces, Neighborhood Satisfaction, and Use Pattern 199
Landscapes of Madness / Landscapes of Compassion 200

Layers of Purpose / Layers of Support: Results from the 2012 National Community Garden Survey 201
Layers: Food, Community, and Design 202
Nanjing Urban Wetland Landscape Pattern Evolution Research Based on GIS 203
People's Perception on the Values of Urban Forest and Effects on Public Health 204
Place Attachment and Natural Resource Management Attitudes 205
Planting the Livable City: Assessing the Research and Practice of Urban Greening for Human Health and Well-Being 206
Reexamining the Research on Suicide Barriers and the Lethality of Jumping Suicide 207
Research Frame of Micro Climate Responsive Planning and Design Theory and Method in Urban Landscape Architecture 208
Restorative Landscapes: More Than Beauty at Play? 209
Restoring the St. Louis River Estuary: Assessing Knowledge and Perceptions to Design for Environmental Stewardship in Western Duluth 210
Running as a Means for Deep Place Readings 211
Seasonal Plant and Vegetative Changes, Preference, Mystery, Legibility, and Complexity 212
Seniors' Outdoor Survey (SOS): An Observational Tool for Assessing Usable Outdoor Environments at Long-Term Care Settings for Older Adults 213
Sense of Place: From Concept to Construction 214
Soundscape Evaluation on Mississsippi State University Campus 215
Systems, Not Symptoms: Diabetes Prevention in the Syracuse Neighborhood Health Study 216
The Association of Neighborhood Design with the Active Travel of Children 217
The Campus Community Experiment: Flexible and Speculative Landscapes for Research, Learning and Outreach 218
The Gardens and the City: From Marginalization to Integration of Community Gardens into the Urban Parks System 219
The Image of the Water City: Designing for Universal Place Attachment with Water-Coherent Urbanism 220
The Impact of Rural Community Environments on the Health-Related Behaviors of Individuals with Disabilities 221
The Mediation Model Verification of Stream Complexity on Land Uses of Area Adjacent to Stream and Fish Assemblages 222

The Range of Opportunities for Public Participation in Shaping the Landscape in Response to Changing External Conditions (Political, Legal, and Financial) 223
The Universal Attractiveness of Universally Accessible Play Environments, A Pilot Study ..224
Transecting the Region of three Post-Industrial Cities in Massachusetts - A Photo-Based Inquiry into Urban Places and Planners' Perceptions 225
Urban Landscape Lransitions: Analysing Urban agriculture Initiatives in Four European Cities. 226
Walkability in Suburbia- A Feasibility Study for Multi-Use Trail Systems in Kansas City..... 227
Wildness and Vacant Land in the Postindustrial City 228
A Case Study for Quantitive Urban Ecosystem Design and Planning: The 2013 USACE Los Angeles River Ecosystem Restoration Study..... 230
A Combined Methodology for Investigating Urban Comfort in a City Undergoing Post Disaster Transitions 231
A Practical Research Tool for Assessing Perceived Environmental Qualities to Use in the Design Process 232
Crowd Sourcing for Empowerment: Enaging Residents in Participatory Evidence Based Planning 233
Ecological Frameworks in Contemporary Greenway Planning: A Critical Review 234
Interactive Engagement Tools for Urban Design — A Rapid Measured Visualization Prototype 236
Investigating Street Trees in China's Transforming City..... 237
Measuring Degrees of Life in the Landscape..... 238
Perspectives on Performance Studies, Indicators, and Methods: The Review of Case Study Approach in Landscape Architecture 239
Professional Development in Landscape Architecture: How Do Practitioners Learn? 240
Scaling Sustainable Development..... 241
School Siting Policy: Identifying Environmental Threats to Children in Public Schools 242
Subdivisions Multiplied: A GIS Method for Identifying Suburban Landscapes 243
The Ethics of Authorship: Towards Establishing Disciplinary Standards in Publishing and Research..... 244
The Restoration Effects of Natural Elements in Public Spaces Using Eye-Tracking Method 245
A History of Public Participation Literature 248
Barriers and Incentives to Stormwater Management: A Comparative Case Study of Two Watersheds 249

Community Engagement and Critical Awareness: Interdisciplinary Efforts to Cultivate Awareness in Students 250
Design by Community 251
Developing Durable Service Learning Partnerships 252
Engaging the State, Impacting Communities, and Transforming Students 253
Greening Urban Schoolyards 254
Interdisciplinary Design and Service Learning: Strategies for Successful Program Implementation 255
Layers of Learning: Engaged Scholarship for Student and Community Education 256
Lessons from the Trenches: Design Charrette Dynamics in Practice 257
Navigating Institutional Territory to Establish a Civic Engagement Initiative 258
Research as Service Learning: Food on the Front Range 259
Restoring, Invigorating and Transforming Small Towns through Community-University Partnerships 260
Rethinking Community Engagement in Oak Park, Sacramento: Toward Alternative, Grassroots Approaches 261
Service Learning Partnerships with Private Practice 262
Skills that Democratic Designers Will Need: the Place of Participation 263
Temple University Landscape Architecture Studio and the New Kensington Community Development Corporation Develop Strategies to Restore the Kensington Somerset Neighborhood in Philadelphia 264
The Power of Voice, The Power of Listening: Storytelling as Transformative Practice in Community Engagement 265
Trusting the Perspective: Beyond Service Learning Trompe-l'oeil 266
Using Theory of Change to Evaluate a Service-Learning Studio 267
Your Town: The Citizens' Institute on Rural Design - A Twenty Year Reflection 268
Critical Pathways: Collaboration = Success 270
Dredging Landscapes of the Great Lakes 271
Enhancement of Concretized Streams: Mill Creek 272
Evaluating the Impact of Suburban Development and Low Impact Development Practices on Surface Runoff in Cypress, Texas 273
Gateway Green Roof: One Year Later 274
Living Roofs in the Cold Prairie Climate – A Modern Idea? 275

Measuring Infrastructure Sustainability; Integrating Landscape Ecology and Urbanism in Transportation Corridors Design and Delivery; An Australian Case Study 276
New Green Layers: Three Design-Build-Research Cases 277
Park Farms Revitalize Body and Soul 278
Perception and Management of Risk in the Sustainable Reclamation of Waste Landscapes 279
Piani Del Verde, Green Space Plans in Italy 280
Reduce, Harvest, and Infiltrate: Demonstrating Green Infrastructure Solutions 281
Regional Planning Initiative for the Province of Puerto Plata in the Dominican Republic 282
Salvaging the Three Legged Stool: Reuse Value(s) in Sustainability Contexts 283
Structured Landscape Corridor: A Methodology for Integrating Species Richness and Development Potential 284
The Cost of Three Lovers: One Park - Three Diverging Design Solutions Compared Through a Life-Cycle Cost Lens. 285
The Effectiveness of LID applications in Condensed Residential Areas 286
Trail or eTrail: Electronic Trails as Sustainable Management Alternative for Recreation Trails on Public Lands 287
Urban Vertical Micro-Farming: Integrating Social, Environmental, and Economical Systems 288
Why Are There No Great Parking Lots? 289
Agricultural Urbanism + the Las Vegas Food District: Shaping an Arid City with Food Systems 292
Assessing the Value of Urban Landscape: Learning from Katy and Santa Fe Trails in Dallas, Texas 293
Building Community: Street, Block, and Lot Morphological Considerations 294
City as Start Up - Learning from Las Vegas, Again 295
Cleveland and Baltimore: A Tale of Two Cities—and Strategies for Future Urban Landscapes 296
Critical Regional Perspectives in Middle Eastern Urban Landscapes 297
Design Principles and Applications for Creating Healthy Schools 298
Discovering Spatial Relationships of Fountains in Roman Piazzas 299
From Public to Civic Open Space: An Examination of Public Space Use in Downtown Portland During the Occupy Portland Movement 300
Introducing a Praxis Framework for Resilient Urbanism 301
Landscape, City and Community: Global Institutions and Deglobalizing Landscape 302

Legacy of the Garden City: A Comparative Study of Open Spaces and Walkability Between American and Chinese Mid-20th Century Neighborhoods 303
LexConNEXT: The Interface of Community and Culture 304
Mainstreaming Water Urbanism: In Search of Public Acceptance for Urban Design Interventions as Climate Change Adaptation and Sea Level Rise Mitigation Strategies 305
Mapping Human Motion in the Urbanscape: A Chattanooga Case Study 306
Marginalized Center - Exploring the Landscape Methods in Urban Historic Communities Renewal 307
Maximization of Utility: Reframing the Purpose and Form of the City Street 308
Place and Placemaking at the Mesoscale: A Study of Downtown Raleigh, North Carolina 309
Pooling / Flowing: Rust Belt Resources 310
Public Spaces in Transition: Transforming Kennedy Plaza in Providence, RI 311
Reconnected Riverfront in Downtown Manhattan, KS: Human and Ecological Perspectives 312
Retrofitting Historic City Centers and the Potential Effects on Their Walkability: A Comparison of San Luis Obispo, CA and Bath, England 313
Revisualizing the City Streetscape from the Child's Perspective 314
Systems-Oriented Design Approach for Creating a Walkable and Sustainable community 315
The Impact of Green Walls and Roofs to Urban Microclimate in Downtown Dallas 316
The Lamination of Moss in the Italian City of Orvieto 317
The Urban Agro Park Competition and the Rise of the Urban Farm Park Typology 319
The Venetian Canal System – Typologies of Edge Conditions 320
Urban Agriculture: The Nexus of Culture and Design 321
Witnessing History at the Corner: Square 575 of the U.S. Capitol Grounds 322
A Children's Guide to Turners Falls 324
Baltimore 325
Barn Again 326
Cartooning the Landscape 327
Contrary Remediation: The Design-Build-Destroy Project 328
Design Code In Haiku 329
Field Observations I [Rome] and II [Dublin] 330
Island in the Sky: Meditations on Scale and Complexity in the Canyonlands Landscape 331

Landscape Icon....332
LANDscape in the BOX....333
Landscapes in Motion: Birmingham Intersections....334
Layers in Our Landscape....335
Mined Landscape....336
Nest Study....337
SAKURA ORIHON....338
SHORE L-I-N-E....339
Strata....340
Surface Layers....341
(Up)Rooted: A Pocket Prairie Garden....342
Water Table....343
Watershed Event....344
Wrap....345
Author Index....347

Full Papers in the CD-ROM

Communication and Visualization

Design Narratives Employed to Shape a Talking Landscape

Design Education and Pedagogy

Adaptive Infrastructures: Developing Multi-Disciplinary Courses to Design Resilient Coastal Communities

The Three P's: Plants, Planting Design, and the Profession

Making Materials Matter in Landscape Architecture Education

Landscape and Longevity – Performance in the Public Realm

Assessing Scholarship Among Tenure-track Landscape Architecture Faculty

Transformative Learning Impacts of Study Abroad Over Time

Design Implementation

A Blueprint for Stormwater Infrastructure Design: Implementation and Efficacy of LID

Morphogenesis in the Landscape: Dusty Inflatables

The Inspiration of Chinese Traditional Farming Practices for Rainwater Harvesting

History, Theory and Cluture

Roberto Burle Marx and the Botanical Garden

Rediscovering the Jones Falls as an Armat7ure, Amenity, and Central Identity of the Historic Center of Baltimore

Personalizing the Parkway: Women's memorial Groves Along the Mount Vernon Memorial Highway

Regional Identity and Landscapes of Death

Borderlands in Landscape Architecture: Parque San Martin

Town-Making as Foil, From Brazil to the World's End

The Force of Things: Constructing the Panama Canal

The Jardin-Anglais as Public-Self

Notes for an Encyclopedia of Ground

Landscape Planning and Ecology

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Landscape Performance

Landscape Performance Assessment of Urban Wetland Park Planning and Design: Case Study of Wuzhou Park in China

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Research Frame of Microclimate Responsive Planning and Design Theory and Method in Landscape Architecture

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The Range of Opportunities for Public Participation in Shaping the Landscape in Response to Changing External Conditions (Political, Legal, and Financial)

Research and Methods

Interactive Enagegment Tools for Urban Design – A Rapid Measured Visualization Prototype

Service-learning and Community Engagement

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Skills that Democratic designers Will Need: The Place of Participation

Sustainability

Perception and Management of Risk in the Sustainable Reclamation of Waste Landscapes

The Effectiveness of LID Applicatons in Condensed Residential Areas

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Introducing a Praxis Framework for Resilient Urbanism

COMMUNICATION AND VISUALIZATION

Animating Landscapes: Communicating Sustainable Design through Dynamic Visualization

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Keywords: dynamic visualization, site analysis, interdisciplinary collaboration, sustainability, regenerative design, landscape visualization, landscape representation

Purpose
To investigate how new modes in dynamic visualization can change and improve the process of site analysis and design, also how it can facilitate design decision making around landscape issues in an interdisciplinary context.

Background
New software enables dynamic representation of landscape processes emphasizing on perceptual visualization in lieu of common conceptual representation methods. The weakness of conceptual representation is that it requires translation by the viewer from two dimensions into three or four, creating uncertainties. Modes of dynamic, perceptual representation can make site analysis easier for professionals and laypeople to understand, increasing its efficacy as a design tool.

Methods
In this paper, we will use a design-build project in Haiti as a case study for communicating the impact of dynamic visualization to incorporate natural systems into analysis and design. In this case study, we created a new site analysis process based upon new digital tools to communicate concepts of natural systems and design application in an interdisciplinary context. This process was used in a studio composed of interior design, architecture and landscape architecture students who were working with a community in Haiti. We evaluated the new tools versus the traditional modes of representation through interdisciplinary student surveys and self-assessment as a project team. Surveys revealed that dynamic visualization techniques were effective in achieving the revelation of natural processes to architects, interior designers and laypersons. People understood landscape processes better and were able to incorporate lessons learned into their designs.

Importance
These new visualization methods may facilitate interdisciplinary investigation, allowing allied professions to 'see' landscape processes with clarity. It also may help non-professional populations understand landscape processes and how they influence design. As systems such as stormwater, or water harvesting involve both buildings and their sites, the capacity to allow architects, landscape architects and clients/users to see these processes is critical to decision making and design; new visualization can impact how analysis and design operate across traditional disciplinary boundaries.

Findings
Through evaluations and surveys of dynamic visualizations and the new site analysis process, architecture interior design and landscape architecture students concluded that they were better able to understand and incorporate landscape processes into their designs. The results of this project suggest that a new site analysis process rooted in dynamic visualization may restructure design decision making to reflect the importance of landscape processes to sustainability - especially in an interdisciplinary context.

Common Ground Film: Crossroads and Confluences

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Keywords: Lanscape videography, Mobile Studio, non-linear design

We are at the pinnacle of mobility in the American landscape; the great dream of post-war auto usage presented in General Motor's 1939 film *Futurama* has come to pass. The roadways of the nation been seamlessly imagineered into a smooth connective track and awareness, perception and conception of landscape are conditioned by speed and efficiency.

Born of artistic revolution and scientific discovery, movies have reflected this integrative condition since their arrival in contemporary culture in the 1880s. The very first scenes capturing a train's exultant arrival at the station and the attendant dispersal of modern travelers, seared the cinaesthetic image into popular landscape imagination. Film is a critical motion graphic at its origin that has the capacity to reflect, design and enhance experience of moving through the landscape.

Not a new way, but a ubiquitous way, of being/knowing/imaging landscape, the question of film in landscape architecture is no longer about whether or not it has a role within the conventions of representation and design, but how it is applied. Layered into this question is how new media and global virtual communication impact highly connected imaginations and actions.

The edge of this design research in landscape architecture lies within the techne of cinema. This paper considers the filmic work of the Mobile Studio, a partnership between Auburn University's Master of Landscape Architecture Program and the Troy University Rosa Parks Museum. The studio, a traveling, interdisciplinary design studio at large in Alabama and beyond, facilitates dialogue, creates a free space of study and transformation of our shared landscape infrastructures and empowers sites of civic health. Film is the media through which the studio analyzes, reflects, expands and creates landscape change.

This paper reviews three projects based in Alabama to advance landscape architecture's emerging theory and practice of videography for design. These community-based collaborative projects specifically advance a missing consideration in the literature of "movism" coined by Christophe Girot in the seminal *Landscape Urbanism Reader*. With the accelerating access to digital video technology, this paper seeks to position the contemporary practice of video for landscape architectural practice in contrast to earlier projects within the discipline that train the camera on the urban landscape as subject. Considering the affective agency of the landscape architect, the Mobile Studio advances a filmic practice that employs the imaginary, empathetic, non-linear and visual storytelling capacities of landscape videography towards a more holistic practice.

Communicating Watershed Processes in a Parking Lot

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Keywords: watershed, environmental art, urban runoff

Watershed processes, like runoff and erosion, are very difficult for most people to picture, especially in urban environments. Yet developed areas have dramatic impacts on water quality and quantity in streams and rivers. With the goals of providing education about watersheds and of demonstrating a watershed process, the parking lot of the Myers School of Art at the University of Akron was turned into a contour map with watershed boundaries marked. Students, from Civil Engineering, Biology, and Art as well as local residents, worked together on the transformation. The Department of Biology loaned us a small research blimp to record the effort, under the direction of Heath Garris (Biology Ph.D. Candidate).

Six inch contours were marked in orange tempera paint throughout the parking lot. Once the contours were established, the watershed boundaries were painted in green and the sub-watersheds associated with specific storm drains became apparent. Simple activities, such as emptying a bucket of water, clearly emphasized the flow patterns related to the contour lines and the pathways to the storm drains.

An additional lesson in this Watershed Event was the shedding of water in one sub-watershed. A blue mark was made at one foot intervals of the sub-watershed area. On each mark, we placed a used 12oz recycled soda can that had been filled with water. Three volunteers swept the cans down the slope, causing the water to be shed. Complex patterns of drainage developed due to microscale variations in the pavement. In the end, the pile of cans served as a reminder of the volume of water that was shed. The audience at the site and YouTube viewers watched the shedding and marveled at the amount of water that w 1/6” rainfall can release.

This project can be perceived as a teaching module or an environmental art project. As the latter, it gained a larger and receptive audience. The paint lasted for nearly two weeks in the parking lot and, therefore, could continue to generate discussion after the event was over. It serves as an example of the spatial thinking that must be applied to landscape problems as well as a small step towards making this kind of thinking more accessible to the general population.

Design Narratives Employed to Shape a Talking Landscape

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Keywords: narrative, temporary installation, medium of expression, design tool

The collection of narratives is a tool commonly used in Design to improve dialogue (Potteiger 1998). The Landscapeinthebox six-months project uses this device to mend a disconnection (a kinetic idea) between the community in the social and built environment, through translation of Singapore Changing Landscapes (Yeoh 2004) into a temporary installation made of 135 boxes displayed in 2013 at the Singapore Art Museum. Each box contains a micro representation of the significance of a particular Singaporean urban landscape, interpreted by an analogous team of architecture students, who have worked on weaving meaning, questioning the idea of value, to build narratives of their homeland.

How can narrative be deciphered from the site, how can narrative be re-interpreted, and conveyed to engage and stimulate dialogue?

During this process, what is the role of the reader/interpreter in the construction of meaning?

Learning from dioramas, a form of representation first used in the 1800's, and its metaphoric capacity to invoke other situations sustained by a defined set of design characteristics (Parcell 1996) design strategy employs devices such as frame, sequence, metaphor, perspective, collection, miniature, etc. to convert perceptions into movement in a process of “building up layers and weaving together strands of information, resulting in a readability on multiple levels” which in turn generates “work that communicates to people….becoming a different experience, telling a different story to whomever is reading it” (Sky & Wines 1989) Each box is designed to be interactive: time, and subsequently motion and metaphor become design tools to turn the landscape processes, forms, and stories embedded in the modification of the land, into the new designed story. Narrative as "knowledge acquired through action" (Turner 1981) is literally the translation of students motion/perception in/of landscape into user`s hands-on experience of the box. The interactive process is amplified by a QR Code that links each box to a website blog providing direct communication between the designer and the user.

The experiment seeks to provide experimental means to widen the boundary of expression. It proposes design as an open process: site analysis, assessment of significance, translation of the landscape interpretation into representation, dialogue through the web are stages which can potentially intersect each other.

Landscapeinthebox becomes an educational tool which develops critical awareness to interpret landscape as relationship, an energizing medium of expression, a virtual and physical storage capable of influencing/ gathering community perceptions with potential to constantly update itself.

Transience in the Urban Arctic

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Keywords: Arctic, migration, transient, industry, nomadic

The Arctic is a region of flux, not only in terms of climate change, melting ice, and shrinking habitats, but also in terms of the transient nature of human habitation. Nomadic traditions date back thousands of years, and can to attributed to the challenge of forming permanent settlements in a harsh landscape. It has only been within recent history that we established urban centers in the region. Often spurred by a local abundance of natural resources, many of these cities were developed solely to support material extraction and production. Requiring a large labor force to drive the local economy, these industrial centers experience a transient influx of people who come seeking employment. These migrations have cultural and economic implications not only for the cities themselves, but also for the greater Arctic region and beyond.

Due to climate change and pursuit of resources, predictions indicate that an increasing number of people will continue to migrate to the far north. As more people occupy the region, especially industrial urban areas, it is important to have a clear understanding of how these locations are interconnected through accessibility and transportation networks. The journey becomes an extension of the city within larger systems of terrain, transportation and infrastructure. Gaining insight into these relationships will not only raise awareness of the fluctuating geographic distribution of people and resources in the Arctic, but will also provide a framework for future design ideas.

Through rigorous factual research and visualization, a cohesive picture of contemporary migration to and from industrial arctic cities will be presented. The objectives of this investigation are threefold; first, to catalog and map the dynamic conditions of these cities; second, to provide a spatial representation of human migrations over multiple scales of time and experience; and third, to provoke questions about the transient nature of contemporary human habitation in the Arctic. The compilation and visualization of this information is crucial for championing future research, especially in landscape architecture and related fields because current data regarding contemporary settlement and migration patterns in the Arctic is limited, scattered and not easily accessible.

This exploration stems from an Arctic initiative established at the University of Virginia School of Architecture by faculty members Leena Cho and Matthew Jull. The research presented is the collaborative work of graduate students Jennifer Livingston and Rachelle Trahan.

Interactive Landscape Planning Revisited: New Visualization Technologies Provide Opportunities in Participatory Planning

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Keywords: landscape planning, visualization, participation, communication

The digital era offers computer visualization techniques that simulate future landscape change or visual impacts with images and virtual models. The suitability of such technologies for participatory landscape planning were studied in the research and implementation project Interactive Landscape Plan of Koenigslutter, Germany (IALP) from 2002-2006.[1] The investigation of different visualization methods, ranging from conventional to new digital techniques, was undertaken in a real planning context and supplemented by experimental trials for scientific evaluation. The study examined how suitable the visualization methods were for different planning stages and tasks in a practical context.

The findings at that time suggested that visualizations with movement and realism stimulate interest during the initial phases of planning. In the inventory phase, realistic visualizations supported orientation and stimulated comments that revealed local knowledge. For the discussion of planning measures, the findings as well as experts recommended that visualization should contain as much detail as the available data allows. However, the results suggest that viewers with more planning experience, i.e. planners, relied less on realistic images than lay groups. The planners actually preferred visualizations with dynamic navigation over static images because they had more control over the image.

Ten years later the research and implementation project IALP is being revisited in order to examine the changing needs and opportunities in interactive participatory planning. The research project “Re-evaluation of the Interactive Landscape Plan” is being carried out from April 2013 until June 2014 by a research team at the Leibniz University Hannover, Germany and is sponsored by the German Agency of Nature Conservation. Its aims are to evaluate the lasting impact of the IALP as well as review current examples of interactive landscape planning in order to identify how new technologies and methods can be used in participatory planning today. The use of social networks, smart phones and touch screen tablets has transformed how we communicate. A central question of the research project asks how this development influences communication with citizens and their involvement in participatory planning. New visualization opportunities, such as 3D viewing of virtual reality and GoogleEarth have taken hold since the Interactive Landscape Plan was conceived. This research project examines the potential of these new technologies to improve citizen and stakeholder participation in the planning process and decisions. The findings are still in the preliminary stage.

Landscape and Visual Impact Assessment Tools Commonly Used in the Siting and Approval Process for Wind Farms

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Keywords: visual impact assessment, wind farms

Landscape and Visual Impact Assessment Tools Used in the Siting and Approval Process for Three Wind Farms in Colorado.

The modern wind farm can consist of over 250 turbines creating a field of metal towers reaching over 400' tall with a whirling 250' diameter pin wheel on top. Mental images such as this have been a source of contention during the public approval process internationally and in the United States (Gipe, P., 1995). In New Zealand, visual impact is a common reason for wind farm projects to be referred to their "Environmental Court" for further review (NZWEA, 2013). The Province of Ontario, Canada rewrote their planning codes to reduce the importance of visual impact because of lengthy delays in the approval process for wind farms (Newland H., 2010). In the United States, Cape Wind off Cape Cod, Massachusetts was delayed for years due to visual impact concerns (Williams, W. & R. Whitecomb, 2007).

The focus of this inquiry will be to compare the use of GIS-based and other digital visual assessment tools used by three developers and their consultants in the siting and approval process in Colorado. A telephone questionnaire was conducted of those participating in successful and unsuccessful wind farm development to determine the software packages used and attributes that made them effective or not from the developers' perspective. The findings will be of interest to visual impact professionals in the public and private sectors and those teaching courses in digital methods.

Landscapes of Longevity: Using Narrative as a Research, Visualization, and Communication Tool to Unlock the Longevity Puzzle

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Keywords: longevity, sense of place, narrative, narratology, documentary film, video, salutogenic health benefits, restorative landscapes, wellbeing

Increasing urbanization in the United States, combined with decreasing overall health of the retiring baby-boomer generation, is creating a paradox of challenges and opportunities for designers and public health officials. Mounting research points to the physical and psychologically restorative health benefits of both natural and designed landscapes; however, most Americans, despite being saturated with health data, spend 90% of their time indoors, steadily growing more unhealthy. At the same time longevity science, once the sole domain of geneticists or demographers, has not been able to fully account for all the pieces of the longevity puzzle. These data-driven scientists are slowly coming to terms with what landscape architects and other purveyors of qualitative cultural products have known for years—that sense of place and the positive associations surrounding places and landscapes can substantially affect wellbeing and health.

The Landscapes of Longevity project visualizes longevity like a puzzle, and has identified sense of place as a key, qualitative piece of the puzzle that has never before been linked to longevity. The research builds upon established discourses in public health, sociology, cultural geography, and environmental psychology to connect salutogenic health benefits with landscape in three locations characterized by high life expectancy—Loma Linda, California; the central highlands of Sardinia, Italy; and coastal communities in northern Okinawa, Japan. For years, social and biological scientists have gathered quantifiable health data from these locations; however, none have specifically examined the influence of landscape or sense of place on longevity.

By foregrounding the lived experience of these inhabitants, this research employs narratology and a journalistic approach to gain insights about personal wellbeing that cannot be captured—or told—by traditional data collection. The researchers recorded interviews with dozens of seniors in each location, documented their daily spatial routines and occupations, and conducted extensive landscape and urban analysis. The final product—a documentary film—combines video, drawings, and spatial mapping (including a helicopter camera to zoom from the body scale to regional context) to synthesize personal stories and cultural landscape analysis into a visual narrative. From each individual narrative to the broader narrative arc of the film, the research utilizes the dual utility of the narrative process to convey qualitative information, lived experience, and personal values to the audience. The project expands the scope of contemporary communication and visualization in landscape thinking, and can hopefully influence public health and design decision-making for healthier communities.

On Time: Creating a Critical Role for History in Landscape Design

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Keywords: Timeline, History, Culture, Representation, Communication

Landscape history is often cast as a specialized undertaking - an accessory design process removed from the more innovative concerns of contemporary design practice. Our presentation seeks to reposition the role of history in the design studio by illustrating how it can provide a critically acute reading of context and, thus, function as a generator of change, rather than simply as a gatekeeper for the status quo. This approach begins traditionally enough with sense of place – a concept defined as much by memory as by objective physical reality. It also borrows heavily from the layered ecological reading of the landscape pioneered in the mid-twentieth century and significantly advanced with geographic information systems. But unlike typical layering systems, which synchronically capture specific moments in time, our layered readings of place deploy multiple timelines, which bring together "the stories about stories" that William Cronon discusses in "A Place for Stories: Nature, History, and Narrative." This synchronous and diachronic reading of the landscape enables a complex multi-dimensional approach that more thoroughly visualizes how the historical threads of the landscape, including both biophysical and sociocultural interactions, reverberate across time and space, informing and being informed by each other. Equally critical, these layered sequences can be read multi-directionally, or in terms of significant events or people. It is our contention that this approach promotes design solutions that creatively engage and communicate multiple agendas and future possibilities. As a design tool, multi-layered timelines are generative without being prescriptive, and thus provide designers and their audiences with the background necessary to understand the historical contingencies of given design proposals, and therefore the knowledge to creatively re-imagine the future.

Planning, Civic Engagement, and Design Approaches to Climate Change and Sea Level Rise: Issues, Examples and Initial Lessons Learned from Maryland and its Eastern Shore

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Keywords: climate change, visualization, resilience, adaptability, civic engagement

Responses to sea level change vary from the practical, such as shoreline stabilization, to the wildly creative in terms of new forms of living in coastal areas. Typical planning and engineering responses to sea level include retreating or bulking up the shoreline, with shoreline armoring being the most common approach along bay shores (STAC 2008: 159). Additional planning approaches include the use of rolling easements, establishing setback lines based upon projected sea level rise, and protecting identified vulnerable areas (STAC 2008, 159-160). The gap between shifting from large-scale sea level change modeling and adaptation strategies to local hazard planning and design strategies needs to be addressed (NOAA 2010). With the complexities of climate change science, engaging with stakeholders and communities to develop an understanding of the localized impacts and the design responses at the regional and site scales is critical (Schroth et. al. 2009; Sheppard et. al, 2011; Sheppard, 2012). Examining local impacts and exploring a variety of planning and design responses requires participatory involvement, clear communication, and visualizing a range of creative solutions to sea level change at different scales.

With over half of the population living on the 17% of landmass that constitutes the coastal area in the U.S. (Collitan 1998, cited by Scavia et. al. 2002: 150), the needs for incorporating the human dimension into design and planning responses to sea level change are: 1) to address the complexities of sea level change that are social, economic, and ecological; 2) to address the uncertainty of climate change at local scales, 3) to determine areas and issues of concern to local residents and stakeholders, and 4) to investigate a range of design and planning responses to mitigate and adapt to sea level change. This project introduces the different planning, civic engagement, and design approaches to sea level rise and climate change in Maryland and its Eastern Shore. The presentation first addresses the need for developing civic engagement approaches and working with local communities. This talk then examines the various climate change and sea level rise planning and design approaches and research at the state, regional, county, and site scales. Initial conclusions are made in terms of the types of design processes, civic engagement activities, phasing, and visual communication necessary in civic engagement, design, and planning approaches to sea level rise responses at the local scales.

Real 3-D Visualization for Geodesign

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Keywords: Geodesign, GIS, Visualization,

Geodesign has been described as integrating spatial science and values into the design process (McElvaney, 2012, Steinitz, 2012). This is done by enabling the rapid generation and assessment of design alternatives as a way of exploring issues that arise from competing and sometimes conflicting viewpoints. The enabling technology for geodesign is computer programming—typically a GIS—combined with a display monitor or projected image.

Although software capabilities for geodesign visualization continue to advance, the hardware capabilities have remained static. Monitors may be desk size for personal use or wall size for small groups. Projectors can display images on screens for large meetings or audiences. These options are flat, two-dimensional displays with the potential illusion of three-dimensional effects depending on software capabilities (sometimes referred to as 2 ½-D). Cave automated virtual environments (CAVE) have been explored since the early 1990s but continue to suffer from distorted three-dimensional impressions when used in groups (Zeilinger et al, 2011).

The authors of this poster presentation created a new three-dimensional display system that involves projecting GIS/design information onto a 30” x 60” scaled contour model. The contours were cut from 0.04” chipboard using a laser cutter and represent a 2 foot contour interval. An LED projector is elevated 9 feet above the contour model on a stable frame and the projected display is formatted to fit the model dimensions. Data such as elevation, slope, soils characteristics, land cover, watershed boundaries, ROW and property lines, aerial photos, analytical diagrams, master plans, site designs, etc. are projected onto the contour model to achieve an actual three-dimensional data visualization effect.

The three-dimensional model/projector display system is being tested with human subjects for its effectiveness in communication vs. standard flat panel displays. It is anticipated that the new model/projector display system will be more effective in communicating analysis, master planning, and conceptual design information at a fixed scale than traditional flat panel displays. It is also expected that traditional displays will be more effective at communicating detailed technical information across scales. The new model/projector system represents a limited but important new step in improving three-dimensional visualization options for geodesign. The authors proposed to bring the actual model/projection system to demonstrate live at the conference in lieu of the standard conference poster.

Remnants, Remains, Ruins and Traces: Documenting, Managing and Interpreting Culturally Significant Landscapes Within the Context Of An Active Industrial Landscape.

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Keywords: cultural heritage, visualization and modeling, lidar

This paper will address efforts to document, plan, and manage culturally significant industrial landscapes and landscape features within areas of the Central Appalachians that remain extremely active in terms of ongoing mining and natural gas development activities. As mining and other energy development activities are ongoing, the region is also actively pursuing future development potentials around heritage and landscape related tourism. The focus of many of these programs is on preserving features such as historic mine company stores, coal-mining artifacts, historic timbering and mining communities, and over two hundred years of battlefields; these continue to apply a range of landscape planning tools and techniques in support of these efforts including: documenting landscape and architectural features with tools such as airborne and terrestrial lidar, photography, and GIS linked spatial analysis; narrative development from oral histories as gathered from citizens and other stakeholders; and cultural resources research using archives from the corporations, agencies and other organizations that were present in the region throughout the last two hundred plus years. Organizations such as the National Coal Heritage Authority are in the forefront of many of these efforts.

The major focus of the paper is on integration of a number of seemingly disparate methods and technologies and the opportunities being realized with emerging landscape characterization tools such as airborne and terrestrial lidar. The “lidars” allow for the highly precise and detailed characterization of environments that can be scaled to the questions of interest. For example, with terrestrial lidar, it is possible to conduct detailed documentation of features such as historic stone foundations, architectural detailing, feature stability and measurment, and appraisals of feature degradation due to forces such as acid rain deposition or adjacent coal mining. With airborne lidar we can prospect for landscape remnants that otherwise might go unnoted such as graves, historic fence lines, foundations for long lost buildings, and cropping patterns from past generations. Use of such technologies is gaining wide acceptance in organizations such as the state SHPO’s and the USDI National Park Service. However, the focus of this research is integration of these technologies with narratives of landscape and subsequent planning and management of those historically significant landscape features.

Times, Spaces, Movements: Robert Smithson, Film, and the Invention of Landscape

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Keywords: dialectic landscape, representation, visualization, film, land art, Robert Smithson

The work of Robert Smithson has evolved around a re-evaluation of the concepts of space and time and their interrelation in the making (or emergence) of landscape. His oeuvre can be interpreted as a response to modernism's "spatial turn", its emphasis of the spatial over the temporal. While his sculptural work is widely known to engage, showcase, initialize, comment on and critique landscape and place as inherently dynamic phenomena, his engagement with film has been much less investigated.

This paper traces Smithson's engagement of landscape as a relationship of time and space through his early walks in the spirit of DeCerteau's "Walking in the City" (Entropy and the New Monuments, 1966 and A Tour of the Monuments of Passaic, 1967), through his intensive investigation into the visual recording of space using maps, photography and film to the emergence of film as a semi-autonomous "parallel site" in the dialect construction of landscape.

Smithson early on discovered film's capacity to grasp space through the moving image, transcending that of photography and painting, rooted in its ability to create "heightened reality" through its "unique and specific possibilities (that) can be defined as dynamization of space and, accordingly, spatialization of time" (Panofsky, 1934:18) and it being "free of the limits of time and space" (Vertov, 1984:15-17).

The relationship between "sight" and "site", between "motion" and "emotion", and the attendant transformation of the viewer ("voyeur") into a traveler ("voyageur") is not just literary – Smithson's work investigates the representational operations and visual practices that lie at the very core of landscape architecture. The tension between the recording of existing places (inventory), their reinvention through montage and editing (analysis), and the imagination of alternative conditions (project) is a key concern of his work, located in a critical understanding of the relationships between the image and what it represents.

The analysis of Smithson's project "Broken Circle / Spiral Hill" and his film of the same title provides numerous cues to film's particular operations that enable it to represent qualities of landscape that far transcend the capacity of more "static" media. In particular, the co-evolution of his sculptural project and his film allow to deconstruct the complex relationships between sight and site, between representational operation and physical landscape change, and suggest new and inventive ways to incorporate film into the canon of established representational tools in landscape architecture.

Urban Sketchers: Snapshot of a Global Movement

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Keywords: drawing, representation, urban sketching

The growing global location sketching movement is centered on the international non-profit Urban Sketchers (USk), founded to promote on-the-spot sketching around the globe and across disciplines, including landscape architecture. At the heart of the movement is a broad social media presence that connects sketchers of different cultural backgrounds, professional disciplines and nationalities, as well as international symposia, organized workshop offerings, exhibitions and publications (Campanario, 2012). Since its conception in 2007, it has grown from a single journalist's idea to share drawings and connect sketchers online into an international movement with over 6000 members representing 30 countries on 6 continents. The purpose of this paper is to explore how the academic and professional practice of landscape architecture and the urban sketching movement can inform and enrich each other through shared interests in communications and urban environments.

Urban Sketchers' cross-disciplinary membership has attracted landscape architects, architects, reportage artists, illustrators, product designers, graphic designers, and film animators, as well as information technology specialists, accountants, and others from fields not typically associated with location sketching. This has provided landscape architects opportunities for cross disciplinary information and training, as well as for leadership within the growing movement. At this writing, landscape architects serve on the Urban Sketchers Board of Directors, as correspondents for the global and regionally based blogs, as faculty for international symposia, and as founders of two regional Urban Sketchers communities.

As the Urban Sketchers non-profit enters its 5th year, its rapid growth and international influence has necessitated a restructuring of its Board of Directors and internal dialog relative to future directions and priorities (Campanario, 2013). Concurrently, the organization held its 4th International Urban Sketching Symposium July 11-13, 2013 in Barcelona, Spain, its largest symposium to date. These landmarks offer an opportune window to investigate the organization and surrounding phenomenon to answer questions relative to landscape architecture and the use of location sketching as a means to observe and understand urban environments:

• What can urban sketching bring to the academic and professional practice of landscape architecture from its experiences in global reach, cross disciplinary training and curriculum development?
• What can landscape architecture as a discipline bring to the urban sketching movement relative to the use of drawing to observe and understand place?
• What is the history and current status of Urban Sketchers in terms of its mission, its facets (global, regional and local), its rapid growth and its organizational structure?

Visualizing Low Impact Development: Strategies, Methods, and Lessons Learned

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Keywords: Visualization, Low Impact Development

Low Impact Development: Opportunities for the PlanET Region is an outreach tool for those who wish to learn of, or advocate for, Low Impact Development (LID) as an enhanced approach to regional growth, redevelopment, and stormwater infrastructure reinvestment. The document was funded by the Knoxville-Knox County Metropolitan Planning Commission through the Plan East Tennessee (PlanET) regional planning initiative. It represents the culmination of work begun in a graduate landscape architecture studio and refined through collaboration with agency officials, engineers, and regional water resource advocates.

Surveys (by others) reveal that the PlanET region's citizens consider pollution in rivers and lakes to be one of the top two most important issues facing the region (2013, Carberry). Protecting East Tennessee's shared water resources so that they may continue to sustain the region's communities economically, socially, and environmentally is a complex problem, but a problem worth solving. Students were highly motivated by the opportunity to investigate potential solutions to these regional challenges, and ultimately proposed the implementation of LID across planning, design, and development scales, as well as educational initiatives as part of their recommendations. Following up on these recommendations, a team of faculty and students leveraged visualization methods and systems-based thinking inherent to a landscape architect's problem-solving approach to develop an outreach publication that would advocate for LID to an audience that is generally unaware, or otherwise skeptical, of its meaning and merits.

The authors posit that prevailing levels of awareness and skeptical attitudes towards LID in East Tennessee are due in part to a lack of regionally-specific, visually-accessible resources. This make the case for its necessity and introduce its fundamental concepts, as well as misconceptions of its practicality, regional suitability, and aesthetic. The document was strategically crafted to overcome these challenges and connect to regional values.

This presentation outlines the critical framework employed, challenges encountered, opportunities discovered, and lessons learned by the authors and students engaged in this collaboration, as well as user assessment of the publication's effectiveness in building LID knowledge and its efficacy as an advocacy tool. Additionally, this presentation offers insight into the strategies and research methods that shaped the publication's objectives, content, structure, tone, and visualization approach. Representation methods used in the document include illustrative exhibits of the value of the region's shared water resources, their current health and threats, fundamental LID tenets, and built LID stormwater best management practices in the study area.

DESIGN EDUCATION AND PEDAGOGY

A Model for Adjusting Technology Curriculums in Landscape Architecture Programs: Synchronizing Professional Demand with Pedagogical Framework

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Keywords: Digital Communication, Landscape Representation, Technology Curriculum, Design Pedagody

The profession of landscape architecture is growing at a rate well below that needed to meet expected demand of our society. Simultaneously, the design disciplines have shifted towards more digitally integrated practices, where multi-program based digital workflows are necessary for project completion. In order to effectively adjust higher education technology curriculums in landscape architecture programs to better prepare graduating students for the competitive work environment they will be facing, collegiate degree programs must understand two primary issues: what digital communication programs are demanded for entry level employment and what direction the profession is headed.

This research presents survey information about digital software use in professional practice from 114 interdisciplinary offices. An evaluative statistic referred to as the “demand correlation (a weighted ratio of response rates to ranking score)” was generated for each software program. This information was used to hierarchically prioritize digital drawing program demand for entry level employment. A second evaluation was also performed analyzing programs currently taught within the technology curriculum for the graduate and undergraduate landscape architecture programs at Texas A&M University using the same methodology. The program demand for each software use by professional offices was operationalized as a target curriculum model and evaluated against the programs taught within the present curriculum model to generate a course of action to modify the existing landscape architecture technology curriculum. Course adjustment suggestions are based on which programs need increasing, decreasing, or initialization to align to current demand.

Results indicate that the curriculum must take strategic measures to maintain a parallel pace with the exponential growth in technological utility in the profession. Findings suggest that current two-dimensional drawing/diagramming programs within the curriculum loosely align to current demand, but a growing multitude of rendering and three-dimensional software merit integration. Instructional delivery of digital drawing media incrementally embedded within studios and construction courses could serve as the primary means of curriculum adjustment alongside new flexible elective development. Simultaneously, add on rendering programs and data visualization (infographics) are becoming necessary skills for entry level employment while the use of hand held devices have also become effective mechanisms for project delivery. The application of these alterations in the curriculum must be founded on more integrated/interchangeable approaches and the development of workflows between demanded programs (rather than each program’s basic functions independently) to enhance the transition from conceptual development to final output.

Adaptive Infrastructures: Developing Multidisciplinary Courses to Design Resilient Coastal Communities

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Keywords: Disaster Planning, Restorative Environments, Temporary Housing, Community Planning, Participatory Design

Recent disasters highlight the need for holistic methods of analyzing and planning for the ways catastrophe affects the physical and psychological well being of individuals and communities. Impacts of natural disasters on communities worldwide have made community relief and rehabilitation demand design responses.

Confronting the wicked problems associated with disaster planning and response is a complex undertaking requiring diverse, experienced, and creative teams. Architects and landscape architects are strategically positioned to lead these efforts because of their synthetic and systematic approach to environmental design, including core professional values and methodologies, and a focus on the intersection of social, environmental, and economic issues. While academic institutions conduct significant research into storm-related coastal issues, the approach is fragmented into discrete disciplinary foci. This compartmentalization separates the scientific community from designers and often ignores the most critical stakeholders—residents of coastal communities that are most affected by the storms.

Successful development of adaptive infrastructures requires a context-sensitive approach. Community and participatory design processes offer great potential to understand the people and places this infrastructure is meant to serve. Shifting the process toward an interactive, collaborative model, designers, scientists, and community groups can more effectively address disturbing trends that place ever-increasing coastal populations in the path of bigger, stronger, and more devastating weather events.

This paper describes the learning objectives, research methods, and design processes of a new seminar/studio sequence that organizes engineering, landscape architecture, and architecture graduate students into research and design teams that will: 1) research East Coast hurricane trends, 2) analyze local, state, and federal government agency roles, 3) assess non-governmental organizations (NGOs), businesses, and community groups involved in post-disaster preparation and response, 4) prepare case studies to identify key risk and recovery factors, and 5) develop design scenarios at multiple temporal and spatial scales within specific coastal communities.

The line of scholarly inquiry pursued in these courses will reside at the confluence of these topics—a merger of the technical and the humane. The courses will rely on partnerships with the UNC Coastal Studies Institute (CSI), Army Corps of Engineers, Department of Defense (DOD), and municipal Offices of Emergency Management (OEMs). The course learning objectives build on disciplinary skills that students have developed in previous curriculum-specific coursework. By engaging community and government stakeholders, and consulting with marine, earth and atmospheric scientists, students will develop problem-solving skills that will enable the future implementation of highly adaptable and holistic design propositions.

Assessing Scholarship Among Tenure Track Landscape Architecture Faculty

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Keywords: faculty, scholarship, research

The career development and success of landscape architecture faculty hinges increasingly on their scholarship (Deming & Swaffield, 2011). Faculty in the process of demonstrating their scholarly productivity and its value to secure academic tenure and promotion balance the compatible yet distinct demands of scholarship and the preparation of future practitioners. Prior studies of landscape architecture scholarship indicate that faculty productivity is hindered by relatively high instructional loads and student contact time (Milburn, Brown, & Paine 2001; Chen et al., 2011). As a result, it often becomes necessary for landscape architecture faculty to describe the academic context in which they engage in scholarship, and may place them at a disadvantage when evaluated with faculty in other fields. There is very little recent investigation of the type, level, and amount of scholarship on which faculty may be appropriately evaluated in the diverse context of landscape architecture. The purpose of this study is to establish a baseline understanding of landscape architecture faculty scholarship.

The study employed direct content analysis of the curriculum vitae of 18 landscape architecture faculty members who were recently awarded tenure. Participant selection involved first identifying 21 similar land-grant university programs with accredited bachelors and masters degrees in landscape architecture. The curriculum vitae of 24 faculty members in these programs, identified by the program administrator as having been awarded tenure since 2008, were solicited in February of 2013. The response rate was 75%. Common scholarly outcomes, such as refereed journal articles, juried competition participation, reports, etc., were operationalized by the research team. Two researchers independently analyzed each vita, thereafter comparing the individual results, and negotiating any discrepancies with a third researcher. Agreement was over 90% for most scholarly products. The results are reported as descriptive statistics.

The findings suggest landscape architecture faculty members' scholarly productivity continues to be relatively low. The emphasis on traditional academically refereed products is pronounced. This emphasis is reflected in the way faculty scholarship is presented in vitae, which can appear highly variable without widely understood and adhered to definitions of scholarly products. This presentation will examine contemporary landscape architecture faculty scholarship types, level, and productivity as it establishes a current baseline understanding. Common scholarly product definitions will be presented and the impact on the field will be discussed.

Assessing the Value of Dual Design Degrees for Landscape Architects: Learning from Professionals in North Texas

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Keywords: Dual Degree, Multi-disciplinary, Landscape Architecture, Architecture, Education, Professional Practice, Pedagogy, Texas

Many of the early professionals in the landscape architecture profession had other previous design education (Tishler, 1989). For example, Hideo Sasaki and Lawrence Halprin had exposure to other academic fields, like environmental design and architecture (Mann, 2009). According to *ASLA: 2013 Survey of Graduating Students* data nearly one-tenth of the landscape architecture graduate degree recipients had a previous degree in landscape architecture and about one-fifth of them had a previous degree in another design or planning field (ASLA, 2013). It seems like acquiring other design and/or planning degrees is common. Yet very little is known about how much the exposure to multiple disciplines affect these landscape architecture professionals in their professional practice.

The purpose of this study is to assess the value of dual design degree backgrounds among landscape architecture professionals, particularly the ones practicing in North Texas. The research specifically concentrated on the review of educational background and experience, as well as the details of the daily professional practice of the individuals who have degrees in architecture, planning, and or other relevant design fields in addition to landscape architecture. A few of the topics covered by this research are the similarities and differences among the degrees received, participants' comparison with colleagues of a single design degree, what value each degree brings to their daily professional practice, and the recommendations for future landscape architecture education, research, and practice. The research follows qualitative methods to study the implications of a dual design degree background among landscape architecture professionals. Open-ended interviews, using snowball technique to recruit participants, are conducted with North Texas professionals with dual design degrees (Bogdan and Taylor, 1998). The data are later transcribed, coded, and organized into a database. The constant comparative method from the grounded theory was applied in the analysis and themes were derived (Glaser and Strauss, 1967).

In conclusion, a majority of the participants felt positive about their background and its impacts on their professional practice. The common theme among the participants was how the dual design degrees assisted them with easier communication skills among other professions when multi-disciplinary collaboration was needed in a project. Also, many of the participants' current positions reflected their skills obtained in both design educations. Results also illustrated that they had minimal additional exposure to other fields during their education suggesting that students would benefit from earlier exposure to other design fields in their education.

Benefits and Challenges of Curriculum Mapping in Landscape Architecture

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Keywords: curriculum map, collaboration, student learning outcomes

Curriculum mapping is a collaborative process, where instructors work together to develop a real-time visual representation of student learning objectives across an academic discipline (Rahimi, 2010). The map is a guide that can be adapted over time in response to changing needs (Jacobs, 2004). In other fields of study, curriculum mapping has provided a flexible and structured approach that helps foster collaboration among faculty. This process has also yielded better distribution of student learning outcomes across a wide variety of courses (Uchiyama, 2009). This tool is particularly relevant in the field of landscape architecture, because curriculum and courses are constantly in flux due to shifting faculty, knowledge, world issues, technology, and studio project selection. The purpose of this study is to assess the potential benefits and challenges of curriculum mapping for landscape architecture programs.

A curriculum map was developed within the 4-year undergraduate Landscape Architecture Program at North Carolina Agricultural and Technical State University (N.C. A&T). This map was initially developed by the N.C. A&T faculty, with the help of a consulting advisory board, in the spring of 2013. Photographic and written documentation of the process, along with interviews of participants were gathered in an effort to judge overall impact.

The N.C. A&T case study findings indicate the mapping process was an effective tool to address overlaps and gaps in student learning outcomes. Faculty and advisory board member interviews revealed that the formalized curriculum mapping process generated increased levels of collaboration and knowledge sharing that was not observed during previous, less structured curriculum reviews. One challenge that arose was the small faculty group size at N.C. A&T. An advisory board was created in response to this challenge, resulting in better discussion and results. Another challenge that emerged was the need for more definitive sources of required student learning outcomes within the field of landscape architecture. Finally, faculty noted that the curriculum mapping process was initially time-consuming, and interfered with other required duties.

The N.C. A&T case study illustrated that curriculum mapping can be a powerful tool to foster meaningful collaboration and better management of course delivery and student learning outcomes. Other academic programs could benefit from a clearer understanding of the process, benefits, and challenges revealed through this case study.

Common Ground Between Architecture and Landscape

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Keywords: Disciplinary, Interdisciplinary, Learning Goals

A key challenge with undergraduate interdisciplinary pedagogy is balancing disciplinary specific goals with interdisciplinary goals. This presentation will discuss the pedagogical strategies, course structure, and assessment of a third-year interdisciplinary landscape architecture (LARC) and architecture (ARCH) design studio.

The course utilized the development process of Backward Design as defined by Wiggins and McTighe in "Understanding by Design" to position students in an appropriate learning environment. Two course sections from a third-year design studio engaged in a similar introductory project to assess student learning. The interdisciplinary "test-section" was co-taught by a LARC and ARCH faculty and a single ARCH faculty taught the disciplinary specific "control-section". The introductory project "Inside-Outside Precedent Study" asked groups of three students from the "test-" and "control-section" to critically read a series of precedent projects. The groups were asked to analyze the building/site construct from multiple perspectives and to consider where the disciplinary boundaries are blurred and identify strategies for connecting inside to outside and visa-versa. During this introductory project the "test-" and "control-section" were given a pre- and post-test to assess their progress and growth. These answers were collected, compared, and student observations will be further discussed in the presentation. At the end of the assignment both sets of students came together to present and discuss their findings in an open dialogue.

In conclusion, if there is a strong desire to introduce interdisciplinary courses to undergraduate students in hopes of preparing them for "real world" situations faculty member(s) must always consider disciplinary specific goals along side interdisciplinary desires. However, prior to collaboration a strong disciplinary specific knowledge base of the students must exist to maximize the potential of this pedagogical structure.

Creativity in Design Students: The Results of a Semester-Long Intervention

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Keywords: Creativity, cognitive measures, Torrance Test of Creativity

How can we enhance beginning design students' creativity? The Design Educator's Model of Creativity (Merrill & Rolley 2012) served as the framework for exploring the effect of an academic intervention on the creativity of college freshman design students in order to answer the question: Does participating in an academic intervention affect creativity, as measured by the Figural Torrance Test of Creative Thinking (FTTCT), of first-year, three-dimensional design students? A mixed methods approach allowed development of a rich field of data for analysis as well as a body of student work and experiences. The results of this study illuminate ways in which design educators may better understand and enhance student creativity.

Student participants enrolled in a one-hour weekly seminar class, Design Thinking and Creativity, similar to a course introduced by Hargroves (2007). These students (n=70) paralleled a control group of students who were not enrolled in the seminar. (n= 18) The seminar presented a number of different creative thinking techniques, which include but were not limited to: design process (Lawson, 2006), divergent thinking, convergent thinking, metacognition, attitudes, motivation, and the importance of the physical environment. Presentation of the techniques was followed by student completion of related creativity exercises. Utilizing a modified Solomon Four-Group non-equivalent control group quasi-experimental research design, adapted from Campbell and Stanley (1966), the study culminated in comparison of post-test scores between the treatment group and the control group. Individual responses to creativity exercises were assessed in three ways: the FTTCT, a longitudinal creativity rating, and an instructor-based creativity rating. In addition, individual end-of-semester creativity projects were independently rated by ten expert judges.

The treatment group, on average, ($M=113.53$, $SE=1.82$) scored significantly higher than the control group on the post-test administration of the FTTCT ($M=104.78$, $SE=3.41$), $t(84)=-2.22$, $p<.05$, $r=.06$). This research supports the theory that design educators can influence the creativity of design students by exposing students to creative thinking techniques paired with short creativity exercises. An analysis using Spearman's Rho determined a significant correlation between individual scores on the three assessments of individual student creativity, focused on the individual's creative cognitive abilities; however, there was no significant correlation with the final creativity project. These findings support the Design Educator's Model of Creativity that identifies individual cognitive ability and a creative product as separate constructs. This presentation will review the quantitative analyses utilized as well as a more detailed discussion of the findings.

Developing “InSite” for Insight: Inverting Landscape Analysis Instruction to Measure Place.

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Keywords: Site Analysis, Place Making

“InSite" , a site-specific, place-defining methodology, is an alternative to current methods of field data collection and site analysis. Contrary to the traditional approach of site inventory, analysis, and subsequent synthesis, students shaped a process to investigate place-making ideals at the beginning of the design process to focus accumulating data at the site. This paper presents current results of ongoing research evaluating students’ understanding of purposeful site-specific data gathering and site analysis with the goal of designing and building for a given place.

Site data collection is increasingly easy and quick to obtain; students often rely on technology to quantify elements of site analysis: locating points, calculating area, identifying plants, etc. The “InSite” method requires students to relate data back to qualitative place-making goals before moving forward with site analysis and design synthesis. Presenting landscape data in this fashion reiterates the importance and hallmark of the Landscape Architect as a highly-skilled and focused professional.

Often, students’ site analysis is couched in the notion of place-making as a design result and ultimate goal. However, students utilizing the “InSite” method target place-making data / measures. Testing assertions of this methodology in contrast to a more-traditional design studio approach, a graduate-level course applied “InSite” through critical analysis of a historic landscape through a series of exercises establishing criteria for measuring place first.

Initiating a place-making methodology emphasizes site as dynamic and diverse and leads students to a broader understanding of landscape analysis and the role of the Landscape Architect. Combining this approach with visualizing the site through diagrams and measurements, a pedagogy emerges that develops effective communication as part of an overall conversation and articulating relationships. This on-going development of a new methodology and approach is targeted to be transferable to varying environments and be universally applied with the results of a given analysis remaining site-specific.

Dichotomy in Education: Practitioner vs. Theorist

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Keywords: pedagogy, curricular structure, education, professional practice

Are degree programs in Landscape Architecture preparing students to be the designers and builders of sustainable sites and communities and stewards of the land or simply master planners? This study investigates the relationships between Landscape Architecture curricula and professional practice providing data, when completed, to discern whether or not a fundamental change in the curricular structure of Landscape Architecture programs is necessary. In particular, it presents a curricular model that increases the breadth and depth of ecology, plants, site engineering, and construction methods into an integrative studio environment.

The foundational elements of landscape architecture are the abilities to assess, analyze, synthesize, design and construct places and elements in the landscape. The profession of landscape architecture (and supporting education system) is often defined and promoted by terms such as nature/natural, built/build, ecosystems, sustainability, environmental, garden, conservation, construction technologies, materials, stormwater management, habitat, constructed wetlands, urban forestry, parks, urban agriculture, greenway, integrate, collaborate, construct, restore, etc. This implies that the core knowledge and skills being taught are in the areas of ecology, plants and horticulture, planting design, hydrology, site engineering, and construction. Accordingly, degree programs in Landscape Architecture should have heavy emphasis in these areas of knowledge and their integration into design. A cursory review of programs in the United States suggests that this is not the case. (1)(2)(3)(4)(5)(6)

Most programs in Landscape Architecture require 90-100 credits to obtain a professional degree. Of these requirements only of 12-20 credits are usually associated with courses supportive of these fundamental areas of knowledge. This averages less than 20% of the curriculum focusing on areas that are touted as the expertise of landscape architects. A review of design studio courses also suggests that application is focused more on master planning than on site design and implementation.

Greater emphasis on these foundational areas of knowledge and skill provides potential for an integrative approach to design and application. This approach would integrate core material (faculty and methodology) directly into the design studio process. Cooperative instruction could promote the teaching of an increased body of critical knowledge and skills while directly applying and integrating them into design. Immediate application and reinforcement occurs with this approach. Such integration allows for additional information to be added to the curriculum without an increase in credit requirements.

The proposed model could more directly accomplish the instructional objectives of preparing students for the professional practice of Landscape Architecture.

Diversity and Inclusion in Landscape Architecture: Successful Strategies From the Single-Sex Design Schools for Women

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Keywords: design education, diversity, inclusion, Lowthorpe, Pennsylvania School, Cambridge School, WSPA

Increasing the participation of practitioners from historically underrepresented groups continues to be a challenge for the design professions, including landscape architecture.

This presentation illuminates models and strategies for achieving greater diversity and inclusion in landscape architecture, elicited from a historical and qualitative study of four independent, single-sex schools of design for women that existed in the United States – The Lowthorpe School of Landscape Gardening (1901-1945), the Pennsylvania School of Horticulture for Women (1910-1958), The Cambridge School of Architecture and Landscape Architecture (1915-1944), and The Women's School of Planning and Architecture (1974-1981) (Cahn, 2014).

The educational missions and accomplishments of these four schools created pathways into professional participation for women, but also illuminate viable strategies for bringing members of other chronically underrepresented groups into design fields, including landscape architecture.

Three of these institutions were created during the Progressive Era, when middle-class women sought education and employment in large numbers, yet were excluded from attending many existing educational programs because of their gender. Gardening, horticulture, and landscape architecture were seen as appropriate careers for women, and visionary individuals created new educational opportunities for them. The Cambridge School alone educated almost 500 women, and a large number of them entered design careers, created successful firms, and effectively mentored younger generations of women designers (Anderson, 1980).

The Women's School of Planning and Architecture (WSPA) was created in response to its founders' exposure to the U.S. civil rights movement and feminism of the 1960s and 1970s. These women created a new space for design education in which participants could fully support each other while learning professional skills. WSPA's programs reached over 400 women, and like those who attended the earlier generation of single-sex design schools, a significant number of them continued in design-related careers for many decades and encouraged younger women to pursue design careers (Weisman, 2004).

Some of the successful strategies discussed in this presentation include 1) alignment with a strong outside movement for equality and social justice; 2) commitment to an interdisciplinary approach to design professions; 3) involvement of key individuals who serve as translators between groups; 4) sufficient resources (financial, of course, but also space, communication, and others); 5) maintenance of a closed discourse space within the school, even if temporary; 6) commitment to ongoing discourse with larger relevant communities; and 7) learning processes that include culture-specific and culturally relevant notions of creativity and fun.

Engaging with History: An Experiential Pedagogy for Teaching Landscape Architecture History

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Keywords: Landscape Architecture History, Pedagogy, Technology

History classes across a broad spectrum of fields are suffering from student disengagement (Donovan & Bransford, 2004). It has been suggested that this disengagement is rooted in the instructivist pedagogy utilized in the majority of history classrooms, which relies heavily on traditional lectures, textbooks, essays, and exams (Mitsoni, 2006). This approach conflicts with the preferred learning strategies and styles of the Millennial generation of students who currently populate our universities, and prefer doing, collaborating, using technology, and customizing their experiences (Oblinger, 2003).

This trend also extends to landscape architecture. Michael (2007) identified history teaching in landscape architecture as a subject area that is currently experiencing an increasing amount of student disengagement and, perhaps as a result, degrading student understanding of topics related to landscape architecture history. Such disengagement is not unexpected considering the nature of students enrolled in landscape architecture programs. In addition to sharing the attributes of Millennials, landscape architecture students also favor experiential learning over traditional lecture-based pedagogies, and are often adverse to traditional assessment methods such as essays or tests reliant upon rote-memorization of facts (Brown, Hallett, & Stoltz, 1994).

This research describes the development and implementation of an experiential history pedagogy that seeks to address the problem of student disengagement through providing a new model for teaching historical subject matter. This new pedagogy focuses on engaging the learner by combining the rich and varied elements of landscape architecture history with an approach that emphasizes spatial exploration, problem-based activities, hands-on learning, and first-hand sources. Additionally, a heavy use of technological tools are incorporated into the pedagogy, including Google Earth, virtual tours, mobile devices, and social media.

The pedagogy has been utilized in a required landscape architecture history course for both undergraduate and graduate students for two years. Results from student evaluations indicate that students have experienced increased engagement while using the pedagogy and have shown improvement in attaining course learning objectives. This presentation will present the theoretical underpinnings of the pedagogy, specific examples of projects from the course, and report on measurements of student performance.

GeoDesign: The New Paradigm for Landscape Architecture Education

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Keywords: Geodesign, GIS, 3D modeling

Philadelphia University's College of Architecture and the Built Environment launched its one-year Master of Science program in GeoDesign in Fall 2013. This program is now part of our Landscape Architecture Program and is one of the first of its kind in the world. The MS in GeoDesign Program emphasizes sustainable practices, collaboration and innovation within an integrated, cross-disciplinary process. The program is intended for design, planning and engineering students, working in collaborative teams, to find innovative solutions to 21st century urban challenges. Geodesign students will be directly involved in real projects with community stakeholders as well as government entities and industry leaders. They will work with advanced technologies including 3D GIS (e.g., CityEngine), modeling (e.g., Model Builder), gaming, LiDAR and building information modeling. The students will also help develop and test new tools that will inform future industry practices. Our faculty is made of leading industry professionals, and our facilities include our LEED Gold Center for Sustainability, Energy, Efficiency and Design (SEED).

The idea to establish a master's degree program in GeoDesign at Philadelphia University grew out of the first Esri Geodesign Summit (2010) and took several years to get approved. A Geodesign education committee was established after the first summit. Most participants are landscape architecture, architecture and geography faculty. The primary focus of the group has been discussing the potential for geodesign education delivery—as stand-alone degrees or certificate programs, separate courses within existing programs, components of existing courses, etc. Some landscape architecture faculty have argued that landscape architecture is "geodesign."

This presentation will define geodesign education and then address the evolution of the Philadelphia University GeoDesign program and its structure as well as reference other models for delivering geodesign education.

Hot Weather and Little Time: Teaching Green Design in a One-Week Non-Residential Summer Program: What Can Be Achieved with High School Students of Varied Backgrounds?

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Keywords: green design, sustainability, summer academy, exploration, learning outcomes

There are a number of University run summer programs where high school students learn about careers in the design professions of architecture, landscape architecture and engineering. For learning about landscape architecture, the internet is a good place to search. What one will discover is that summer programs, can be found in many states around the country and that they tend to fall into two categories related to lengths of time that they run. There are the 4 – 6 week summer programs and those that run for 1 - 2 weeks with considerable differences between programs including what they emphasize, whether they are focused on a single discipline, and whether there is a residential component.

This presentation focuses on a one-week, five day program that is called the Green Design Academy, which is associated with a transportation center found at a northeast university. The Center had established 3 summer academies in previous years (engineering, business and construction) and looked to expand its offerings to include Green Design and Sustainable Landscape Architecture. The “Green Design Academy” was established to provide high school students, grades 9 – 12, with the opportunity to learn about a career, skills and tools and applications while also emphasizing sustainable practices and environmental stewardship. The free program, which was first offered in 2010, has provided a unique overview to a diverse group of students, nearly all of whom have very limited knowledge about landscape architecture and sustainable design.

The presenter will describe the academy goals, its mission, and structure for delivering a program of introductory talks, activities, and field trips. He will describe the recruiting process aimed at attracting a diverse student body from around the state. The presenter will describe responsibilities of the leadership team that included one faculty member and two students (one a graduate of the program), the learning objectives, and the methods for delivering the program. Using surveys at the start and finish, he will describe what the students learned about green design, sustainable practices and a career in landscape architecture. In addition to surveys, he will suggest other means for measuring the successes of the program and will offer an evaluation of the one-week program with suggestions for change.

How to Sketch (more)

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Keywords: sketching design, learning to sketch

Learning to sketch is learning to see in a new way. It is not only an ability that records visual data but it also involves the translation of existing visual information or an idea to a two-dimensional surface. Sketching is a creative and inventive practice that allows one to see places and subjects “more deeply, more completely, more wholly” (1). The advantages of sketching over photographing are evident in site analysis, interpretation and even the design process: “sketches teaches you to see, not just to look” (2). It is precisely the careful observation of a scene and its translation onto paper that requires a serious understanding of the subject and an assessment of relationships.

Unfortunately the practice of sketching, or carrying a sketchbook has become obsolete by the popularity of smartphones. These small and portable devices allow the quick and effortless recording of information during site visits, explorations, documentations and even the digitalization of documents. While designers, instructors, faculty and teachers try to encourage students to sketch, students take notes, write down measurements, scan documents and document site visits in photographs and videos using their mobile phones.

If sketching is a creative and informative activity that allows a designer to record an idea quickly, to visualize a design or to solve problems, how can we encourage students to sketch more? How can students be asked to practice sketching everyday to improve their skills?

“Obsessive Consumption” is a book by Kate Bingaman Burt in which she records all her purchases for two years (3), and was used as the basis for a similar documentation that asked students to draw everything they purchase during the duration of the course (10 weeks). The paper will present the findings from implementing “Obsessive Consumption” as a means to improve drawing and abstracting abilities. Additionally, it will also share students thoughts in regards to consumerism and spending habits, and their reflections on their purchases and budgeting, from items that they regretted buying to the shocking price of food to the cost of studying Landscape Architecture.

Igniting Creativity in the Design Studio: Continuing the Conversation

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Keywords: Creativity, Design Process, Teaching Methods

The design studio is at the core of landscape architecture education, yet there is a gap in the literature on nurturing creativity in studio teaching specific to our discipline. Educators may look to the literature of other fields as a resource for developing teaching methods, particularly industrial design, architecture, and psychology. However, the landscape architecture studio presents issues unique to the discipline which deserve critical evaluation and reconsideration. With input from the wider community of landscape architecture educators, the authors seek to challenge inherited models of landscape architecture studio teaching, identify problematic areas, and propose new methods.

This presentation extends and expands upon the conversation initiated at the CELA 2013 panel presentation Igniting Creativity in the Design Studio: Ideas for Action, where the authors solicited feedback from participants on four key issues in studio teaching: 1) Is the studio structure still appropriate? 2) What teaching methods can help students shift from analysis to design? 3) What is the value of juried reviews? Are there alternative methods for giving feedback and evaluating student progress, which build confidence and creativity? 4) How can studio more accurately reflect the collaborative nature of professional practice without compromising conceptual thinking and creativity?

Twenty landscape architecture design studio faculty, representing twelve programs from around the world and a range of teaching experience, participated in the CELA 2013 panel discussion. The authors divided participants into four focus groups and led discussions framed by the four research questions above. The robust discussions, documented through hand-written notes and audio recording, revealed a multiplicity of responses to these issues. While participants were generally in agreement on the significance of the issues, they differed substantially in their pedagogical approaches and proposed studio methods. However, there was discernable agreement on recurring impediments to promoting creativity that underpin all four areas of discussion: principally, a studio structure, format and evaluation that emphasizes product over process and the conceptualization of design process as linear and defined by discrete phases rather than being cyclical and iterative.

The multiplicity of teaching methods proposed in the discussions suggests that landscape architecture educators would benefit from a forum for sharing and developing new ideas. In this presentation, the authors share both their own ideas for igniting creativity and those gathered at CELA 2013. They will also introduce a blog that provides space for future contributions from educators who wish to join the conversation.

Incubate, Don't Fixate: Fostering Insight Problem Solving in Design Studios

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Keywords: insight problem solving, design education

Solving problems through insight commonly takes place during the design process. It is characterized by a sudden epiphany (A-ha! moment) during which an individual acquires an understanding of a problem's solution after a period of struggle and coming to a halt in problem-solving. One cannot set out to solve a problem through insight, but one can create conditions under which insight is more likely to appear.

A number of factors seems to facilitate insight, including: the incubation effect (setting the problem aside for a while), positive affect (feeling "good"), mindfulness facilitation (increase of being aware without judgment), formal training in problem solving, and brief interventions (Alternative Uses Task, Self Affirmations, and Directed Movement). Alternative Uses Task involves generating multiple uses for common household items (i.e., a paper clip or a shoe); Self Affirmations consist of considering one's strengths and core values, and Directed Movement involves moving one's body, in a way which may affect coming up with a solution. These facilitators may prevent fixation on one solution, and foster generating multiple solutions at any stage of the design process. Some may aid with any problem solving, insight or step-wise.

The insight problem solving background is presented through the lens of the computational theory of the mind, which likens the brain to an informational processing system, and thinking to computing. After providing background information, the author discusses a typical studio project timeline and proposes how insight problem solving facilitators can be incorporated into the process.

Integrating Research and Teaching

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Keywords: professional development, funding, scholarship, pedagogy

Finding time for the competing demands of teaching, research, and service is a perennial challenge for the academic. The practice orientation and heavy teaching loads created by design studios make this conflict particularly acute for landscape architecture faculty. Accredited BLA and MLA curricula are dominated by courses that are required because of their utter necessity to the education of future landscape architects. However, the delivery of these curricula often require faculty to teach courses that bear little relation to individual research interests or expertise. Such coursework may be most easily tied to service learning and outreach-based scholarship, which may be valued differently than more traditional research in academia as a whole (O'Meara 2001), but (our experience suggests) not within landscape architecture. Given these conditions, the integration of required BLA/MLA instruction with externally funded and/or peer-reviewed research is a highly desirable asset to the successful faculty member.

While scholarly productivity has always been vital to success in the professoriate, shrinking institutional budgets and other financial constraints have increased the pressure for external funding (Miller 2010). Landscape architecture may face special challenges in dealing with such pressures due to the dominance of professional degree programs (BLA and MLA) and the practice orientation they engender. An additional challenge is the great number of faculty with practice-based credentials and expertise, in contrast to traditional scholarly credentials. The purpose of this session is to define such challenges, particularly those unique to landscape architecture; share relevant experiences and views; and identify implications for action through research, curriculum development or policy.

Presentation structure will include introductions and brief presentations by each panelist (approximately 20 minutes total) regarding his/her relevant background, experiences with integrating research and teaching, and focus for today's discussion. Subsequent moderated discussion (approximately 30 minutes total) will revolve around a set of predetermined questions, including those about balancing learning outcomes and research objectives, the role of service, and successes and challenges. We expect this period will involve substantial audience contributions as well. The session's discussion will be summarized through a list of best practices and points for further discussion or action (approximately 15 minutes). Panelists will include the authors of this submission.

International Student Charrettes - Creating Opportunities for Student and Faculty

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Keywords: Student, charrette, design, international, studio

Internationalization of academic programs has been increasing as institutions of higher education seek to expand options for their students and building global networks for faculty and institutions. Developing designers greatly benefit from international experiences through personal growth when immersing themselves in a new culture and practices, and from seeing often innovative and compelling built works. Within already busy programs, field trips, summer programs, off-campus semesters, and remote campuses have traditionally been used to create these experiences.

Faculty in the landscape architecture program at SUNY Environmental Science and Forestry have recently begun using the charrette process, coupling our students with those from Osnabrück University in Germany and Czech Technical University in Prague, Czech Republic to create more intensive project-based experiences. Here students not only learn from being in place but also from the experience of peer learning, working with students from different cultures. The mix of perspectives on environmental, social, and cultural issues oriented around a focused project has allowed students to learn and grow in ways that can't be replicated in the typical classroom. As important as the project results, working on common projects reveals differences in discourse of landscape architecture design in these differing cultural contexts.

A common theme to the success of these charrettes is finding the right partners, setting up a framework for negotiating differences, and flexibility in approach. Issues such as different academic calendars, expectations, learning objectives and backgrounds present unique challenges that must be negotiated. This session will discuss the lessons learned from international student charrettes, including discussion on how relationships are formed, project types and frameworks, expectations, working methods, etc.

Landscape and Longevity - Performance in the Public Realm

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Keywords: Technical and performace criteria, public realm

Urban landscape projects are challenged in the current economic climate. Even though environmental consciousness is heightened, landscape is often seen as superfluous in the city unless higher levels of function can be demonstrated. Landscapes are often expected to operate at the level of engineering in order to garner support from the civic money-holders. However, the value of landscape architecture is that it extends beyond performance criteria and engages the unique conditions and inhabitants of a place.

As an educator in this profession it is critically important that I convey the technical issues and requirements of landscape design and execution. But even more important is the need to impart that these functional concerns can be the means to incredible design ends. For landscapes in the city to last through inevitable change, they must be loved. Their inhabitation must become integral to the everyday experience of the communities they engage.

The collaborative Gutter to Gulf research/design studio exemplifies this approach of mobilizing technical performance to create engaging experiences. The initiative led by Jane Wolff and Elise Shelley at the Daniels Faculty of Architecture, Landscape, and Design at the University of Toronto and Derek Hoeferlin at the Sam Fox School of Design and Visual Arts at Washington University in St. Louis, emerged from an awareness of the urgency—and opacity—of the region's landscape, infrastructure, and urban circumstances. The student design proposals comprise a new, ecologically resilient vocabulary for architectural, landscape, infrastructure, and urban conditions that enable communities to understand how spaces designed to help combat water issues, can also become powerful and wonderful places in their everyday lives.

The projects to be discussed are grouped according to the scale of the issues they raise: individual lots and blocks; neighborhoods; sub- drainage basins; and the city as a whole. Each project (and each scale) asks a unique set of questions about the definition of infrastructure in twenty-first century New Orleans. From the smallest increments of building—the individual house and garden—to the largest—cross-town streets, canals, and levees—the projects propose constructed and organic systems to manage water. Together these proposals begin to define a new vocabulary for urban water infrastructure. Each deals with a familiar landscape problem or type and transforms it according to the specifics of the place and the dilemmas of the moment. These projects become tools to visualize of a new future for the inhabitants of New Orleans.

Landscape Architecture Education in China: A Synopsis and Review of Milestones in the 20th and 21st Centuries

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Keywords: Chinese landscape architecture; design education; internationalization; history

While China boasts a 3,000-year history of traditional gardening, subtle shifts across millennia stand in contrast to the past three decades of unprecedented change in its landscape architectural education (LAE). A burgeoning array of design programs has seemingly mirrored and responded to the nation's thriving land development markets. And yet the accelerated emergence of these design programs is more complex than a simple market-driven demand and response can explain.

Unfortunately, few studies can be found that trace, much less analyze, China's LAE in the modern era (c.a. 1920s to present), and which are published in English. Given today's widespread and accelerating exchange in the design marketplace, and a parallel phenomenon as Chinese students increasingly seek Western design degrees, a sharing of global LAE resources is timely and important. Providing a fundamental awareness of the history, structure, and dynamics of China's LAE system serves not only to fill an important knowledge gap, but can help inform academic practices ranging from graduate admissions to identifying emerging approaches to pedagogy.

Based upon an extensive review of the Chinese LAE literature, interviews with senior landscape architecture faculty in China, and first-person experience within baccalaureate, masters and doctoral design degrees in China, the authors provide a synoptic description of five distinct eras and their milestones. The study describes the following eras through their distinguishing characteristics, their influential leaders (educational, governmental, professional), their pivotal change dynamics, and the corresponding roles of different key institutions:

1. 1920s—1940s: Germination of Modern Landscape Education
2. 1950s—1970s: Establishment of the Landscape Architecture Discipline
3. 1980s: The Great Recognition
4. 1990s: The Great Migration
5. 2000s: Competing on the World Stage

Revealed through these eras are transformational changes Chinese LAE underwent as its emphasis shifted from classical garden design to modern landscape architecture. Influences of training in North American landscape architectural programs and/or from professional practice, are traced throughout these historic changes. Future opportunities for peers in the United States, Canada and other non-Asian nations to learn from, assist and partner with academic practitioners in China are discussed.

Landscape is an Organization of Systems

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Keywords: trans-disciplinary, design education, design process, urban infrastructure, landscape infrastructure performance, urban water,

PURPOSE: 1. The broad purpose of the presentation and paper is to argue for expanding landscape architecture design pedagogy to include extensive trans-disciplinary engagement. 2. This will be explicated through a design studio methodology for designing landscape based water infrastructure in the City of Chicago.

The CELA 2014 'Layers: Landscape, City and Community' theme is concerned with the future of the city vis-à-vis mechanisms for urban transformations and regeneration. Long histories of urban ecological networks in the form of parks, boulevards and greenways provide models of landscape as urbanism: they are formal and performative yet fundamentally political and economic landscapes. Because our urban landscapes are inextricably linked to political, economic and administrative systems, design training must cross-disciplines in order to navigate this complexity, and nimbly utilize means of demonstrating landscape performance potential, to affect broad-scale transformation.

In Chicago, one of the largest climate change adaptation projects is the need for green storm-water infrastructure mapped and calibrated to flood-sites and the system-wide under-capacity of Chicago's gray infrastructure. However, the roadblocks to such an urban project are mired in business as usual engineering, sluggish capital planning projects, and top-down approvals for site transformation. Designers must know how to calculate performance outcomes, and to demonstrate how new programming potentials centered as community infrastructure in the form of local economic development projects, are the true grounds for urban resiliency.

Methods for educating design students involve extensive engagement with client representatives and trans-disciplinary consultants, building the conversation from initial research stage through to design proposal. The specific process requires the ability to research, measure and define design and implementation opportunities that respond to underperforming infrastructure. These are based on unveiling ecological and climatologic present and future conditions, mapping sites of urban infrastructure engineering limitations, integrating political and economic structures and resources, and so on, to propose resilient water-based ecologies and economies.

The result is a connected system of site-specific landscape interventions that enable a functioning urban water infrastructure. Students presented their research, and linked their findings, design interventions and projected landscape performance outcomes to meet needs of the city and client base. That is, students learn how to affect design change within the large milieu of political, economic, social, and infrastructural contexts. Studio research and design studies and proposals will be utilized by the Metropolitan Water Reclamation District as a set of guiding documents for potential implementation under the consent decree for green infrastructure implementation.

Making as Applied Creative Thinking and its Effect on the Synthetic Landscape

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Keywords: design/build, making, applied creative thinking, digital fabrication, parking day, community, design activism

This pedagogic approach focuses upon the importance of exploration and "making" as a form of applied creative thinking to building sustainable communities. Scholars, practitioners, and schools like Daniel Winterbottom, Steve Badanes, and Yestermorrow understand and published built projects demonstrating the importance of making or building our landscapes to both engage the public and provide cultural expressions. We build on these ideas to educate our students about making as a (sustainable) design method for applied creative thinking. This design process and pedagogy for making landscapes encourages the combination of analytical and imaginative thinking that adds value to urban landscapes and surrounding communities. In our instance, we created projects by digital technologies and physical design/build processes to strengthen the connection between the legibility and identity of places and the people who interact within them. This synthetic approach offers the opportunity to create functional surfaces and systems through both systemic computation and expressive articulation of physical form while better enhancing a community with great places.

A two-year effort, 2012 + 2013, engaged studios in making temporary synthetic landscapes to explore social, political, environmental, community engagement, and sustainability aspects of what landscape architects and architects do. To explore this approach towards making, using a defined urban site, faculty and students of the UNLV landscape architecture and architecture programs participated in PARK(ing) Day - an annual, global event where people transform 'parking spaces' into temporary public parks. We worked with UNLV students to transform Downtown Las Vegas parking spaces into temporary, identifiable places. Students integrated social, cultural, economical, and ecological aspects in design using digital fabrication and recycled materials.

Pedagogy focused on making encourages applied and imaginative thinking to generate community-based solutions. This method lends itself to temporary installations, completed in a short time. Short time cycles allow students to reflect and grow from lessons learned. This approach reinforces the value in physical making to engage and empower students to generate and communicate complex ideas. These efforts are design activism; an expected outcome of this exercise is to have students engage public spaces to see it as an inherent component of environmental design. From surveys, we find that students value this applied creative thinking process and how it can be used to create civic engagement, community, and design activism. They learn how to integrate physical and digital tools with material waste streams in a viable design process that incorporates digital fabrication, design build, and community-based design.

Making Materials Matter in Landscape Architecture Education

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Keywords: Materials, materiality, material substance, material properties

People live in the physical world surrounded by materials. As landscape architecture students, they attend accredited programs whose stated mission is to prepare them to enter the profession. Curricula vary, nevertheless, all are required to include classes on “Site design and Implementation: materials, methods, technologies, application” (LAAB, 2013: 3.B). Competency in this area means understanding the relationship between design and materials. This presentation argues for a holistic approach to the study of materials. Rather than focusing on narrow “how-to” guidelines, a contextual approach requires reviewing the history of a material’s use, understanding current terminology and etymological roots, appreciating cultural associations and symbolism, distinguishing between technological properties and essential qualities, and investigating evolving methods of sustainable practices and identifying pertinent online resources. Thus prepared, I suggest that the student is better served to understand the opportunities and implications of building materials in their design work.

This presentation is based on the research used to write and illustrate my book, *The Innovative Use of Materials in Architecture and Landscape Architecture: History, Theory and Performance*, (McFarland, 2014), and reviews the key concepts developed for each material. The book’s fundamental position is that innovation comes not from engineering complex compounds or assemblies, but from asking questions pertinent to profession and responding in ways sympathetic to a material’s inherent character. Research methods included searching the ASLA national award competition files since 2005, interviewing American landscape architecture firms, and organizing information on two extensive spreadsheets: a literature review of the written work on materials by natural philosophers such as Pliny the Elder and Lucretius, and by design theorists such as Vitruvius and Alberti, and documentation on hundreds of built projects and thousands of photographs.

This presentation, like the book, shows project details that are seldom published even in project case studies. In class, the intent is that looking at these types of images develops habits of observation for the student that lead to life-long learning in professional practice. Seeing examples of how materials have been used effectively, strategically and creatively is important for landscape architecture students because their work must use materials in durable ways that can withstand the forces of nature and the rigors of public use, especially in urban settings. And they become the visual and tactile vocabulary of experience engaging the user’s imagination. Making materials matter in education and practice is important because materials are inescapably linked to form as companions in design.

Mapping China's 20th Century Landscape Architecture Design Education

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Keywords: 20th century China

This paper provides an overview of the various institutional shifts that influenced landscape architecture education in China during the 20th century. The work is drawn from literature that discusses educational changes over the 20th century in general (Spence 1991) as well as Chinese landscape architecture education (Lin 2005, Yu 2007). It reveals the impact of China's 20th century revolutionary praxis and the various educational paradigms (Confucian, Western, Soviet, Mao, post-Mao) that have led to landscape architecture education in China today. The paper presents a historiography of the institutions where landscape architecture was taught, and in several cases continues to be taught. Informal interviews with landscape architecture educators in China are incorporated into the presentation. As the first work to analyze and present China's 20th century fragmented institutional context, the work is preliminary in nature. It speculates on China's post-Mao urban experiment and the rise of over 200 programs of landscape architecture today. The objective for presenting to the CELA audience is to initiate a dialogue on design education, internationalization and landscape architecture education in China today.

Meditation on Matter: Making Art in the Landscape Architectural Curriculum

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Keywords: art, fieldwork, pedagogy

Meditation on matter cultivates an open imagination. –Gaston Bachelard

Gaston Bachelard, in L'eau at les rêves, spoke of formal and material imaginations, one based in novelty, creating appearances, "bring[ing] forth flowers"; the other based in essence, exploring substance, "produc[ing] seeds." In our rapid-fire world, it is far easier to light the spark of formal imagination, to foster students' creativity in innovations and appearance: new materials, new technology, new forms. This formal imagination is valuable and vital; it "works where there is joy…produced either by forms and colours, variety and metamorphosis, or by what surfaces become." But equally important is Bachelard's material imagination, which explores the "stable, dense, slow and fertile," seeking not the new, but the eternal. The two combine to form "an image [that] is a plant – which needs earth and sky, substance and form."

Bachelard's essay is a call to slowness and meditation. Where in our curricula, with ever-increasing demands for new knowledge, do we place this stable, dense, slow and fertile learning?

For four weeks, students from the University of Oregon lived, studied, and made art on site in northeast Pennsylvania. The lessons of their art can inform our landscape architectural pedagogy. Making art requires students to explore place with industry and curiosity, and then to engage in thoughtful play with contrast, repetition, color, scale, and light. The art installations created by the students at Overlook represent a series of landscape fragments and voices. The students produced works about the geologic and cultural history of the 400-acre property, about its current social and ecological conditions and challenges, and about the various futures that might occupy this landscape. In the residential program, time and cycles, the juxtaposition of day and night, stillness and movement, were questions that could be explored continuously, distilled and clarified to a dense and fertile vision.

Artistic investigation enables a poetic understanding of place. It is no easy task to a create space that is thoughtful and clear, yet subtle and imbued with meaning. And it can only be learned through the art of seeing, the experience of being, and the work of doing. If our students are to join a profession of place makers, then studying the artist's perception of space creation is a necessity, not a luxury.

Mid-Career Doctoral Education: A Reflective Account

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Keywords: professional development, part time PhD

Is the part time PhD student “an idea whose time has come - again?” asked Leonard Cassuto (2013). The question is particularly relevant to the discipline of Landscape Architecture, whose educators now face a ‘new normal’ (Deming and Swaffield 2011) in which they are expected to offer both practice based design experience and the high levels of research expertise normally acquired through doctoral education. However many design educators have been appointed to their positions with professional master’s qualifications, and those who are now well established in their careers face both logistical and financial barriers if they wish to subsequently undertake full time doctoral studies to enhance their research skills and credentials. This paper presents a reflective account of a practical alternative. It aims to provide insight upon the rewards and challenges of mid-career part time doctoral education. The account is best described as action research (Lewin 1946), using a practice focused approach (Smith 2007) in which both the former part time doctoral student and their lead supervisor reflect deeply upon shared experiences in a workplace context (Riel 2010). It is based upon evidence drawn from emails and notes over several years of doctoral study. A notable feature of the account is that the study was also undertaken at a distance. The advantage of the ‘distant’ mode is that it enabled access to a doctoral programme based upon independent research, without a requirement for coursework. However one consequence of this was that various forms of e-communication, including video conferencing, were also essential. The student’s experience included a short period of full time study as part of a sabbatical, but was predominantly part time, and also included a change of appointment and role. The account is presented to the audience as a dialogue between the student and supervisor as engaged action researchers. Critical reflection upon the common experiences, misunderstandings and successes identifies several key lessons for those contemplating mid-career doctoral education. These include the importance of intellectual and personal compatibility between student and supervisor, choice of programme, ‘smart’ leverage of activities, realism in research goals and design, and employer support. Potential implications for the professional development of landscape architecture faculty are also identified, highlighting the need to ‘think outside the square’.

Novel Landscapes: Challenges and Opportunities for Design Education

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Keywords: novel landscapes, design education, ecological literacy, interdisciplinary collaboration

The purpose of this paper is to: (1) introduce the concept of novel landscapes, (2) identify the challenges and (3) the opportunities for design education to meaningfully engage novel landscapes, in order to (4) initiate a larger discussion among design educators about the meaning and role of design education in rapidly changing environments. This paper asserts that novel landscapes will become an important component in educating future practitioners, including restoration ecologists and landscape architects. Novel landscapes are communities that are compositionally unlike any found today (Williams and Jackson 2007), driven by human-induced environmental change or by the introduction of non-native species (Lindenmayer et al. 2008). Recent challenges to the use of native vegetation in restoration efforts argue that historical referent landscapes will become ecologically outdated due to rapidly changing environmental conditions (Davis et al. 2011; Marris 2011). Novel landscapes are well documented (Parmesan 2006) and are predicted to expand (Williams and Jackson 2007). In the absence of historical precedents, how are design educators to train landscape students to become knowledgeable about and effective practitioners working in novel landscapes? What will future landscape practitioners need to know in order to create resilient futurescapes? I propose three strategies to enhance design education: (1) cultivate ecological literacy that prioritizes landscape function and processes; (2) create field-based experimental research design opportunities; and (3) discuss the larger political and ethical contexts of novel landscapes. Implementation of these ideas requires that design faculty collaborate with: (1) field ecologists and ecology students to provide design students research opportunities that assess landscape function and (2) social scientists and environmental philosophers to explore effective political processes, identify ethical principles to guide restoration and management goals, and address environmental justice concerns. These proposals emphasize interdisciplinary approaches for integrating design and ecological education in order to create effective future practitioners in rapidly transforming environments.

Panel Session: Rethinking Landscape Architectural Documentation Instruction

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Keywords: Documentation, Construction, Practice, Process, Principles

Landscape construction and documentation courses are often faced with apprehension by students and only loosely connected to processes taught in design studios. Today's practice demands practitioners who understand and can apply relationships between the landscape architectural design process, documentation practices and associated graphic requirements. This panel offers a proposal for elevating instruction of landscape documentation within landscape architecture curricula. The panel includes practitioners from a well-respected national landscape architecture firm recognized for its commitment to life-long education and faculty instructors of construction and documentation courses in graduate and undergraduate degree programs.

Landscape construction and documentation courses generally focus on construction systems, materials, detailing, and to a lesser degree, the documents themselves. The breadth of the subject allows only a cursory examination of a range of topics, including contracts and contractual relationships, project management, bidding and construction processes and construction phase services. Furthermore, the pedagogy is not focused on documentation principles, comprehensive study of the documentation set, or specific requirements for each sheet or drawing type within the set.

Faculty panelists will critique models of landscape architectural documentation instruction, including pedagogic approaches, expected and actual outcomes, strengths, weaknesses, and impediments. Practitioners will discuss experiences with recent graduates and contemporary instruction practices within practice. Their assessment of graduates' abilities and professional continuing education practices unveils missing links between practice needs and young practitioner abilities to relate to and incorporate the full design and documentation process.

Landscape architecture is practiced across a broad range of applications; there are those who seek to dramatically improve the human condition and those who produce planting designs. While most forms of practice are legitimate, many landscapes are not well executed. By elevating the quality of the design and documentation process, those trends may begin to improve.

Believing that the most meaningful design processes follow a set of principles that establish basic assumptions and beliefs to guide decision-making, the panelists propose a framework of landscape-architectural documentation practices that can achieve similar clarity with the use of principles. These principles help to keep complex processes aligned to core attitudes and philosophies. Principles applied to the landscape-architectural documentation process illuminate key rules associated with this complex practice. Six broad Organizational Principles establish the core values that should be understood theoretically. Ten specific Operational Principles guide the tangible preparation of landscape-architectural documentation.

Paradigms of Design Education in the United States Between 1900 and 1930: The University of Pennsylvania, The University of Illinois, Harvard University

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Keywords: history, philosophy, pedagogy, Beaux-Arts, epistemology

The author of this study has completed extensive research into the history of the philosophy of American design education, particularly in the fields of architecture and landscape architecture. The purpose of the research is to help contemporary design educators understand the theoretical origins of their work, so that they can begin to situate themselves philosophically--specifically in terms of their positions vis-a-vis history, critical thinking, creativity, and epistemology.

The earliest American design school still in operation today began at MIT in the 1860s. The University of Illinois instituted its program in the early 1870s. By 1900, there were several more, including programs at the University of Pennsylvania and at Harvard University. In the period between 1900 and roughly 1930, when the paradigm shift to Modernism occurred, two main European influences dominated the styles of American design programs. The first was the Beaux-Arts school in Paris; the second was the German polytechnical model. These two styles represent the poles of the age-old theory/practice dichotomy articulated by Vitruvius in the 1st century BC and echoed by Alberti 1500 years later.

The larger study has aimed to sketch the theory of design education within the contexts of: 1) western philosophy beginning with ancient Greeks and continuing through the 20th century American pragmatists; and 2) the implications of that evolving philosophical environment on general educational theory. The basic questions have been: “Why is design education the way it is, and how did it get that way?” The daily work of this historical research has been a great deal of reading based on the strategic goal of examining teaching and learning through the lens of epistemology. The resulting knowledge base allows interpretation via hermeneutic methods, which reveals connections between streams of thought and helps explain attitudes and actions.

The proposed presentation looks specifically at three highly influential and very different programs in the early 20th century. The leaders of design programs at Pennsylvania, Illinois, and Harvard made decisions about their pedagogy based on fundamental conceptions of knowledge itself. Comparison of these schools--in terms of their attitudes toward historic precedent, their views on how to foster critical thinking skills, and how they valued creativity--reflect on their underlying epistemological positions. Knowing something about these positions helps us begin to gain perspective on our own, and that epistemological perspective is the basis for defining ourselves as educators.

Pinterest and Pedagogy: Fostering Beginning Design Students with Cloud Collaboration.

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Keywords: Design education, Distance collaboration, Social Media

This presentation reviews a distance collaboration project between students at South Dakota State University and Utah State University utilizing Pinterest. The ability to collaborate is a critical skill for designers to learn and the ability to collaborate and convey ideas at a distance is increasingly important (Breddels & Oosterman, 2013; Hunter, 2013). As a means to foster more experiential and collaborative learning activities within the pedagogy of landscape architecture, cloud information technology can be utilized (Ham & Schnabel, 2012). This presentation explores how the freely available resources of commercial social networks and cloud computing can be leveraged to facilitate student content exploration, collaboration, and learning.

Social media use is widespread amongst college-age students, with 89% of college-aged individuals using social media, and 67% using it on their mobile devices (Pew, 2013). This suggests that social media may be ideally suited for use as the primary collaborative tool, and one that many of them carry with them all day, creating a scenario where collaboration can occur anytime and anywhere (Luther, Caine, Ziegler, & Bruckman, 2010). Pinterest is the fastest growing social media platform, and well suited for the transfer and discussion of visual concepts because it is structured around digital pin-up boards. These pin-up boards are publicly available on the internet, allowing students and faculty to easily explore, share, and discuss content.

Students at both universities were paired together for this project. Students at USU played the role of client, providing a set of inspiration images to students at SDSU. The students at SDSU created a concept plan which was then critiqued by USU students. Further discussion occurred between students before the creation of a final design and final critique

The results of this project demonstrated that Pinterest can be successfully used to facilitate directed exploration, learning, and collaboration. The format of Pinterest and the project encouraged students to engage in an active learning process, where they were able to freely explore each other's positions and opinions while negotiating a shared vision on the project. These findings suggest that the use of Pinterest, and similar social and cloud networks, should be further explored for their application in design education.

Preparing for a Successful Dialogue with the NSF

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Keywords: landscape, education, pedagogy, practice, STEM, NSF

This year the American Society of Landscape Architecture's Committee on Education was charged with a critical task of making a case for Landscape as a STEM discipline. The underlying reason was to get the LA profession and discipline recognized by the National Science Foundation as a STEM discipline, thus enabling a critical channel of funding for Landscape research.

This panel offers context and fundamentals in constructing a mutually comprehensible dialogue with the NSF directorate. Panelists from academia, professional practice and the National Science Foundation get together to offer: historical context as well as future direction of STEM oriented education and practice, contemporary academic methods and pedagogies, thoughts on repercussions on professional practice and lessons from NSF funding applications.

Provisioning Cities: Provisional Strategies

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Keywords: food systems, design strategies, sustainability

The necessary task of provisioning cities with food is a primary influence on urban landscape patterns and processes. An increasing diversity of scholarship recognizes the importance of this fundamental relationship between food and urban landscapes and there is a proliferation of design projects offering visions of new food spaces from vertical farms to agriburbs. Underneath these visible trends are more critical issues and impacts of food systems as part of urban metabolisms. In order to address the challenges and opportunities of contemporary food system there is a need for developing effective ways of articulating, representing and intervening in food systems through design.

This paper reviews and assesses ten years of teaching food system seminars and studios with the purpose of identifying key concepts, issues and approaches for integrating food and landscape design. The primary vehicle for exploring this relationship is an upper division undergraduate and graduate level “food studio.” The studio outlines an approach that is systems oriented, multi-disciplinary, multi-scale, and community-based. The fundamental goal is to re-describe food and landscape as mutually constituted systems in order to expand the potential range of project types beyond what has become increasingly conventionalized solutions (e.g. urban agriculture) to include designs for infrastructure systems, reclaiming public spaces in the food system, and provisional strategies – temporal interventions in the dynamic processes of food and landscape. Given the fundamental nature of the relationship between food and landscape as well the critical issues presented by the massive scale, consolidation and environmental impacts of the contemporary food system it is argued that we need more critical attention to this relationship beyond individual projects or trends.

Recruiting Tomorrow's Professionals: A Student Perspective

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Keywords: Recruitment, Design Education

Recruiting new students to the profession has become a critical issue for landscape architecture departments. Reduced enrollment as a result of the economic downturn, increased focus on accountability, and lowered government investment in higher education have put pressure on departments to maintain adequate student numbers. The stakes are high as low enrollment can make programs targets for budget cuts, resulting in a loss of faculty positions or even reduced degree offerings. While these setbacks are of immediate concern to academics, they also have the potential to cause long-term damage to the profession by reducing capacity and access.

In the past, recruiting was primarily coordinated outside the department at the admissions and student affairs levels. However, in many programs today, administrators, faculty, students, and alumni are being called upon to play a larger recruiting role. With limited resources and very little training, such efforts can be ineffective, frustrating, and possibly even counterproductive. Compounding this already complex issue are generational differences between recruiters and potential students, the desire to attract more diverse students to the profession, and the increasing variety of new recruiting options associated with the Web and social media, which The Chronicle recently called "the wild, fast-changing frontier of recruitment" (Hoover 2012). The purpose of this presentation is to provide faculty and administrators with guidelines for addressing these issues by providing a student perspective on the recruiting process.

There is surprisingly little research into student recruitment in general and even less is known about why students choose to study landscape architecture or how they decide to attend a particular program. This presentation provides an analytic framework for understanding recruiting in landscape architecture while emphasizing the practical information that programs need to effectively recruit new students. The presentation uses the results of a survey of undergraduate and graduate students from multiple landscape architecture programs in the Southeast as a basis for discussion and decision-making. The surveys explore students' preferences and perceptions regarding a variety of recruiting topics including types of contact, decision indicators, sources of information, and other key factors related to their decision to study landscape architecture. The surveys were conducted online and consisted of Likert-scaled statements, preference rankings, and open-ended questions. Presentation of the survey data concludes with a series of proposed best practices that are intended to assist administrators and faculty in making decisions regarding time and resource allocation for future recruiting activities.

Resilient Design Education

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Keywords: resilience, service learning, design studio

Natural disasters such as Hurricane Katrina or Superstorm Sandy are often a wake-up call to the vulnerabilities of status quo plans and practices, as well as a key moment to reconsider the role and direction of design education. In the aftermath of disaster, amid prolific media attention and high-profile professional proposals, establishing a design studio to address resilient landscape architecture and planning requires attending to a positive student learning experience, establishing meaningful partnerships with local agencies and residents, and avoiding the potential of designer voyeurism or exploitation. In Fall 2013, the Rutgers University Landscape Architecture program dedicated four studios to projects located in New Jersey communities impacted by Hurricane Sandy. This presentation analyzes the pedagogical challenge of post-disaster, place-specific studios within the context of the overall curriculum of the Landscape Architecture Program.

Approximately 60 students and 6 faculty engaged in the Sandy Resiliency studios, which included separate graduate and undergraduate regional design and open space/housing studios. Two undergraduate studios focused on Union Beach and Monmouth County – a region that can be characterized as working class and urban/suburban, and two graduate studios focused on Long Beach Island and the Southern Ocean County region, which includes pockets of second-home and retirement communities. Key pedagogical issues included: 1) students' need to balance emotional responses based on their own Sandy experience and residents' personal stories with their professional role, 2) the relationship to pragmatic, short-term needs and long-term sustainability concerns, and 3) the balance of topic-based studio to overall curricula, and 4) the role of the university in providing technical assistance that is useful to communities Final work was presented on campus, to community partners, and in a documentary video. Methodology for assessment included three participant groups: student reflections collected through standard university course assessments and a questionnaire, local stakeholder's experience assessed through post-interviews, and faculty through team discussions, program director assessment, and feedback from studio reviewers.

The outcome of the presentation is a thorough assessment of a service learning experience that will contribute to the ongoing discussion on the role of topic oriented studios in landscape architecture design education.

Shine Bright Like a Diamond: Teaching Strategies for Moving Beyond the 'Scenic'

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Keywords: studio pedagogy, installation, placemaking, education

In her research, Beth Diamond, Assistant Professor of Landscape Architecture at University of Michigan, explored how "Cubism pioneered a re-visualisation of the human relationship to space in which point of view was no longer placed objectively outside the picture frame, but subjectively within it" (Diamond, 2011). Diamond died April 29, 2013 after a battle with cancer. She was a beloved teacher who consistently challenged her first-year design students to also approach designing a space from "subjectively within it," pushing students to move from a design on paper to placing themselves within physical, three-dimensional places. Through this process, she encouraged students to explore the hidden history of place – incorporating its cultural memory into a contemporary site design that engages the user deeply with the space (Hayden, 1995). This case study reviews Diamond's pedagogical framework, in which she used Cubist pieces and installations as mediums for teaching how to make meaningful public space, and provide an opportunity for critical reflection of these teaching methods.

Not surprisingly, landscape design students enter educational programs with diverse skills and interdisciplinary interests, and the initial studio is often their first experience with shaping three-dimensional space. One consistent challenge these students face is an integration of space- and placemaking, important underpinnings to further design explorations. Drawing on Diamond's pedagogy, we will share projects that examine this integration within the public realm, specifically environmental art and Park(ing) Day installation assignments. Where many studio projects work through a traditional design process developing a set of drawings that is reviewed in presentation format, installations require students to physically construct a design and receive real-time review by observing users experience the space. This process allows students to grapple with design and sustainability constraints, like budgets, material choices, construction timing and staging, and concept translation. From Diamond's perspective, combing a fast-paced installation experience, with a requirement for provocative placemaking, submerged students in a tactile experience that provided fodder for self-reflection and challenging community conversation.

As Diamond's former students, now educators, we know that this process is intense, effective and has its challenges. For instance, in the installation design process, how can we help students create space, not sculptures? How do we help students translate big concepts into abstracted landscape space? In this presentation, we will allow time for critical conversation regarding this and other strategies to help students internalize an understanding of and process for making three-dimensional space early in curricula.

Site Visits in the Digital Era…Are They a Necessity?

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Keywords: site inventory, site visits, digital technology,

A close personal connection between the designer and the land has always been fostered in Landscape Architecture. Etymologically, the Old German landschaft refers to "[a] setting comprising dwelling, pastures, meadows and fields" (1). Walking the lay of the land, manipulating the soil within the hand, appreciating discernable breezes and inhaling the various aromas drifting along. These tangible site characteristics have been a cornerstone to the foundation of information gathering techniques utilized in our design processes. The forebears of the profession would not have thought it possible to discern the meaning of a site without first having walked and experienced it physically. Today, the ASLA website identifies a site visit as part of the design process, but other websites indicate that new technology is making it possible for landscape architects to complete their work on line, to do remote design, and never physically visit the site (2) (3). Historically the reliance on non-tangible site visit generated data can be seen at the beginning of the twentieth century. The introduction of the "overlay process" methodology for site inventory and analysis occurs in 1912 with Warren Manning's work for Billerica, MA (4). This process was brought to the forefront again with Ian McHarg's work in the late 1960's. Technology today affords students a host of on line opportunities to see and experience a site without physical engagement. Landscape visualization through Goggle Earth, Goggle maps street views, and GIS provide reliable data communicating many of the site attributes. Is the importance of physical site visits diminishing as part of the natural evolution of the design process in a digital era? A pilot study was undertaken after a summer design studio to explore the extent to which students relied on a physical visit to the site or on-line information about the site to influence their design process. Students completed a survey at the end of the studio. Initial findings indicate students relied on data retrieved from on-line sources twice as much as the data collected during the site visit during their design process. The results imply the significance of site visits to be diminishing in importance as other reliable resources become available. Although further study on this topic is required to posit the findings and provide relevance to the pedagogy of the design process, this paper will speculate on the effect of new technologies for off-site visualization tools in conventional design operations like site visits.

SQWater: Design Pedagogy for Slum Cities

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Keywords: slums, fog, water, informal urban, landscape design studio, pedagogy

Lima, Peru is on the brink of a water crisis. Situated in a coastal desert, it receives approximately 1cm of precipitation per year. Within a decade, Andean glaciers that provide a large proportion of its water supply will disappear as a result of climate change. The city's population of 9 million, more than 30% of whom live in slums and already suffer from a lack of water resources, is expected to increase to 16 million by 2050. Water deficiencies compound another problem: Lima has the lowest green space per capita of any city in South America. Parks, street trees and other vegetation are especially rare in the city's slum communities. Despite its lack of traditional water resources, Lima has an underutilized water supply . The city is covered in a thick belt of fog for up to 8 months of the year.

In hopes of helping Lima's most vulnerable communities survive the extremes of the city's impending water crisis and gain access to green space, an interdisciplinary team of students and faculty from the University of Washington undertook the SQWater project as part of the EPA's P3 Competition. During a 10 week landscape architecture design studio, students designed, built and tested novel approaches to fog collection as an alternative water resource and developed a low cost water storage, distribution and irrigation system. They integrated these technologies into designs for public parks and an ecological restoration project in the slum community of Lomas de Zapallal.

Most landscape studios follow a trajectory from large scale analysis to design intervention at the scale of the site. Details, technological experimentation and testing are often left to the end of the design process and afforded little attention, if any at all. In contrast, the SQWater studio adopted 'emergent', (bottom up) and 'convergent' (bottom up/top down) design processes that placed emphasis on concurrent prototyping at the scale of the detail and design at the scale of the site and beyond. 'SQWater: Design Pedagogy for Slum Cities' outlines the processes and products of the SQWater studio and discusses the strengths, weakness and challenges of this approach to studio pedagogy. It argues that, compared to traditional studio pedagogy, emergent and convergent approaches to design instruction better prepare students to respond to the incremental, non-linear processes of informal urban development and to confront the mounting social and environmental challenges facing developing cities, like Lima, worldwide.

Stormwater Instruction in the SEC's Landscape Architecture Departments: a Comparison with SITES Criteria.

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Keywords: Stormwater Instruction, Sustainable Sites Initiative (SITES), Southeastern United States

This paper evaluates the stormwater content of landscape architecture curricula within the Southeastern Conference (SEC), with reference to stormwater criteria within the Sustainable Sites Initiative (SITES). Pedagogical concepts were extrapolated from the seven 'Site Design – Water' standards within SITES. These pedagogical concepts were then translated into course content across three levels of learning: introduction to fundamental theories and practice; application of these fundamentals; and enrichment of these fundamentals. The third level of learning involves a consideration of holistic stormwater design, management and policy practices that add value through, for example, habitat creation and community amenity, and help most fully prepare students to contribute to the implementation of SITES-ready schemes. The study concentrated on the SEC – the region in which the authors' institution is based – limiting the scope of the research to a manageable time-frame while accounting for states which, like many other areas of the US, have experienced notable recent challenges related to water management such as drought and loss of harvest yield; decreased river base-flows; loss of habitat; and contested water-rights. There are eight accredited programs that teach landscape architecture in the SEC, and a newly formed ninth that is currently seeking accreditation. Of these nine programs, seven responded to a request for course syllabi and project statements covering stormwater. All six of the accredited programs responding introduced, and had students apply, the fundamental principles and practices of stormwater management. This strong showing is not surprising given the current stormwater requirements of the Landscape Architecture Accreditation Board (LAAB). Many of these fundamentals – site grading, drainage infrastructure design, stormwater calculations – underpin both 'traditional' and 'alternative' stormwater management. However most of the programs also enriched these basics; five introduce best practices such as bio-retention and rain-garden design; five introduce sustainable theory and metrics (such as LEED and SITES); four teach aesthetic components of stormwater; and a few of the programs also introduce vegetated building systems and smart irrigation. This is an encouraging finding; it suggests landscape architectural education in the region is going some way to prepare students for SITES-ready practice in relation to stormwater. Nevertheless, it should also be noted that there is room for improvement; none of the programs teach the rehabilitation of lost streams, wetlands and shorelines (SITES, Site Design – Water standard four) and only three teach content at the highest, holistic level in relation to all the remaining six standards.

Teaching Grading in the Landscape Architecture Accredited Curriculum; Integrating Traditional Manual Methods with Emerging IT Techniques

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Keywords: Landform Modeling, Grading, Earthwork, Contour lines, 3d modeling

Teaching Grading in the Landscape Architecture Accredited Curriculum; Integrating Traditional Manual Methods with Emerging IT Techniques. The dilemma: How to teach IT-informed introductory site grading to undergraduates:

> (1) the “standard” “manual” way, with contour lines and section profiles on paper, some chipboard or clay modeling, such that students gain sufficient proficiency to conceptualize and create construction documents, and function as professionals in industry, and pass the LARE, and
>
> (2) using emergent 3D digital techniques that are powerful, exciting, becoming commonplace and available in 3d modeling software applications to
>
> a) enable high end computer visualizations and presentation graphics,
>
> b) leverage the ability to quantitatively analyze geometric changes to topographic/landform digital surface models volumetrically, and
>
> c) are taking the topographic design process out onto the construction site with automated control technology?

These dual pedagogic objectives seem incompatible and usually result in two or more separate courses. We propose an integrated strategy for an an introductory grading course in an accredited LARE curriculum required of undergraduate 2nd year students at Iowa State University College of Design Department of Landscape Architecture. Comparing the pedagogic methods offered in leading text books on the subject, namely Landphair, Petschek, Strom, Grade Easy, we base our instruction on Topographic Types, and Methods, and present manual and computational methods in parallel succession; where going from existing to proposed for each landform type is taught twice – once manually, once digitally. The forms are: plinth, swale, road, ramp, stairs. The computational operators offered are: extrude, drape, skin, revolve, and patch. The quantitative analyses are: slope, cut fill /balance methods, and stormwater run-off calculations.

An underlying intention behind this paper is for this solution to serve as the basis for a discussion, how the LARE and profession as a whole may better integrate technology and computational methods into its accredited core curriculum.

Teaching How to Draw Landscape Experience

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Keywords: Teaching, Visual Communication, Landscape Experience

Representation in landscape architecture is expanding to engage other disciplines gaining processes and tools that can interpret the dynamic and ephemeral qualities of landscape allowing the profession to move beyond the use of classical orthographic projections that can only record the location of objects. This paper discusses a selection of tools and student work that were used to visualize Southern Louisiana's cultural landscapes' changing qualities, fluctuations of events and experiences of those who engage the landscape.

In the seminar students were asked to do several things, first to define a way to insert them into the landscape, second explore tools that record change and third interpret the environments conditions through a variety of hybrid representations.

The case studies the students investigated were designed to develop the ability to look closely and to attune design sensibilities to what is already there by nature. Sample case study landscapes were, Geological Territories such as the Chenier ridge formations of Cameron Parish and Ordering Systems, such as settlement, agriculture and industrial patterns on Bayou Teche. This paper aims to explain the successes and failures of the assignments, tools and student work.

Initially students are asked to insert themselves into the landscape to find a way to read landscape change. Walking from point to point, biking the right of way, siting still, listening to, touching and tasting humidity, salinity and exposure. Students are introduced to the idea of parallax, the effect whereby the position of an object appears to differ when viewed from different positions. What David Hockney calls the 'rotating eye, rotating head' registering a landscape from multiple angles, positions and how closely one inserts themself.

Then students record the changing qualities of the landscape with both low and high tech tools introduced from a wider field of disciplines. The pencil and sketchbook catalogs, the camera and video lenses capture fleeting moments, GPS coordinates mark points and scribe lines between positions and heart rate monitors track the body's physical excursion in the landscape.

Lastly the students were introduced to the idea that the landscape can be understood in intervals, periods in time, geological shifts, ecological succession, markings on the environment and littoral edges… students then used a variety of methods -- hybrid drawing, collage, photomontage (Ades, Marshall) -- to create works that examine the differing positions of the landscape in time, space, duration, tempo, acceralation and accumulation through layering marks, adjusting opacity and notations (Allen, Corner).

Teleology, Emergence, and the Landscape Studio

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Keywords: Studio pedagogy, emergence, social learning, improvement

Beginning in the seventeenth century, the notion of landscape was inseparable from the notion of improvement. The task of the landscape gardener, and later the landscape architect, was to move the world toward ever-greater heights of productivity and order. This project, begun in England by propertied men, was originally rooted in consolidation of control over land by one class at the expense of another. But even as private enclosure ceded to public duty in the nineteenth century, a teleology of improvement survived and indeed thrived. Whether as Olmsted's plans for the Back Bay Fens, Stein's new towns, or McHarg's design with nature, landscape architecture was a discipline with direction, a discipline that pointed toward something better tomorrow.

We are now witnessing the widespread abandonment of these notions. Improvement has yielded to constant and never-ending emergence, disturbance, and recovery. Landscape architects are shifting their focus from the design of sites to the design of systems. These essential changes are perhaps best illustrated by contemporary 'landscape urbanism,' but in reality they began long before that. The death knell of improvement was the blow struck to anthropocentrism by the publication, in 1859, of Darwin's Origin of Species. It has taken over a century, but landscape, like Homo sapiens itself, has finally become atelic.

This move toward a directionless conception of landscape has affected nearly all realms of landscape architecture, save one. Landscape architecture studio teaching remains dominated by a linear model of design inquiry and production, one in which the instructor sets out the scope of the problem and the terms under which it will be explored. But what if other, more radically emergent, principles of studio design, principles more consonant with the atelism of landscape itself, were to be adopted? How might this change tasks, class organization, and, most important, the relationship between instructor and students? The proposed paper explores these questions. Using recent theories of emergence and social learning, it argues that teleological and hierarchical studio models are increasingly obsolete in a discipline ever more concerned with systemic, self-organizing, often chaotic relationships. Illustrations of the pedagogical opportunity—and challenge—that this presents are drawn from the author's own recent studio teaching of undergraduate and graduate students of landscape architecture.

The Quest for the Measurement of Creativity in Design Education

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Keywords: creativity, design education.

Creativity is arguably one of the most important elements in design education. Based on existing research, creativity can be defined as the ability to generate novel and useful ideas or solutions to everyday problems (Amabile, 1996; Sternberg, 1999). Therefore if design education strives to develop in students the ability to generate novel and useful ideas, it is essential that there is a better understanding of the aspects and processes associated with creativity. This poster summarizes research conducted over the years that has attempted to define and measure various aspects of these phenomena. Creativity studies can be traced back to 1950s. Studies that have been conducted to quantify the assessment of creativity can be classified into ten categories: psychometric tools, personality inventories, attitude and interest batteries, biographical inventories, peer nominations, teacher nominations, supervisor ratings, judgments of productions, eminence and self reported creative activities (Hocevar, 1981). This poster presents these methods and an assessment of the strengths and weaknesses of each and their relevance to design education.

The Role of Motivational Strategies in Improving Student Learning in the Design Studio

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Keywords: Increasing Academic Motivation Toward Landscape Architecture Studio Course

Motivation is considered as a highly influential factor in student academic performance regardless of the field of study. The purpose of this research is to evaluate teaching approaches employed in landscape architecture design studio to shed more light on factors that can play a significant role on motivating students towards better learning behavior. In this regard, five of the educational theories and principles (empowerment, usefulness, success, interest and caring) that comprehensively explain the motivation are employed as MUSIC model. This model which is generally used for designing instruction is applied in this study to research factors associated with student motivation in a design studio course and diagnose problems fostering and hindering student motivation. The final result is obtained through interviews with ten students whereas supported by the data collected from author's field notes and observations. The study showed that factors such as friendly environment, comprehensive schedule, continuous and encouraging feedback, extra educational events, interactive activity, longitudinal assessment, and relating assignments to the real world and future career increase students' involvement in projects and resulted in better academic achievements. Due to the classification of the identified factors based on the five key concepts of MUSIC model, the study will contribute to increase the efficacy of design studio learning through the proper implication of strategies.

The Three P's: Plants, Planting Design and the Profession

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Keywords: plants, plant identification, planting design, practitioner interviews, landscape architecture curriculum

The Three P's: Plants, Planting Design and the Profession. Many of today's landscape architecture practitioners and students entered the profession because of their love of nature and plants. As the body of knowledge changes and universities address many ever-deepening concerns, some of the original hallmarks of the profession have been arguably marginalized. In classes today many students have become desensitized to nature as they spend less time in it as they prepare multifaceted design analysis and technical resolutions. The question remains: are landscape architects slowly abandoning the very components that originally separated them from all other design professionals: plants and planting design?

A paper presented at CELA over 22 years ago stated that "planting design has always been an essential component of landscape architecture as viewed by the public and those in the field." (Koepke, Myers, 1992) The purpose of that paper was to investigate planting design education and to identify and describe trends affecting the philosophical approach to and practical use of plants in landscape architecture. As part of this research, representatives of eleven professional firms were interviewed and noted four planting design trends, indicating important considerations for teaching.

Last year, in a 2012 pilot study, research provided information as to the current curriculum requirements of plant identification and planting design in 48 of 67 accredited landscape architecture degrees at United States institutions. (Brittenum, 2012) Findings indicated that the next step in understanding the needs of the profession were to ask practitioners to weigh in on current planting design trends and voice their expectations regarding plants from new graduates.

This paper advances the 2012 research by presenting information found through extensive interviews with twenty prominent practitioners during 2013. Recorded interviews provide current evidence and are analyzed to enlighten contemporary landscape curriculums. The comments of today's professionals are also compared for a broader perspective with those interviewed 20 years ago. This paper reveals the current status of plants and planting design in practice as reported by professionals; it links former findings with new; and it clarifies the direction schools could anticipate instruction might follow. This information is critical as the breadth of knowledge about plants grows rapidly as does their specialized use in new and diverse situations. A clear understanding of the needs of the profession affects the goals of faculty as they assess and modify curricula to respond to future demands on their graduates.

Through the Eyes of an Outsider: Design Research in a Globalizing World with International Curricula

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Keywords: public space, traveling students, value of travel in education, international curricula

In the objective study of public space the unfamiliar, outsider eye is free to observe above the influence of meaning, and loyalty in politically charged places. Although it can also miss important cultural values, it is capable of examining space with a different bias than that of the insider allowing them to sense place wholeheartedly, a unique perspective that makes travelers a useful instrument in the research of politically charged places. The emotions and opinions evoked by these places are often deeply rooted in local meaning and loyalty, so, how can outside observers, such as [traveling] students, contribute to a new understanding of such places?

For one month during the summer of 2012 eight students and their professor traveled the politically charged 100 x 35 miles of the Caribbean island of Puerto Rico. As the professor I worked to script the adventure, choreographing it remotely using Google Maps. On the ground the journey was frequently modified by massive traffic jams, a plethora of construction detours, an alarming lack of proper signage, and by side trips often inspired by randomly sparked conversations with the warm people of the island. On the 30th day of the month 18 out of the 78 plazas on the island had been documented.

This adventure into Puerto Rico's public space resulted in much more than just an inventory of the island's culturally significant spaces built by trained eyes; it was the discovery of a beautiful culture and the generation of bonding memories rooted in place and shared experiences: the epitome of cultural public space.

This paper highlights the methods, findings, and lessons learned from our traveling student research group. The issue of how to make travel classes into something more than superficial touristic adventures is one of profound interest across urban planning and design in a globalizing world with international curricula. While I was something of an insider--having been born on the island and traveling there frequently--this class provides lessons for those with weaker ties to the places they have visited. My perspective as an insider, combined with that of my students offer demonstrate first-hand the value of travel in education, research, and design.

Toward an Ideal Traveling Learning Community

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Keywords: Learning Community, Traveling Studio

This paper reports on the assessment of a learning community-based traveling study program for landscape architecture undergraduates, following thirteen years of experimentation with several parameters of the program's pedagogy. Assessed through interviews with instructors and surveys of alumni, the program has proven value in terms of experiential learning and community-building. However, as a significant departure from classroom-based design education, the program entails considerable costs and requires significant tradeoffs (at a number of levels) for student and faculty participants. The department's assessment is intended as an internal strategic planning measure, but also these experiences have important implications for other design programs that are interested in learning communities or experiential learning pedagogies.

The "Savanna Studio" is a semester-long experience within the BLA program at Iowa State University, initiated in 2000 following a curricular reassessment that led to significantly increasing the long-distance travel experiences for students situated deep within the continental heartland. Since 2000 the department has experimented with the blend of coursework, the teaching methods, the routes and distances covered during travels, and the balance of time on the road with time spent at the home institution. Currently, the program features two three-week driving excursions during the fifteen-week semester for students entering the program, covering a total of about seven thousand miles and involving field study of a broad range of landscapes throughout a diversity of regions.

An annual "exit interview" with members of graduating classes provides evidence that students feel overwhelmingly positive about the Savanna Studio as an introductory learning experience. Interviews with design faculty from other programs whose students collaborate with BLA students (such as Architecture) suggest that the Savanna experience gives students of Landscape Architecture a distinct advantage in field-assessment abilities and prepares them well for travel experiences they encounter later on in the degree program. Interviews with Savanna Studio teaching faculty reveal that the experience affords extraordinary opportunities for effective teaching/learning, but both faculty and departmental administrators also describe how the program exacts significant costs in terms of faculty scholarship production, consistent faculty participation with institutional and professional service, and interference with life outside professional responsibilities. Despite these limitations, the costs clearly are outweighed by the benefits, particularly from the student point of view. Continuous experimentation has afforded the opportunity to mitigate the problematic tradeoffs and to propose recommendations and guidelines for a model traveling learning community that can be adapted by other design programs.

Transformative Learning Impacts of Study Abroad Over Time

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Keywords: Study Abroad, Transformative Learning

Why do we invest in Study Abroad? The benefit claims include expanding professional and intellectual knowledge, changing how a young person sees themselves in the world and fostering personal growth (Brewer, 2009). As University faculty, we invest hundreds of personal hours in creating programs each year. As administrators and parents, we invest thousands of dollars annually to offer programs. We do this because we believe Study Abroad is one of the transformative experiences of a college education.

So how are Landscape Architecture students 'transformed?' When do they realize how the experience transformed their intellectual/professional, personal, or civic growth? The purpose of this study is to identify the longitudinal trends of the transformative learning attributed to Study Abroad experiences. Transformative experiences are defined as events that lead to a change in how a person sees the world. These events can be a culmination of everyday experiences while studying abroad or a single event which re-frames how a person sees the world.

The research design is a mixed method on-line survey of over 500 students and alumni who participated in the Michigan State University LA Study Abroad program over a 36 year period, 1977 to 2013. Identification and coding of transformative experiences is based on an adaptation of Patricia Cranton's (2006) work on transformative learning. The four types of learning include 1) Epistemic Learning (Respondent articulated shift in or deepening understanding of where and how learning happens.), 2) Relational Learning (Respondent indicated deepened understanding of an entity or entities because of their relationship with each other.), 3) Personal Adaptive Learning, (Respondent indicated shift in image/responsibility of self as a moral actor with the capacity to respond to challenges.) and 4) Philosophical Learning (Respondent indicated a shift in definitions of foundational definitions of being.) (Graham & Crawford, 2011).

A unique aspect of this study is the focus on Landscape Architecture Study Abroad programming and the ability to access respondents across a 36 year span. ANOVA analysis will be used to compare groups (1-2 years, 3-5 years, 6-10 years, 11-20 years, 21 plus years post trip) for the attribution of transformative learning that occurred during their international experience. Findings will also report how the learning specifically applies to Landscape Architecture education and practice.

* This study is in progress with data collection November 2013 and data analysis January 2014.

Updating a Studio-Based Curriculum with Blended Learning Practices

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Keywords: blended learning, course delivery methods, curriculum development, assessment

How should designers of tomorrow learn? In an age of frontier technologies and open-source prototyping, designers must collaborate, create, and communicate their ideas independent of geographic proximity as effectively as they do face-to-face in real-time. Consequently, learning experiences for designers must change in order to afford them opportunities to master the various modes in which they will eventually perform.

Higher education leveraged online learning to meet the needs of students at a distance as well as the reality of the modern workplace requiring professionals to commit to life-long learning in order to maintain their relevancy. More recently, leaders of higher education have been challenged to bring similar opportunities to undergraduates while at the same time improving the quality of learning experiences and providing accountability for student and program outcomes.

Fortunately, internet technology has matured to a point where visually rich and computer mediated interaction, both synchronous and asynchronous, is inexpensive, reliable, and ubiquitous. Consequently, there is no longer a need to restrict interactions to the physical classroom. Instead, a blended learning experience composed of instructional strategies employed in the mode most optimal for their execution can be realized, giving educators the freedom and tools to meet the challenges they face.

The purpose of this panel is to discuss the transformative potential of blended learning in the context of a studio-based curriculum. The first presenter, a college of architecture dean, will present the college's strategic plan which led to integrating blended learning as part of a college-wide curriculum revision. The second presenter, an instructional designer, will present a holistic approach to course design which maximizes face-to-face studio-based learning by leveraging online synchronous and asynchronous interactions of students with content, each other, and their instructors. The third presenter, an assistant professor of architecture, will present course development and assessment methods in a blended interdisciplinary first-year design studio course. The final presenter, an assistant professor of landscape architecture, will present course development and assessment methods for a blended upper level history and theory lecture course.

Through this panel we will demonstrate a process for developing new course delivery methods. We will also demonstrate how blended practices are consistent with the values of the traditional studio-based curriculum and enhance the learning experience.

Using Social Media and Blogs to Enrich the Introduction to Landscape Architecture

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Keywords: Social Media, Active Learning, Blogging, Adult Learning Theory

According to Project Tomorrow's 2008 Speak Up data findings, today's adult learners are considered to be self-directed, un-tethered to traditional education or physical networks. It's also been found that social media use is widespread amongst college-age students (Pew, 2013). The use of social media networks in educational exercises can allow these students to communicate in meaningful dialogue and can extend traditional elements of design pedagogy beyond the borders of the studio (Vanderkaay, 2010; George, 2013).

As a means to foster more active learning within the pedagogy of landscape architecture, social media, and blogging specifically can be utilized to make content more engaging to students. As a platform within the social media network, blogging can lead to a deeper and improved learning experience (Eide & Eide, 2005; Duffy & Burns, 2006; Richardson 2006 Churchill, 2009; Tan 2009). Duffy and Burns noted that a 'digital literacy' should emerge where flexible and mobile technologies, with access to blogging, are used for collaborative and (co)creative purposes. The purpose of this presentation is to share a student, attitudinal assessment of blogging as an effective means to expose introductory design students to the field of landscape architecture.

Active Learning (AL) principles involve interactive, inquiry based, technology-enriched, teaching and learning (Katz 2008). The presence of the AL Cloud and access to social media blogging networks enables anyone to connect to the system with diverse devices. In an effort to move classroom studio teaching to a model that draws from the AL Cloud, specific efforts were made to move studio teaching to a "Supplemental Model," according to the National Center for Academic Transformation models for course redesign. This model "…retains the basic structure of the traditional course and supplements lectures and textbooks with technology-based, out-of-class activities" (NCAT).

This presentation provides a review of specific efforts to use social media blogging under the NCAT Supplemental Model. These efforts were made to introductory studio courses at South Dakota State University. In this case, students were asked to create and update a semester long blog with weekly updates using tumblr. Students addressed specific themes each week and used this process to explore the field of landscape architecture and, in turn, developed their own personal reflections. The importance of this presentation is that it reveals means in which landscape architecture educators can embrace elements of the AL Cloud including blogging.

DESIGN IMPLEMENTATION

$20 per m^2 or The Magical Transformation of an Everyday Landscape

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Keywords: Hands-on Architecture, Research Through Design, New Perspectives, Interdisciplinary Discourse

This presentation highlights an award-winning project in Winnipeg designed by the author and demonstrates how a simple measure can take ecological and aesthetic considerations. “With a sense of carefree nonchalance, the existing objects have been refashioned as furniture, playful elements or even ‘lookout points for earthworms’ and incorporated into the concept. The result is a spatial experience that does not employ the typical design and technical methods of landscape architecture and in the process opens up new perspectives: as a form of ‘hands-on architecture’ it encourages interested people to get involved without drifting into arbitrariness or losing its sense of design” (Deutscher Landschaftsarchitektur Preis 2013, Comment from the Jury).

Strathcona School is located in one of the more underprivileged districts in Winnipeg. The magical conversion of the asphalt schoolyard into a good place for learning and playing was realized in August/September 2012. What the school and community learnt that this project has the power to bring people together, building and enjoying community during the day and after school. The schoolyard is an important meeting point within the community and has gained steam through reorganization and redesign.

The difficult task was to push the idea beyond the routine – thinking outside the box but playing according to the rules and regulations. The design of the open space was developed in dialogue with teachers, students and the school division. The discussion focused on the future of the area’s ‘nature’ and the risk everybody was willing to take. For extraordinary ideas you need ‘partners in crime’!

Gardens and landscapes have always been experimental grounds for innovation and improvisation and as landscape architects we are embarking on a search for expression in open space design that falls between the adventurous and the everyday. Academia offers great opportunities for integrating outreach activities and community work into a specific interest: research through design.

Teaching, research and practice, as well as interdisciplinary discourse with a wide range of other disciplines, are indispensable sources in our search for innovative ways to apply landscape architecture as a social and spatial transformer for everyday landscapes. This stringent critical approach through practice is a constant motivation for the generation of theories and different methods for possible approaches.

A BLUEprint for Stormwater Infrastructure Design: Implementation and Efficacy of LID

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Keywords: BLUEprint, stormwater runoff management, LID, education, efficacy

In an effort to minimize the impact of impervious land cover, land planning strategies which emphasize stormwater runoff management, such as Low Impact Development (LID), have become increasingly utilized in design projects. While several design guideline manuals exist which expose the potentialities of utilizing LID applications and differentiate the distinctive features of LID facilities, not many integrated approaches attempt to investigate the actual effectiveness of LID based designs. The first step in alleviating this quandary is to begin to test the efficacy of its implementation. Corollary, public education and awareness about LID and its contribution to sustainable stormwater management must also increase.

This study introduces an approach to integrating design framework with LID technologies which promote education and awareness, and evaluates the impact of LID. The framework serves as a three-tiered design performance measurement structure called a “BLUEprint” for Stormwater Infrastructure Design. First, to develop the framework, after reviewing existing LID facilities applied in previous projects, 17 LID facilities including the green roof, bio-swale, and bio-detention pond were selected and categorized into three typologies based on hydrological functionality: capture, convey, and clean. Runoff amounts were then measured according to these typologies. Second, to promote public’s awareness, each LID facility was integrated with an innovative hierarchical way-finding system which illustrates the ratio of infiltrated water to total rainfall. Monthly rainfall data, monthly evapotranspiration data, and post-design runoff coefficients of surface materials were integrated to measure infiltration ratios for each LID facility. Finally, the vegetation palette effectiveness was evaluated based on drought tolerance, water treatment capacity, and maintenance requirements relative to site conditions.

Successfulness was assessed using total runoff reduction and increased potential human interactivity such as expanded social space in association with each LID facility. Additionally, water demand reduction and water quality improvements were projected based on current usage patterns. Economic benefits were quantified by calculating saved water treatment costs and city water costs.

To verify the proposed framework, the BLUEprint was applied to three LID projects in Texas using the same methodology and comparisons made across cases. In a comparison among the three projects, a typical rain garden in Texas on a 1.94-acre site revealed 0.44 infiltration rates assuming a 70% water loss through evapotranspiration is supplemented by outdoor irrigation. Overall, the LID facilities examined reduced runoff volume by 14% and could annually save 390 million gallons of water if the proposed LID framework is applied on a larger scale.

Bicycle Greenways Embedded with BMPs Address Park Poverty, Pollution, and Aquifer Recharge

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Keywords: BMPs, geodesign models, runoff storage calculations

In 1930 the team of Olmsted and Bartholomew presented their plan for “Parks, Playgrounds, and Beaches for the Los Angeles Region,” but the local Chamber of Commerce discouraged its circulation. While vacant lots served as open space for many years, eventually the city was developed, overshadowing those early efforts. Eighty years later, many neighborhoods are left with no local parks and little access to regional open spaces. Another result of widespread development in the City of Los Angeles is an 80% impermeability rate, which leads to flash flooding, even with most of the waterways confined to concrete channels. The city gets only 11% of its water from local aquifers, and its three external sources of water are all under threat. Finally, the long dry season yields low flows which concentrate toxins causing pollution of the Los Angeles River, its tributaries, and the Pacific Ocean. The goal of this study is to use geodesign techniques to address all three concerns: improve access to recreation, reduce flooding, and reduce pollution through the application of Best Management Practices (BMPs).

In 2011 the City of LA passed a Low Impact Development Ordinance (LID) which requires all private development and most redevelopment to store the first ¾” of rainfall onsite. This ordinance requires developers, school districts, and other property owners to install storage features such as bioswales and detention ponds.

An MLA studio used geodesign approaches to address the three goals of providing access to recreation, cleansing runoff before it reaches the rivers, and infiltrating clean runoff to replenish the groundwater. LID and BMPs were emphasized in the solutions, which looked at the entire upper watershed of the Los Angeles River, as well as one subwatershed and several sites. GIS analysis was used to identify appropriate areas for a green network of bicycle/walking routes and for installation of differing types of BMPs. Finally, calculations were made for maximum storage capacity should BMPs be installed across the upper watershed. Challenges included developing non-available data, preparing models for each of the three scales of analysis, and crafting logical guidelines for runoff assumptions prior to calculating runoff. The goal established by the client was to sequester the first ¾” of runoff, which the project addresses at the sub-watershed scale.

Carefully Regulated Fun: How Playgrounds That are Risky, Creative, and Artful are Meeting American Standards

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Keywords: Urban Play, Playground Design, ADA, ASTM Standards, CPSC Guidelines

Some people in the landscape architecture community argue that American designers are so limited by the modern safety standards and the Americans with Disabilities Act (ADA) that they cannot create the sorts of innovative and artful play spaces found in Europe. But over the last few years, a number of designers have shown that innovation is possible despite these rules. They've brought fresh vitality to the cityscape as an urban playground.

The authors will present unusual play areas that David Rockwell, the Central Park Conservancy, AECOM, and others have designed within the United States. The study will analyze and explain how the innovative features of these play areas meet Consumer Product Safety Commission (CPSC) Guidelines, ASTM standards, and the recently adopted playground section of ADA. It will show how some American designers are using the language within the standards/regulations to support their innovative designs.

The authors will also present some unique play spaces they have visited in Copenhagen and share an evaluation of which features can be imported to the U.S. without any change to the current standards. For example, undulating the ground plane within a fall zone is not forbidden by modern safety rules, yet very few American designers are taking advantage of this.

The information that will be presented has been obtained through the authors' interviews of many designers and their clients, site visits, and a careful examination of the CPSC Guidelines, ASTM Standards, and ADA regulations. Original photos, sketches, and diagrams will be used to explain the authors' findings.

Morphogenesis in the Landscape: Dusty Inflatables

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Keywords: morphogenesis, emergence, resilience, temperature, diurnal, module

Among the many emerging discourses and technologies potentially adhering to landscapes, morphogenesis, conceived of as an architectural theory, derives materiality, functionality, and form from the biotic world. As part of a discussion of “data driven” or “bottom up” design, Leach’s morphogenesis recognizes that “nature itself can teach us about the efficiency of certain structural organizations.” 1.

The purpose of this case study is to experiment with morphogenesis in the landscape. The study method is to document a morphogenetically derived installation’s functionality and form in the landscape. The team developed a morphogenetic module, built 240 copies of it, and created an emergent intervention (Algeaic Infrastructure) for a specific site in the landscape, and will document the intervention’s interaction with the site in late 2013.

Built from recycled cardboard, Dusty Inflatables, proposed a formal structure as an emergent pattern, derived from the module’s form, the landscape’s form, and the wind sun and other shifts in the landscape’s context. At any one time, the structure may be assembled differently or may be experienced differently depending on the conditions of the site.

The structure raises awareness about the delicacy of systems in response to incremental climate shifts. This heightened experience of current climate driven changes in the geosphere is important. The structure is created by interactive rules similar to the development of computer programs that “think”. and thus physically models a version of “learning.”

The interlocking system will be deployed along an arroyo as an event space for HDTS in October 2013. The forms result from a computer model testing inflatable forms and a physical model at one quarter scale to determine geometry and assembly. The project site is Montessa Park, Albuquerque, NM, where the city’s edge intersects the military base and the airport. A past dairy, deep downcutting of the arroyo, a prison farm, and current “sacrifice” uses, such as ATVs, shooting ranges, and garbage collection layer this in-between landscape.

Taes Annex Building Water Smart Program

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Keywords: Water Smart, Stormwater Management, Rainwater Harvesting, Low Impact Development

Industrial development and population growth globally has led to the increase of clean fresh water use. However, easily accessible fresh water occupies only 0.03% of total water on earth, according to recent global Power & Energy reports (Jones, 2010). In contrast, fresh water demand has increased 400% in the last century (Zabarenko, 2011). Simultaneously, the fresh water available is becoming increasingly polluted due to stormwater runoff. Research and post-occupancy project implementation have shown that rainwater harvesting can become a secondary water resource and help minimize the impact of runoff to water bodies. Sponsored by Texas Sea Grant, the Water Smart Program focuses on building a prototype of Low Impact Development (LID) based design in College Station, TX. Drought has had a statewide impact on Texas with the groundwater reservoirs currently at only 67% fill level, down from a mean of 81% fill. Statewide reservoir storage is also rapidly declining with a loss of up to 64,000 acre-feet per week due to lack of rain, lack of stormwater infiltration, and over-consumption of water. Simultaneously, groundwater has declined in most of the aquifers while areas closer to the gulf of Mexico have subsided up to 8 feet since 1940 as geologic cavities from below ground due to obsessive groundwater consumption.

In an attempt to create a realistic model to showcase the processes and advantages of LID techniques systematically, the design required provisions for solutions to hydrologic issues and to expose the design solution to public in an effort to increase awareness about water problems and home-style resolutions to these quandaries.

The design begins by improving the environment of the 1.67 acre site to provide a hydrologically sensitive site design appealing landscape and gathering space. Within the proposed design, rainwater harvesting systems are created and plant specimens that require low maintenance and drought tolerance are selected. A systematic signage system is provided to enhance way finding and illustrate the impact of facilities and plantings introduced to the site. The design gives the public an opportunity to visualize the rainwater harvesting techniques to educate the visitors and multiply similar techniques to a broader scale. Design implementation is projected to decrease the runoff volume by 22.3%. Also, 18% of this captured runoff volume is stored for reuse while 54% is filtered and cleansed before infiltration. It also provides more than 2000 ft^2 of gathering space to support social interaction.

The Inspiration of Chinese Traditional Farming Practices for Rainwater Harvesting

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Keywords: rainwater harvesting, traditional farming techniques, stormwater runoff reduction

The landscape architecture field in America and Europe has been exploring several innovative rainwater collection and reuse systems in urban environments, such as “green streets” and “rain gardens” to collect storm runoff from parking, street and roof tops. In contrast, in many urban areas in China, the majority of urban storm runoff directly drains to an underground storm sewer system. Thus, urban rainwater is hardly harvested and re-used in China.

Despite its neglect toward urban rainwater, China has a long history of and many valuable experiences in rainwater harvesting practices, including the traditional agriculture with rainwater irrigation, the use of terraces and other methods to control soil erosion. Chinese farmers have been developing effective ways to use rainwater for thousands of years. There are many lessons to learn for landscape architecture.

The objective of this study is to document China’s long lasting rainwater harvesting practices in farming. The intent is to introduce effective ancient rainwater harvesting techniques to inspire the modern landscape architectural design. There are three main types of techniques in China’s rainwater harvesting for farming:

1. Terrace farming: Terrace farming is practiced at a large scale for soil and water conservation. It has the capacity to reduce runoff velocity, increase infiltration of rainfall and conserve soil and water on steep slopes.
2. Contour tillage: With contour tillage, a continuous slope is divided into alternating small ditches and ridges and therefore, runoff velocity is reduced through the pool and riffle mechanism.
3. Semicircular rainwater retention basins: This technology is widely used on steep slopes. Small retention basins (or “pits”) are excavated along contour in order to shorten the slope length, increase capacity for water storage and reserve enough space for crop growth.

During China’s impressive economic growth and modernization process in the past few decades, the traditional rainwater harvesting methods in farming have been overlooked or deemed incompatible with modern urban developments. In recent years, some traditional farming techniques have been transformed and applied in some landscape designs with success. This study will categorize the type of rainwater harvesting techniques and document key elements that can be integrated into landscape design. Suggestions on how the documented key elements are applied to different project types will be provided.

HISTORY, THEORY AND CULTURE

A Forgotten Giant: The Life and Contributions of Dr. Charles Fountain

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Keywords: Charles Fountain, African-American, Diversity, Historically Black College or University

Dr. Charles Fountain, founder of the first and only accredited landscape architecture program at a Historically Black College or University (HBCU), was an innovator, educator, and visionary (Fountain, 1989). As one of the first five African-American scholars to earn a professional degree in landscape architecture, he cultivated broad impacts in the field by actively recruiting and mentoring a new generation of African-American designers. His legacy and interest in diversifying what remains today "an overwhelmingly white profession" is a critical and relatively undocumented story (Zell, 2012). The purpose of this study is to reveal Dr. Charles Fountain's impacts on diversity in the landscape architecture profession.

Realizing the need for minorities in the field of environmental design in the early 1960's, Dr. Fountain left a tenured position in Plant Science at North Carolina Agricultural and Technical State University (N.C. A&T) to pursue a Master of Landscape Architecture degree at the University of California, Berkley (Fountain, 1989). He made this leap not only to fulfill his own interests, but more importantly, to "make landscape architectural education available to African-American students (Fountain, 1993)." Upon returning to North Carolina, Fountain founded the N.C. A&T Landscape Architecture Program, the first landscape architecture degree offered by an HBCU. Fountain also brought back an expert understanding of the California Beautiful movement, which he applied to local North Carolina landscapes. Finally, Fountain served as an important advocate for diversity through national, state, and local committees, programs, workshops, and boards on which he served.

This qualitative study analyzes archival materials, Fountain's built landscape designs, and interviews with colleagues, former students, and mentors. Initial findings indicate that Dr. Fountain's impact on diversity was profound. The N.C. A&T Landscape Architecture Program has introduced a significant number of African-American landscape architect graduates and leaders into the field. This study also reveals Dr. Fountain's own research documenting the progress of African-Americans in the profession, as well as his recruitment and advocacy efforts that forged a network of African-American landscape architects who supported one other. Finally, research suggests that his role as mentor had great impact on his students and colleagues who themselves pursued careers in academia including prominent African-American landscape architects such as Perry Howard, FASLA and Walter Hood, FASLA. While diversity in the profession of landscape architecture has yet to reflect the population it serves, it has been greatly shaped and cultivated by the life and contributions of Dr. Fountain.

Accelerated and Decelerated Landscapes

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Keywords: landscape change, ecology, space-time, thermodynamics, aesthetics, climate change

Landscape historian J.B. Jackson once prophetically defined landscape as “a space deliberately created to speed up or slow down the process of nature” (1984). Similarly, scientists and geographers have referred to the period from the 1950s onward as “the great acceleration”, implicating massive environmental change as experienced in both deliberate and inadvertent manifestations.

As Jackson’s quote implies, efforts directed at affecting the material workings of environments deploy strategies that are as much temporal in operation as they are spatial. As ecological knowledge expands, designed landscapes are becoming ever-more articulate in their process-oriented intent and capacities. Collectively, these temporally-altered terrains can be called "accelerated" and "decelerated" landscapes. Accelerated landscapes attempt to speed up material processes and are deployed to transform an existing landscape into a more preferred state. In contrast, decelerated landscapes slow down processes through a set of material relationships that minimize change or alteration from an existing condition. Acceleration and deceleration tactics and effects assume a variety of forms, such as fields of restoration plantings, regions of subsiding wetlands and geotextile fabrics stitched across denuded eroding slopes. Often a historical layering of temporal manipulation is embedded within an environment, or collisions of opposing trajectories and intents.

In this presentation, photographs, maps and diagrams will be used to illustrate accelerated and decelerated landscapes, with the intent of providing a conceptual framework to make them more legible as time-space systems. The concepts introduced serve to accentuate time as the otherwise “invisible other” typically operating beyond our usual senses (Adam 1998), yet instrumental to working processes and the emergent materialization of environmental conditions. Instances and contexts discussed will range in scale from single landscapes to global geographies, and will include examples of manipulated hydrogeological patterns, shifts in plant and animal assemblies, and a repertoire of novel ecologies. Theoretical foundations for these concepts will draw from assemblage theory, ecology, thermodynamics, aesthetics, and the writings and earthworks of Robert Smithson. Using these examples and conceptual tools, the presentation will explore the articulation of landscape trajectories as a form of ecological design and as a conceptual method to ecologically read and interpret landscapes.

Acre: Envisioning a Baja Resort Experience on the Cross-Roads of Design, Productive Landscapes, Cultural Heritage, and Local Community

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Keywords: Landscape Master Planning, Local Community, Community Revitalization, Collaborative Practice, Sustainable Land Use, Cultural Landscape, Conservation Agriculture, Productive Landscape, Baja Mexico, North America

San Jose del Cabo, Baja, Mexico, is a destination for holiday-seekers typically defined by all-inclusive resort experiences. The city has recently experienced unprecedented urban growth, with respect to both population and development. Resort and tourism developments have contributed towards increasing urban sprawl, slowly encroaching upon the rural and natural settings of the municipality of Los Cabos. This can be exemplified by the recent digging of a new marina which has had a marked impact on the neighboring San José estuary, a protected habitat and rare body of fresh water. Further, urban sprawl modifies both directly and indirectly the ecosystems' complex of urban and peri-urban areas as well as the ecosystems of other areas, located at considerable distances. Natural or traditional rural landscapes are replaced by urban landscapes, as the proximity between protected and urban areas increases (MacDonald et al., 2008).

'Acre' is a new resort project that is currently being undertaken in San Jose del Cabo, and aims to serve as an innovative model of productive and leisure landscape, within the boundaries of this rapidly growing city. Through the design process, the aim has been to explore alternative models to lessen the impact of the proposed development on the local landscape. The strategy underpinning Acre is rooted in the intersection between Design, Ethics, and Lifestyle; it embodies elements of both hotel and retreat, set amongst a productive landscape.

Acre attempts to establish sustainable land use and increased biodiversity through realizing a rich landscape – an oasis of ecological diversity, which can function as a catalyst for natural and ecological restoration.

The research and design methodologies of the project are highlighted in this paper. The objectives of the process are to establish meaningful working relationships between designers, developers, non-profit organizations, and the community, to create a thriving economic, ecologically-robust, and culturally-rich landscape system. Research examined, for instance: urban growth; urban and conservation agriculture;; the local, ecological, and historic landscape context; hydrology; and horticulture. Facing the demands of economic realities and consumer and developer interests, the paper also discusses the challenges to create environmental and social benefits within this context. The case study of Acre illustrates the complexities in aims to minimize urban growth and the negative impacts on eroding agricultural heritage landscapes. As a case study, Acre further illustrates parallel conditions of eroding or 'at-risk' agricultural heritage landscapes within the progressively urbanizing North American context.

Beauty Isn't Simple: Examining the Complex Role of Beauty in Climate Change Photography

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Keywords: Beauty, Photography, Climate Change, Cultural Theory

What is the role of beauty in the photographic representation of landscapes? How does beauty affect a viewer's understanding of what is depicted in photographs of landscapes? Does beauty make viewers value places more, and thus influence how they are managed or designed over time? This paper will approach these questions through looking specifically at late 20th century and early 21st century photography of the causes and effects of climate change.

Beauty has often been cited as either a positive way to motivate people to care about critical landscape issues (such as climate change: Wolf, Mathisen) or as a foil that anesthetizes the viewer to the deeper realities of what is depicted (Sontag). The ongoing conversation about beauty is often dichotomous – beauty is good/beauty is bad. Many hold a very sentimental understanding of beauty that continues to be based on the pictorial. We in the environmental design fields make a lot of unexamined assumptions about what is beautiful and ugly. Even what we think is initially ugly ends up looking beautiful because of the way it is photographed, as in Berger's *Reclaiming the American West* (2002), and Hayden and Wark's *A Field Guide to Sprawl* (2004).

Climate change photography is a particularly powerful genre through which to explore this issue. The subject is often ugly and deeply threatening, yet visual conventions of beauty persist in many of the best-known photographs of climate change. Even the sublime is beautiful. Photographs by Peter Essick and Edward Burtynsky, and their contemporaries primarily supported and featured in *National Geographic*, as well as photographic investigations in environmental design concerned with this topic, such as Berger's will serve as the subjects for this inquiry. The different ways of thinking about the influence of beauty on landscape photography will be explored through a diverse set of works including the following by: Susan Sontag, David Hickey, Roland Barths, William Cronon, Anne Spirn, and Robert Adams.

The goal of this discussion is not to come to a single answer to all of the questions beauty raises, but rather to reveal and embrace the complex role beauty plays in how we understand and value landscapes. What is beauty? Why do photographers seek to make beautiful images of landscapes? Why do viewers seek beautiful images of landscapes? How does beauty influence how a viewer understands or misunderstands the landscape presented in a photograph?

Beyond Urbanisms: Re-Making the Contemporary and Future City

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Keywords: Urbanism, Urban Design, Globalization, Regionalism, Social and Environmental Justice

Projections suggest that by 2030 more than 80 percent of the world's population will live in cities. This increasing urbanization has massive global, regional and local implications, and makes it a central issue for spatial design and planning fields. "Urbanism", with its attendant range of adjectives (New, Landscape, Weak, Ecological etc.) has become a buzzword *du jour*, facilitating some of the most critical, challenging and contentious discussions among spatial design and planning disciplines and professions.

While cities were originally considered the epitome of the project of civilization, the late 20th and early 21st centuries have seen cities at the center of conversations on globalization, post-colonialism, multiculturalism, the crisis of the project of capitalism, sustainable development, energy efficiency, the rise of the creative class etc. – but also as a location to reimagine and reinvent the relationships between human and non-human processes. While the subjects of discourse may be new (or at least wear new clothes), the discursive nature of cities and urban agglomerations is not. Cities have always been loci of negotiation, of conflict, of contest. They are also at the front and center of the debates surrounding questions of social and environmental justice, governance, empowerment, and the re-imagination of society.

These discourses, at least in the United States have been dominated by the concepts (or, more polemically, dogmata) of "New Urbanism" and "Landscape Urbanism" for the last decade and longer. This paper analyzes these discourses, and Landscape and New Urbanism's actual and potential contributions, using critiques, positions and frameworks put forward in three seminal texts: Kenneth Frampton's *Toward an Urban Landscape* (1995), Rem Koolhaas' "Whatever Happened to Urbanism" and Sebastien Marot's *Sub-Urbanism and the Art of Memory* (2003). It investigates a range of projects that can be located within new-urbanist and landscape-urbanist thought, with a particular emphasis on post-industrial and post-disaster conditions. The findings support the contention that neither New Urbanism nor Landscape Urbanism can provide modi operandi that are sufficient to allow spatial design and planning professions and disciplines to fundamentally and critically re-engage in the making of cities. An alternative framework that foregrounds the legibility of change, the co-evolution of communities and places, and an engagement of forces, influences, relationships, processes, protagonists and scales frequently excluded is proposed as a platform for the evolution of a more constructive discourse on the future of cities and landscape architecture's potential roles.

Borderlands in Landscape Architecture: Parque San Martin

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Keywords: Latin America, frontiers and borders, marginal environments, identity

This paper figures the work of landscape designer Carlos Thays alongside the material contributions of the indigenous Huarpes people and draws from the field of Hemispheric Studies, specifically Enrique Dussel's concept of trans-modernity, to suggest a complex framework for studying American landscapes. Mendoza is a modern city of nearly two million inhabitants situated on the border between the great agricultural plains of Argentina and the desert foothills of the Andes mountains. Historically it has been a frontier settlement of utmost strategic importance, existing variously at the southern edge of the Incan Empire, the eastern edge of the Viceroyalty of Chile, and now the western border of Argentina. In addition to its location at the political margins, it leads a perilous existence at the edge of environmental sustainability- the region receives less than seven inches of rainfall a year, is located in a highly active seismic zone, and is susceptible to flood events.

The indigenous Huarpes society constructed a sophisticated canal and irrigation network to enable an original form of urbanism in this difficult but strategic location. This hydrological system would become the backbone for future colonial and republican-era settlement in the region. In the late 19th century a public park the size of New York City's Central Park was constructed on the Mendoza's western edge. Parque San Martin was intended to protect the local water supply for the growing urban population and offer a new form of public cultural expression. These facts suggest a case of landscape design as a mediating device, meant to remain perched on the western edge to protect the city from the dust storms and floodwaters that rush down from the Andean foothills. In this context landscape architecture- the material practices and designed landscapes existing at multiple scales- developed to mediate challenging environmental conditions and help form and reflect shifting cultural identities.

This paper will examine landscape architecture as a creative practice for the mediation of volatile environmental conditions and the creation of cultural identity in the Americas. Site-based and archival research of a significant and understudied landscape, Parque San Martin in Mendoza, Argentina will be presented using a comparative, typological case study method. This landscape stands as an early example of modern landscape design in the greater American West and highlights the contribution of 19th century landscape designer Carlos Thays, who is an important transitional figure in the history of Latin American landscape design.

Chinoserie Landscape in the United States (1870-1920)

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Keywords: chinoserie, Chinese influence, city beautiful movement, US landscape

This study explores the Chinese influences on American gardens and parks in the period from 1870 to 1920. Several years of research preparation, including historical archives collection and site visit, has generated a list covering 33 landscape sites in sixteen states. This list surveys existing projects, such as Chinese Pavilion at Tower Grove Park in St. Louis, Chinese Tea House at New Port, RI, and Naumkeag in Stockbridge, MA, as well as non-existent cases, such as Chinese Pavilion of Columbia Garden in Butte, MT, Mineral Springs Pagoda of the Garfield Park in Chicago, Parasol seat at the Fort Greene Park in Brooklyn, NY, and Parasol seat at Belle Isle Park in Detroit. Almost all the elements seen in chinoserie gardens in 18th century Europe were found in America a century after, such as pavilions, towers (pagodas), moon gates, sculptures, walls, and bridges. Three study questions are asked: (1) what are the differences between the gardens and parks under Chinese influences in US and their counterparts in Europe? (2) How did the gardens and parks under Chinese influences interact with society at the turn of 20th century? (3) What materials and crafts were used to adapt the Chinese influences then?

The preliminary findings are (1) Chinese elements landed in North America continent from Europe and China, by professionals and laymen, which therefore presented distinct appearances and tastes. (2) Chinese style projects played an animate role in the city beautiful movement, which accommodated an urbanized, progressive, and internationalized society. (3) Advanced construction technology and improved international communication at the turn of 20th century created a unique American chinoserie style, which differs from both the prototype and its European counterparts.

Common Canopy: Planting the Boston Common

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Keywords: trees, Boston Common

The purpose of this paper is to investigate the history of tree-planting in the Boston Common and the role the trees played in the city's development.

The iconic Boston Common that we know today grew from very humble and inauspicious beginnings as the "Town Fields" — a barren and essentially treeless scrubland, used for grazing cattle, training the military, and dumping trash.

As the city grew and transformed, so did the Common and its trees. A 1728 map was the first to show a row of thirteen new trees along the Tremont Street boundary. Six years later a second row of mostly English elms with a few poplars and sycamores was added and Boston had its first recognizable mall. It quickly became part of the city's social scene by 1740 "for their domestic amusement, every afternoon after drinking tea, the gentlemen and ladies walk the Mall." During the Revolutionary War and the Siege of Boston, the Common's trees suffered when the British soldiers who were camped on the Common cut down most of the trees for firewood during the long cold winter of 1775-1776. After the war the replanting of the trees along Tremont Street restarted, this time with a third row.

Private citizens living near the Common also contributed by planting trees. In 1762 Adino Paddock, a coachmaker living on Common Street facing the Granary Burying Ground and a short distance from the Common, planted the city's first street trees — a row of fourteen English elms opposite his home. Over on Beacon Street, John Hancock also planted trees on the Common opposite his house in 1790, and twenty-five years later more trees were planted to create a second mall. A tree-lined mall on Park Street soon followed. The Charles Street Mall was completed by 1823, and in 1836 the Boylston Street Mall was opened. Charles Bulfinch's "obsession" to create a promenade around the entire Common was finally satisfied.

Using historical newspapers, city histories, and city documents, this paper traces the evolution of the trees in the Boston Common, showing how the transformation of the Common mirrored the city's development as well as Bostonian's daily life and changing attitudes towards trees, walking, and nature. It will also place the planting of trees in the context of the city as a whole, as well as the region.

Community as Virtue-the Place of Native Spirit

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Keywords: Indigenous Communities, Genius Loci, Native American culture, Deep Ecology, Spiritual Landscapes

The paper looks into the concepts of nature and community that have been embedded in Native American settlements in order to sketch out some of the essential characters of indigenous communities and our present approach to culturally sensitive place-making.

Environmental designers often like to make ambitious propositions for the 'creation' of a 'spirit' in a place by means of some professional intervention. Before jumping into this daunting task of creating a community place with an indigenous identity, we should rather think about a responsible act of interpretation, not necessarily of intervention: What are the figural characters in this native place? And how might these 'placed' characters work together in such a way that a new whole sense of community can emerge? Difficulties in particular arise in trying to articulate the elusive character of the sacredness indigenous culture has at its deepest core, and as it is instantiated in the physical environment.

The paper argues that the place of the 'Native American Spirit' presents itself through the vital characters that stem from a lively summation of the habitual patterns infused with traditions and in a 'life centered' spirituality rooted in deep ecological awareness.1 In seeking to embed the indigenous spirit in the course of contemporary place-making, the paper puts forward six attributes that constitute and contribute to the virtue of indigenous community: 1) center and edge; 2) balance and tension; 3) pattern and synthesis; 4) participation and performance; 5) symbols and symbolism; 6) simplicity and subtlety.

The vital characters of native places resonate with an important lesson: the ecological and spiritual understanding of indigenous culture actually could be the key to the virtue of community–the way to a fuller humanity. Scarcities of resources combined with a rapidly expanding material 'progress' has colonized local and indigenous communities on a massive scale, and accelerated a gradual spiritual corrosion by effacing cultural past and identity. A resounding lesson Native American culture teaches us is that landscape ought to be the place where the native spirit fosters our deepest sense of being.

Design and Technology of the Dutch Polder City

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Keywords: polder, adaptive design, urban design, history, climate change

Dutch water managers and designers are recognized globally for their expertise in both delta technology and water technology. The design of the Dutch polder cities, a low-lying tract of land enclosed by embankments or dikes, has been a combination of technological innovation and an understanding of water management; the result has been a culture-wide commitment to preventing flooding.

The aim of this paper is to provide a historical overview of the design evolution of the Dutch polder city model as a combination of technological prosperity and spatial water management strategies. This cumulative development can be divided into six phases characterized by key relationships between the design and technology of polder cities: acceptance (-1000), defensive (1000-1579), offensive (1579-1814), early manipulative (1814-1886), manipulative (1886-1990), and adaptive (1990-present). Through history, the more flood-related issues civil engineers could solve, the more their solutions were themselves submerged, no longer visibly integrated in the urban fabric. (Kostof, 1991)

In the current situation, climate change increases flooding in polder cities and the technical approach alone is now insufficient. The reintroduction of a spatial approach, coupled with a new acceptance of flooding, has resulted in the current adaptive flood strategies being implemented by The Dutch Cabinet Key Spatial Planning Decision, Room for the Rivers. The program identifies 39 key projects along the Rhine-Meuse-Scheldt River that will periodically flood, adapting the thousand-year old legacy of the Dutch polder city. These 39 case study projects bring to the surface a series of adaptive flood strategies, safe-to-fail infrastructures, and contemporary spatial models that collectively challenge traditional forms of flood management not only in the Netherlands but globally.

This research will provide a representative idea of the historical, current, and future relationships between water management and urbanization in polder cities. The main hypothesis of the research states that the historic Dutch tradition was based on self-evident relationships between water management and urban design. Innovative adaptive design of new polder cities is only possible when there is a reciprocal relationship between flood acceptance, urban design, and hard and soft engineering strategies.

Design and the Evolution of the American Mind

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Keywords: design, evolution, American culture, American history, American ethics

In North America, we tend to assume that other cultures understand our designs, and that our approach to and understanding of design is consistent with that of other cultures. Recently, a series of lectures to first-time visitors (who were also designers) to the United States highlighted the lack of a common basis of design understanding. While the visitors understood design vocabulary and adopted a similar design process to that of North Americans, their understanding of the rationale for land use decisions, resource allocations, aesthetic priorities, and the latest priorities in design was limited. Through a series of dialogues with the visitors (moderated by an interpreter), the relationship between North American design expressions and the evolution of American culture as translated by design was developed.

This presentation will articulate the key aspects of North American (US and Canadian where distinctly different) history, evolution and beliefs that define design today. These principles include land as commodity and land ownership; frontier vs. garrison societies (and the evolution of fear of the landscape and preference for human evidence); landscape as central to health; influence of western European 17th and 18th century design; the protestant work ethic (and the evolution of the preference for neatness in the landscape); democracy in the landscape (equality of access and multi-ethnicity); devaluing the expert (valuing of local knowledge and empowerment of the masses); focus on the future rather than the past (priority is based on today and tomorrow, rather than valuing the past). Many of these principles can be illustrated by the evolution of parks and their design and planning as framed by Cranz and Boland (2004).

The implication of the discrepancy between the understanding of design as a cultural artifact by people moving to or visiting North America (including students) is significant. Enabling learning about design in a more significant and meaningful way will require a clear articulation of the cultural and moral basis of North American design, as well as an understanding on the part of the host, lecturer, educator, teacher or advisor of the original culture and how it differs in order to fully enable the visitor to understand not just the formal characteristics of our design, but also how it is an expression of the evolution of the American mind.

Ecotopia Hits the Ground: Constructing / Re-Constructing the Second Biosphere

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Keywords: ecotopia, distopia, stewardship, causality, values, myth

Biosphere 2 (B2) was originally constructed as a bio-technical ecotopia that housed the most ambitious long-duration biodiverse life support experiment ever conducted. Almost twenty years prior to its 1991 launch, project visionaries began creating a transformative culture of collaboration between people and ecology to manage earth scale ecosystem services, pre-dating the Millennium Ecosystem Assessment's definition by decades. Their vision distilled four project goals: [1] prove human scale management of earth scale ecosystem services is possible, [2] develop technologies/methodologies for permanently manned space colonization, [3] produce understandings to assist creation of a transformative culture where Homo sapiens become creative collaborators with ecological earth systems, and [4] create living art forms that champion life and space exploration (Allen, Nelson, 1989). Six years later, B2 was known internationally as a failed experiment, despite the project's numerous successes. This paper situates the Biospherians' ecotopic culture and mission within its historical context, unpacks the experiment's embedded ideological and pragmatic distopic implications, and reflects on its contribution to the creation of current and future resiliency trajectories.

In order to substantiate their philosophy, the Biospherians utilized Russian Geochemist, Vladimir Vernadsky's integrative approach (1890-1945) which linked biosphere behavior to homo-sapien action through the theoretical constructs of technosphere and noösphere. He defined technosphere as the sphere of human-made artifacts and technologies that dispersed throughout the biosphere during the Agricultural and Industrial Revolutions, and the noösphere as the "planetary operation and impact of human ethics and intelligence." (Allen, 2003) Together biosphere, technosphere, and noösphere provided an overarching framework and specific pathways of action for ecotopic creation. This triad was translated into a performative logic of closed-loop negative-feedback ecological systems diagrams deemed necessary for successful operation at the expense of the Biopsherian's latter project goals concerning the creation of a transformative culture. Despite their shared vision and prior focus on reinforcing social structure, their ecotopia slowly devolved.

B2's experimental synergy between biosphere, technosphere and noösphere, perhaps foreshadowed humanity's role in the age of the anthropocene. Technologies deployed in the experiment, such as the wastewater recycling system, appear in constructed environments across the globe, and continue to reinforce an ethic and ecotopian lifestyle. Today, in our quest to propagate stainable/resilient performance and values, landscape architects and architects struggle to marry the analytical and integrative knowledge of eco-technics through design. In order to improve current approaches, is it beneficial or harmful to cultivate a shared ecotopic disposition in tandem with performative design strategies?

Enduring Imprints: the Civilian Conservation Corp and Virginia State Parks

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Keywords: parks, Civilian Conservation Corp

The landscape of the United States is imprinted with the landscape programs of the New Deal, a presidential economic program designed during the Great Depression of the 1930s. This program marked the beginning of park development and building across the United States. 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 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 the sites as recreational areas. The public park legacy left by the CCC began in Virginia, where these young men built the first six parks of what became a state-wide public park system. This paper discusses the making of these parks by the CCC, reflecting upon their design images and landscape types, and prevailing visions for public parks before, during and after their initial opening on June 15, 1936. These six parks span the state's physiographic landscape: Seashore State Park hugs the Atlantic Ocean in the Tidewater, Douthat and Hungry Mother are hugged 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. The CCC imprinted a landscape legacy as they reinvented, reclaimed, or restored forested and agricultural lands for natural resource conservation through recreation. Study of photographs, maps, state and federal documents and on-site investigations are the basis of this review.

Fear and Loathing in the Tropics: An Intellectual History of Latitudinal Angst

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Keywords: Tropics, Image, Colonialism, Race, Popular Culture

The landscape is somnolent, oppressive and decaying, a vision of London submerged, awash in a warm primeval sea, its great monuments transformed into a vague, malarial, atoll. It is the home of monsters and of men who have become monsters. The image is fictional, the cover of the 1962 edition of J.G. Ballard's post-apocalyptic tale of extreme latitudinal shift, *The Drowned World*. And yet, this image of the tropics is the descendent of thousands of such images, both pictorial and textual, produced throughout the course of Western Civilization -- and perhaps most pointedly so during the aggressive extension of British Colonial Empire beginning in the middle of the 19th century and extending to the immediate aftermath of World War II.

Western images produced during late British Colonial Era often depict tropical landscapes as overtly hostile or depraved. Such images were contingent upon the fear that tropical environments were capable of exercising a morally and physically degenerative impact on white bodies. Faced with the onset of Darwinian theory, British citizens were simultaneously horrified and tantalized by the question of whether the white body could retain its assumed racial superiority in the face of a radically different environment, or if it would fall into the savage debauchery that Europeans projected on to tropical peoples. Such images and questions were prominently debated in the popular presses of both England and America and were reinforced by the rise of eugenics as the *conclusion de rigueur* amongst the West's cultural elite.

Far from disappearing at the end of the Colonial Era, such images persist in popular media today. In this essay I provide a brief intellectual history of the tropical imagery produced at the end of the British empire, and document where and why such images persist within popular culture today. I conclude with a consideration of what the persistence of such images may mean for cultural responses to a shifting climate.

HWS Cleveland in North Dakota: Island Park and the Shadow of a Century Without Landscape Architects.

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Keywords: Historical Narrative, Boomtown, Pleasure Ground Park, Professional Practice History,

A historical analysis of Island Park in Fargo, ND reveals its significance as the state's only "pleasure ground" park and can trace its underpinnings to Olmstead's influence on HWS Cleveland and pioneers of the profession. Yet, being the first work of landscape architecture in North Dakota, there is little documentation or local knowledge of its place in history or Horace William Cleveland's vision Island Park and the frontier of landscape architecture and civic improvements (Hubbard 1930, Tishler 2000).

This paper parallels the historic 19th century landscapes of Cleveland with the industrialized oil boom landscape surrounding Theodore Roosevelt National Park. Using Island Park as both a case study and marker for the professional practice of landscape architecture in North Dakota, this paper illuminates the need to preserve our designed and cultural landscapes and document their archives. The history of landscape architecture in North Dakota told through Island Park mirrors the catalyst of optimistic pioneers and railroads, the outmigration of people after the 1930s, the subsequent void of designed and built landscapes, and the future of landscape architecture in the broader matrix of an open space system taxed by the influx of large populations within traditionally agrarian infrastructure.

Chronologically, Island Park (1878) is the first work of a landscape architecture in a state that did not license the profession until the early 21st century. The attrition of both people and preservation archives has only recently been addressed at a time when landscape architects are poised to more broadly plan the landscape. Lessons learned from the historical analysis still apply in this second Great Plains expansion. The historical narrative of HWS Cleveland in planning for the "Grand Rounds" park system of Minneapolis and St. Paul as burgeoning 19th century cities booming towards 1 million people becomes prescient once again.

Interpretation of Urban Park Design Characteristics

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Keywords: Urban Park, Design Characteristics, Conceptual Models, Measurements

Urban parks have been recognized as key neighborhood features that support physical and psychological health, and social well-being. Extant research has explored a number of urban park design characteristics and associated benefits for park users. For small urban park, Nordh et al. (2009) found that elements of grass, bushes, trees, and park size are strongly associated with restoration likelihood. Park size (Baran et al., 2013; Sugiyama et al., 2010), presence of track (Cohen et al., 2007), form of path (Whitaker et al., 1973) and shading (Lu, 2010) are shown to have associations with activities in general and walking. In spite of a wide interest, existing conceptualizations and measurements of park design characteristics are limited and inconsistent. This research addresses this gap by providing a conceptual framework for study of urban park design characteristics. Findings of this research will help develop measurements of park design characteristics, provide framework to evaluate design schemes and possibilities to strengthen connections between academia and design profession.

A number of existing conceptual frameworks pertaining to built and natural environments are carefully reviewed. These frameworks include interpretation of architectural spaces (Ching, 2007; Hertzberger, 2000), frameworks of built environment (Cervero et al., 1997; Handy et al., 2002), quantification of qualitative urban design qualities (Ewing et al., 2006), landscape quality assessment (Daniel et al., 1983), Kaplans' understanding-exploration preference matrix (Kaplan et al., 1989), visual Landscape (Sheppard, 2004), park design theory (Eckbo, 2009; French, 1973; Rutledge, 1971; Waterman, 2009) and space syntax theory (Hillier et al., 1984).

Based on existing frameworks and theories, two dimenions of urban park design characteristics and three components of urban parks are identified. The two dimensions are spatial dimension and visual dimension. Spatial dimension refers to the spatial occupancy and spatial location of elements in the park. Whereas visual dimension includes features of these elements as visual stimuli. Three components of urban park are natural areas, pathways and activity zones. Natural areas are areas that do not allow for spatial accessibility, and include shrubs, water, flower beds, and ornamental lawns. Activity zones are designed for people to stay and engage in activity; while pathways are designed for circulation. Two levels of interpretation are proposed: one is characteristics of a particular park component itself and the other is its relations to other park components. Measurements at each level and within each dimension are also suggested. The framework is expected to help better conceptualize park design characteristics.

Layers of Landscape History: Using New and Conventional Methods to Assess Historical Layers

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Keywords: lidar; cultural landscapes; designed landscapes; cultural landscape analysis

The castle complex of Valec is an excellent example of a multi-layered designed and vernacular landscape. Located in the foothills of the Ore Mountains in the Karlovy Vary region of the Czech Republic, the site holds significant natural features that made it attractive for centuries of occupation. Located on a series of natural basalt promontories, the site holds a commanding view of the adjacent valley. This natural setting made it attractive as the site for a medieval stronghold and later provided the opportunity to create the quintessential Baroque landscape. Originally settled in the medieval period, the site had successive waves of building and renovations from the Renaissance to the present day. While the site was home to a significant palace complex of the Baroque period that retained its importance until the Second World War, there are very few documents remaining which provide evidence for its extensive Baroque gardens and park.

With layers of medieval, Renaissance, Baroque, English, Renaissance Revival and later socialist landscape design and occupation, the site presents an opportunity to explore the use of various tools and technologies for uncovering the layers of a historic designed landscape. Using historical maps, aerial photography from the 1950's, 1990's and 2000's, existing photographs from throughout the 20th century, a ground-level inventory of surface features, existing archaeological reports, newly flown Lidar data and conventional surveying of the site, various layers of site information emerged.

The layers evident from each type of historical and site data were mapped and compared to identify the common features available in each format. While many of the major site features appeared in multiple formats (e.g. the false gates), some significant features were only available through Lidar imaging, a finding similar to other recent analyses of cultural landscapes using Lidar imaging (Crutchley 2009; Corns and Shaw 2009; Gojda and Kol 2013). While Lidar technology uncovered previously unrecognized features, other features such as a series of Baroque-era pathways were only visible upon a detailed conventional site survey. The results of this study were twofold: it illustrated how a designed landscape can be reconstructed in the absence of traditional historic plans and associated documentary evidence, and secondly the pitfalls of relying solely on Lidar technology to illuminate site features.

Lenses of Practice: Disciplinary Cultures in Design and Planning

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Keywords: reflective practice, urban design, planning, placemaking professions

The city, landscape and community, as noted in the conference Call for Abstracts, are never clearly distinct. Neither are the boundaries between the disciplines involved in the design or planning thereof. The disciplines of landscape architecture, architecture, urban planning, and civil engineering are intertwined professionally, technically, practically, and discursively in the making of the built environment. Systematically the components of urbanism, landscape and community compete for resources, much the same way the disciplines simultaneously comingle and compete for recognition of authority and expertise, and more mundanely for design commissions and budgetary allocations. The purpose of this research is to consider, through ethnographic methods and observation of the built environment as a product of disciplinary cultures, the ways in which the disciplines have evolved specifically in relationship to each other.

Cities and landscape are constituted by the layering of culture and ecology. That layering is evidenced as historical artifact as well as the continually evolving urban and suburban fabric. The goal of an ethnographer, as characterized by Malinowski in 1922, is “to try to understand not only another culture, but also how people from that culture understand their culture, and how they see the world (Freeman 2009, 53).” Inspired by the simple premise put forth by Allan Jacobs nearly three decades ago, that “you can tell a lot about a city by looking, (1985, 1)” this paper explores the layers of history manifest in an American corridor from historic downtown to 21st century suburb, in order to provide understanding of how the professions see the built environment as the result of their disciplines’ culture, practices and actions.

Specifically, this research focuses on the 15/501 corridor from downtown Chapel Hill to the western edges of Durham, North Carolina. The corridor reflects a milieu of conditions - physical, economic, jurisdictional, and chronological - not unlike scores of corridors across the American landscape. Combining interviews, photo-documentation, and autoethnography, the purpose of this research is to develop analytical narratives of the making of the American corridor through the lenses of the disciplines involved in its making. Specifically, what does the longitudinal context of the case reveal regarding the changing roles, changing values, and the relative interactions across several placemaking professions?

Mid-Twentieth Century Modernism and the Invention of "Microclimate"

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Keywords: microclimate history

This paper examines the emergence and adoption of "microclimate" in design theory and practice in mid-twentieth century America. Its thesis is that during this time, relationships between site and sense of self were brought closer together through a newly appreciated ability to alter the localized climate in and around the home.

While it can be said that all site design is a response to climatic conditions and weather events, the character of any response can vary from mitigation to modification. In the mid-twentieth century, the means and ends of site transformation were re-imagined through the (then) new concept of "microclimate." The term first appeared in design literature in 1947 through an un-credited technical brief in *The Architectural Forum*. Its authors, architectural critic James Marston Fitch and climatologist Helmut Landsberg subsequently joined other designers and scientists in contributing to the *House Beautiful Climate Control Project* (1949–1951). Provocatively asking, "What does climate do to you? And what can you do to climate?," the editors of the popular magazine offered a series of articles aimed to teach Americans how manipulating indoor and outdoor environments can reduce stresses and strains on the body. The project also sponsored technical reports and conferences with the American Institute of Architects and the National Academy of Sciences to advanced professional understanding of building-body through.

This paper draws upon three groups of sources: articles from *House Beautiful*, archival materials written by or associated with the participants and the collaborating institutions, and contextual readings from the period that informed climate-culture relationships. These texts document an intensifying awareness about the impact of climate on physical and mental well-being and an increasing expectation for environmental comfort. Moreover, against the background of post-war politics, one reads an approach to establish and maintain ontological security—security in one's sense of self—through technologies of home design. Recognizing the role of microclimate on mid-century design contributes to design knowledge in three ways. First, it locates the early history of a term that remains relevant to professional practice. Second, it offers insight on some principles of home and garden design that can inform efforts to preserve and conserve mid-century houses and landscapes. Third, it reveals details about a moment in the ever evolving relationships between people and place.

Mission Santa Barbara Visually Explored

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Keywords: Garden History, California Mission, Mission History, Landscape Representation

Water, barrels down a newly-built aqueduct, filling reservoirs that dispense the precious, life-giving liquid, through runnels, like veins, to the community for laundry, drinking, gardens, pottery studios and the occasional fountain.

Bells toll wildly, breaking the silence of an arid afternoon, announcing the arrival of special guests to the Mission. Led by pious hosts these guests are treated to sights of verdant orchards, gardens and arresting architecture.

These word pictures capture fragments of an era often romanticized as the mission period of California. Words alone, however, are not enough to give a complete picture of life during a time when the Wild West was being developed.

This visual essay communicates illustratively the rich cultural and environmental history of one of California's twenty-one Spanish Franciscan Missions: Mission Santa Barbara. Visual imagery is inextricable to how we learn, remember and communicate. Stories of this Mission's history and development - the very systems that operated on a daily basis - are critically and artistically examined and brought to life through abundant illustrations.

What can hand-graphics offer in an age where 3D modeling and CAD are as common as the pencil? The primary method used to examine and then convey the information about Mission Santa Barbara is a palimpsestic approach called "over-drawing", a system of layering drawings, maps and images, to create something that is part map and part collage. The final illustrations highlight details from each of the layered elements that combined speak more than the individual components alone.

Through this expository process, spatial, temporal and cultural relationships between multiple systems of the Mission are revealed. The creation of an intaglio print - etching hills and valleys into a copper plate - is evocative of the padres plowing the soils of their huertas. As the brushstroke of a watercolor study mixes water and paint, its rivulets of water are reminiscent of the Mission's intricate and extensive hydraulic infrastructure. These and many other relationships are made more relevant and obvious through drawings over word-pictures alone. The techniques demonstrated in this project inspire designers with artistic ways to discover, represent and understand a place, adding a depth and quality not realized by present-day digital methods alone. Through this graphic narrative, the fascinating features and components of this venerable establishment lead those who see and read it to a greater appreciation of this place that is part building, part garden, part lore.

Modern Korean Park as Discursive Space: Metaphoric Naming and Metonymic Renaming of Yongdusan Park

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Keywords: naming, tropology, Korean park, discursive spatial practice

Place names identify or re-identify an unknown or a known place by assigning it a new identity and meanings. In addition to the primary function, this paper draws attention to place names as discursive spatial practice by illustrating how naming and renaming Yongdusan Park in South Korea are used by different authorities and people to express power and resistance.

The inquiry on place names lies between landscape research and literary studies. As an attempt to bridge the two disciplinary standpoints, this research applies tropology, the theory and application of tropes, to focus on the operations of place names in constructing a landscape as opposed to investigating the names' literal meanings. Tropes are basic rhetoric devices by which people construct meaning through relating the known with the unknown in a narrative or discourse. This research identifies two tropes applied in naming Yongdusan Park. Those are metaphor and metonymy, which operate along the semantic lines of similarity and association in time and space.

The first example is Yong-du-san, dragon-head-mountain in Korean, which was the name of the park site prior to its construction in 1916. It is a metaphoric characterization of the area based on a phenomenological similarity between the land form and an image of a dragon's head. As the name is used by the local people, it functions as a cultural system of signification and contributes to forming a collective landscape experience in which the rounded dirt mound is perceived as a dragon's head. Later, the area was renamed to Yong-du-san gong-won, dragon-head-mountain park in Korean. The renaming involves metonymy as it is a direct result of a historical event that transformed the area into one of the first public parks in the country. Yongdusan Park was built in 1916 by the Japanese government as part of a colonial modernization project that aimed to reify the colonial authority. After the colonial period (1910-45), the park was renamed twice and both of the renaming cases exemplify metonymies of political events: Woonam Park to commemorate the Rhee Sengman regime (1948-60) and back to Yongdusan Park as a result of civil resistance against the authoritarian Korean government. In contrast to the metaphoric naming based on phenomenological similarity, the metonymic naming re-identified Yongdusan Park by transforming it into a political setting in which the identity of the park was contested by different authorities whenever the political regimes changed.

Myths of Progress

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Keywords: McHarg, Modernity, Narrative, Myth

Modernity rests upon a myth of progress. Early twentieth century architects, combining visions of utopia with an equally strong fascination with machines, found this myth in airplanes, ocean liners, automobiles, and rational, infinitely expandable cities. Flush with excitement and youthful bravado, they embraced the twin dreams of speed and mass production embodied by these forms, and charted a path towards the future intent on alleviating poverty, promoting social welfare and enhancing personal freedom.

By the mid-twentieth century, a new generation of modern designers began to question the myth of progress promoted by their avant-garde predecessors. At issue, was how widely out of sync its vision of factories, cars, and the city was with current reality.

One of the most outspoken of these critiques was the 1969 publication *Design with Nature*, written by the landscape architect and urban planner Ian McHarg. This critically acclaimed, best-selling publication debunked the early-modern techno-utopia and its vocabulary of mechanical forms. What McHarg offered instead was an equally ambitious vision of progress that championed natural processes and a localized reading of the land. McHarg's counter-narrative argued that each landscape had its own story – a unique tale of physical, biological and cultural evolution written on the place and upon its inhabitants – and he promoted an overlay classification system to chronicle this history. Much has been written about McHarg's methodology, which is generally considered his supreme achievement. This presentation, however, argues the true genius of *Design with Nature* is not McHarg's planning system; rather, it is the way he interweaves his layered vision of the land with the saga of his life. More than 45 years later, long after the book's science and methodology have been superseded, this narrative still resonates. McHarg could tell a good story, and he understood the power of iconic imagery.

This presentation explores McHarg's narrative of person and place, and its progressive myth of modernity. It begins by relating this narrative to the resurgence of myth in mid-twentieth century intellectual discourse. It concludes by singling out two themes for further examination. The first of these is about how we perceive the world around us. The second is the important but ambiguous role of science and technology in that perception.

New American Wilderness

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Keywords: wilderness, feral, America, nature, post-natural, Anthropocene, complex systems theory, emergence, feedback, bifurcation

Wilderness is one of the longest enduring and most influential of American ideas about landscape, informing attitudes towards and shaping practices involved in the development, cultivation, exploitation, restoration and preservation of American landscapes. This paper explores a revised category of wilderness—the "New American Wilderness"—through historical research, theoretical argument and original analytic mappings of relevant example territories, developed by both the author and students in a seminar taught by the author.

Writing in 1930, the influential American forester and wilderness activist Robert Marshall defined a wilderness as "a region which contains no permanent inhabitants, possesses no possibility of conveyance by any mechanical means, and is sufficiently spacious that a person in crossing it must have the experience of sleeping out", highlighting key components of traditional American definitions of wilderness: scale and the absence of human influence in terms of both settlement and infrastructure. This is the understanding of wilderness shared by many of the most important American thinkers about nature, such as Thoreau, Muir, and Leopold: that wilderness is most wild which has seen the least human intervention.

These concepts have guided the development of federal agencies, practices of wilderness preservation and conservation ecology, and the advocacy efforts of environmentalist organizations. They can also be seen informing the work of landscape architects, in design efforts that aim to preserve wild lands against the effects of urbanization.

However, recent scientific advances, new theories of urbanization, and growing awareness of the scale of human influence on the global environment captured by the geological catchphrase "the Anthropocene" have made continued belief in untrammeled wilderness untenable and often counter-productive. Moreover, contemporary archaeological evidence and the work of ecological historians shows that the moment of apparent wilderness that confronted European settlers as they raced westward in the Americas was a historical aberration, a sudden rewilding that followed the calamitous collapse of native societies.

Interacting with a broad body of contemporary theory from scientific, humanistic, and design disciplines, this paper postulates that contemporary wilderness should be defined not by the absence of human influence, but by failures of human control. This theoretical work and accompanying analytical cartography opens up broad new territories for consideration through the lens of wilderness, better aligns the concept of wilderness with contemporary environmental realities, and, drawing in particular on complex systems theory, suggests initial concepts for understanding the evolution and design of landscapes which fall within this new category of wilderness.

Notes for an Encyclopedia of Ground

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Keywords: history, theory, landscape, architecture, ground, psychology, aesthetics, philosophy

As practical and theoretical disciplines, architecture and landscape architecture continue to find new ways to come to terms with the idea of ground. The latest resurgence of interest in the built environment as a set of potentially 'productive surfaces', to use architect Mason White's term, has brought the question of the conceptual and physical composition of ground back to the fore. As green roofs or living walls, and as collectors of sunlight and rainwater, there is a new recognition that hard boundaries between form and space are also soft interfaces between systems in the environment and landscape.

This work attempts to re-collect diverse approaches to the idea of ground, from gestalt perceptual psychology, philosophies of aesthetics, and the methodologies of soils science and real estate development. Ideas about ground are compared, contrasted, and analyzed for their usefulness as models for theory and practice in the contemporary built environment. Notions of 'site-construction' from art criticism, and 'megaform' from architecture theory become relevant as we expand on, and critique, a new sensibility that finds new ground everywhere.

Panoramic Site Analysis and Chicago's West Parks

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Keywords: Chicago, West Parks, Site Analysis, Panorama, Visuality, Movement, Confrontations

Chicago's West Parks (Humboldt, Garfield, Douglas and Columbus Parks) function as analogues to the nineteenth-century painted panorama. This popular art-entertainment form characterizes the visual culture of the period of large urban "pleasure ground" design in the United States, roughly 1850-1910. Chicago's lakefront parks are highly visible, and the legacy of the 1893 World's Columbian Exposition imbues the south side parks with historical caché, but the West Parks are turned away from view in several senses. Simultaneously central and marginal within a system predicated on panoramic seeing, they are under-visited and critically ignored. Nested within a decaying boulevard system, Chicago's West Parks are now held in stasis not only by social and economic factors but also by tension between the competing aims of landscape performance and historic preservation.

If the painted panorama gave way to cinema, the history of the West Parks suggests that the nineteenth-century park boulevard system was overwritten by the Eisenhower interstate highway system. The "pleasure ground" landscape was rendered obsolete not only by forces recounted in the accepted socio-political narrative of park design, but also for perceptual reasons as changes in transportation altered the visual, spatial and temporal experience of landscape. This history suggests two primary methods for panoramic site analysis: a graphic investigation of the parks' literal and figurative "confrontations" – the thick, discursive contours where park meets urban fabric – and a survey of changes in user movement among, along and across those interfaces over time. The authors demonstrate how literal and figurative confrontations are identified, represented and compared, and how changes in user movement are recorded. These methods of landscape analysis are then correlated to the structure of the painted panorama and to the experience of movement into and inside the panorama in order to define panoramic visuality.

Personalizing the Parkway: Women's Memorial Groves Along the Mount Vernon Memorial Highway

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Keywords: Women's memorial groves, parkways, cultural landscape, commemorative landscapes

This paper tells a story of a set of memorial groves sponsored by patriotic women's groups and planted along the Mount Vernon Memorial Highway on the Virginia side of the Potomac River. Like the groves themselves, this story is not large but is part of a larger story about women's plantings along the Potomac, and this paper begins an investigation into the motivations and impacts of those efforts. Specifically it looks at material evidence – the original planting plans and the present day landscape – to understand the originally plantings and current status of the memorials. By placing this physical evidence within the planning history and design of the parkway, it begins to speculate on the role the memorials would have played were they more intact than they are.

The Mount Vernon Memorial Highway was built in 1932 as a commemorative route to George Washington's home in honor of his 200th birthday. It was a model of modern roadway design and was hailed as the most fitting of the memorials marking the event. Patriotic women's groups wanted to be involved in the planning process and proposed several schemes that would have allowed individual states to landscape segments of the roadway. Each of these earlier proposals was rebuffed, however, and in the end the women were allowed to sponsor memorial plantings. The groups were all committed to preservation of American heritage and several, like the Daughters of the American Revolution, had direct ties to soldiers who had fought in American wars. Sometimes the number and species of trees chosen represented Washington and his legacy, for example, thirteen Virginia cedars from Washington's boyhood home representing the original thirteen states, and many were also noted with a bronze plaque identifying the sponsoring group and its memorial purpose.

Few of the plantings have much stature today; many have died, and of these, only a few have been replanted. What presence they do have, however, adds to a certain domesticity and personal-ness that characterizes the parkway: houses face the roadway across a wide, park-like margin, and people saturate the landscape in picnic areas on the river and along a heavily used bicycle and pedestrian trail leading to Mount Vernon. This paper argues that the memorial plantings add an additaaional and important layer to this human component, one that makes the commemorative role of the parkway more individual and personal than the otherwise modern roadway.

Placing Cuentos (Stories): Visually Based Artifacts and the Formation of a Chicano/a Community in East Los Angeles, California

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Keywords: Chicano/a Urbanism, Visual Culture, Community Development

The theme of this conference invites the opportunity to investigate “how communities can be transformed and engaged through design and planning.” (Call for papers) As such, an expansive milieu of ideas and practices that combine to form community within an urban context must be considered. This paper will work to illustrate how “visual propositions may, in certain contexts, be more effective in conveying messages to certain audiences” (LaWare, 1998. P.1) as to how urban community may be formed.

This essay will examine a uniquely Chicano/a cultural identity of community as articulated through street murals. This paper will also document how the murals serve to shape the Chicano/a community in East Los Angeles, California. In doing so, this paper will revisit the works of Alicia Gaspar de Alba, Dr. Jose Luis Gamez, and Margaret LaWare as they respectively attempt to illustrate how the theoretical construct of homeland creates a fundamental understanding of community, murals place the Chicano/a community of East L.A. in a context of political identity, and visually crafted artifacts work to assert cultural practices that shape a community's progress.

This work will initially employ an empirical case study methodology that concentrates on specific works painted by the East Los Streetscapers; a Los Angeles based collaborative of artists. By focusing on works produced by this group, I will begin to illustrate how visually based cultural artifacts demonstrate connections between a distinct social perspective of homeland, the everyday activities that combine to define a community, and the formation of an urban landscape narrative that helps to define East L.A's. unique brand of Chicano/a urbanism.

As a supporting methodology, I will interview the artists featured in this essay as a mode of inquiring how their murals “advocate a fairly specific concept of community development and community identity.” (LaWare, 1998. P.1) By employing this two-tier methodology, I will begin to illustrate the connections between the urban landscape of East Los Angeles, a distinct social perspective of the Chicano/a community, and how the visual artifacts that articulate that perspective work to shape the community’s progress.

It is my hope that this work will add to the discursive tableau of landscape, urbanism, and community by documenting how visually based artifacts can make an assertion for the creation, identification, and transformation of community’s development and evolution.

Race and Place: The Visible and Invisible Spaces in Southern African American Yards

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Keywords: African American Gardens, Race, Place, patterns,

The gardens and yards of African Americans in the South are important landscapes that reflect agricultural and urban practices and culture. Their layout, design and construction represent visible forms that can be documented and analyzed. Their historic, economic and socio-political circumstances explain the unseen processes that contribute to their meaning.

These gardens and yards have been, for the most part, described in physical terms based on forms and characteristics or as spaces that reflect cultural, racial or gender related issues. Both discussions, one on the visible aspects of these yards and gardens and the other on the invisible forces that they represent, are relevant to the larger discussion of their place and meaning within the American landscape. This paper will review the characteristics, use and patterns of 51 front yards in south Baton Rouge, a predominately urban African American neighborhood, and relate the findings to:

- The yards and gardens of African Americans in the rural South
- The role of African American women in the development of a garden aesthetic and practice
- The place of the African American yard in the urbanization of the American South

The forms and patterns of these urban yards relate directly to their rural counterparts and reflect a complex layering of historic, social and racial agendas. The discussion and review of these forces, visible and invisible, provide a rich and textured understanding of what these yards are and what they represent. Furthermore, the discovery and discussion of these layers of form and meaning redefine the yards as flexible and dynamic spaces of human interaction and work.

Reclaiming Identity: Palatka, Fl - Gem of the St. Johns River

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Keywords: adaptive urbanism, urban history

This research expands from work that led to the formulation of the Palatka Community Greenprint (PCG). For context, PCG was a mission-based action research project for the Palatka Redevelopment Agency and funded by the NEA Our Town grant. The PCG investigated the intersection of community development and ecological design as a new form of cultural infrastructure. The PCG revealed Palatka's rich urban heritage as the gem of the St. Johns River, north Florida. The paper focuses on the St. Johns River as a driver for Palatka's sense of place and its urban heritage. The research trajectory for this paper departs from the scholarly traditions of Lynch (1976), Riley (1995), and Jackson (1996); it is both interpretative and historical in nature. It presents the facts of Palatka's history and speculates on its location and sense of place along the St. Johns River: then and now, particularly as the City of Palatka seeks to reclaim its cultural identity.

Regional Identity and Landscapes of Death

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Keywords: Cemetery, history and culture, symbolic, regional identity

Cemeteries are vital components of a city's cultural inventory. They allow us to have an abiding relationship with our loved ones, by providing a place for rest, relaxation, commemoration, and recreation. They are spaces where the beliefs of the past and values of the future are held in delicate balance and negotiated in the present (Worpole 2003). In other words, the cemetery is an archetype which reminds citizens that everyone will die, and challenges humanity to consider the values and motives that govern their lives. However, not all cemeteries are identical; they vary by geographical region, creating landscapes with specific regional identity. The author defines regional identity as an awareness of being a part of something larger than oneself, yet still retaining unique traits. Throughout the history of the Southeastern United States, the diversity of individuals present, their traditions, and economic situation has informed the landscape design of these culturally rich places. The following conditions can contribute to the construction of cemetery in terms of regional identity: rituals and identity, gravestones and cemetery structure and society, and funeral practices and identity.

In spite of this, current cemetery models, the lawn cemetery and memorial park are homogeneous cemetery typologies that have been replicated across the United States, haphazardly, virtually erasing the unique qualities that comprise a cemeteries' identity. This paper seeks to examine regional identities as they relate to cemeteries in the Southern United States. Three case studies are compared: Oakland Cemetery, a historic garden cemetery in Atlanta, Georgia; Baptist Hill Cemetery in Auburn, Alabama, and Moundville Archeological Park in Moundville, Alabama. It seeks to address the differences within traditional European cemetery standards, African-American models, and indigenous burial traditions and how they might relate to, as well as, inform a new tradition in cemetery making.

Restoring a Modernist Landscape: A. D. Taylor's Rauh House

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Keywords: A. D. Taylor, moderism, landscape restoration

In 1938 Cincinnati architect John Becker designed a modernist house for Harriet and Frederick Rauh and their two children. The house was one of the earliest modernist residences in the city. Located on nine acre suburban site, the house was surrounded by a mature woods. A. D. Taylor, the landscape architect for the project, designed a modest foundation planting, woodland garden with stone walk, stone patio and fireplace, and graceful sidewalks and driveway.

This presentation will cover the restoration of the Rauh House landscape to its appearance in 1938. The presentation will begin with a brief overview of Taylor's career and writings. Preservation theory and methodologies used to create the restoration master plan and working drawings will be discussed. A review of specific preservation actions taken (restoration, rehabilitation, renovation, etc.) will be explained. The construction observation phase of the restoration will be reviewed. The presentation will conclude with the creation of protective covenants and discussion of ongoing and future maintenance challenges.

In 2005 the house was purchased by a developer to subdivide. Between 2005 and 2010 the house sat vacant and suffered extensive water and mold damage from a leaking roof . The site was heavily damaged from clearing and grading to create a new access road and storm water detention ponds.

In 2011, restoration of the house and site began. The landscape architecture firm of Meisner + Associates was contracted to create the site restoration master plan, prepare construction documents, and make construction observations.

Early in the restoration process, it was determined that none of A. D. Taylor's drawings had survived. A variety of methods were used to gather data to accurately restore the site: oral histories, historic documents including aerial photographs and family photographs, and field work to locate buried or disturbed landscape elements.

In addition to restoring these historic elements of the landscape, the ecology of the site was restored. Invasive honeysuckle and lesser celandine were removed, and new trees were planted. To reduce weeds and invasives, all disturbed soil was seeded with a native perennial seed mix including one designed specifically for the woodlands. Site restoration plans allow for natural succession of native vegetation.

With restoration completed in 2013, the house and site have been opened for guided tours and meetings. The largest event to date was a two day conference on Midwestern Modernism hosted by CPA.

Roberto Burle Marx and the Botanical Garden

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Keywords: Roberto Burle Marx, Brazil, native plants, public parks, botanical gardens, ecology

Rio de Janeiro's colonial and imperial gardens played a significant and influential role on the development of the work of modernist Latin American landscape architect Roberto Burle Marx (1909-1994). Burle Marx mythologizes the influence of his visit as a young man to the Berlin-Dahlem Botanical Garden's greenhouses, which displayed the indigenous tropical plants of his native Brazil in the ecological tableaux developed by the botanist Adolf Engler (1844-1930). Engler had collaborated with Carl Friedrich Philipp von Martius (1794-1868) on his monumental work *Flora Brasiliensis*, and developed the field of phytogeography, emphasizing the importance of geology on biodiversity. Burle Marx, generally credited as a pioneer in the use of native Brazilian flora in his designs, often cites his rejection of what he saw as a significant preference for the use of imported European species in Brazilian parks. Yet many of the historic parks of his hometown of Rio de Janeiro incorporated native tropical flora. This paper examines a trajectory of early examples of the use of native flora in the public parks of Brazil, beginning with the design by Mestre Valentim (1745-1813) of the Passeio Público, the first public garden in Rio de Janeiro, inaugurated in 1783. Next is an examination of the Jardim Botânico of Rio de Janeiro, founded in 1808 by King João VI of Portugal, followed by a study of the nineteenth-century parks in Rio de Janeiro designed by Auguste François Marie Glaziou (1828-1906), a French civil engineer trained as a botanist in Paris. Glaziou was commissioned to re-design the Passeio Público in 1864, and later designed the royal gardens of Quinta da Boa Vista and the public park Campo de Santana. Influenced by both these historic parks and the work of von Martius and Engler, Burle Marx often worked with botanists to catalog ecological plant associations at his project sites. Two of Burle Marx's lesser known projects from 1961, both unrealized, are discussed in the context of these historic precedents: the Jardim Botânico, São Paulo, and the Parque Zoobotânico, Brasília. From 1967 until 1971, Burle Marx served as a counselor on the Federal Council of Culture, and several of his written opinions insist on the protection and conservation of the Jardim Botânico of Rio de Janeiro as a cultural heritage site. Fittingly, Burle Marx's own experimental botanical garden of Brazilian flora at Sítio Santo Antônio da Bica is now a national historic and artistic monument.

Second Nature: Trees, Forests, and Landscape Architecture

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Keywords: Pinchot, Olmsted, Halprin, forestry, second nature

This essay proposes the reintegration of productivity in landscape architecture, through a study of forest design. It reveals the Olmsted and Pinchot foundations of forestry in modern American landscape architecture; uncovers a resistive thread of productivity in the twentieth-century in Halprin's work; and provides a framework for understanding and critiquing forests in contemporary design practice.

Cicero described two natures: first nature, formed by the gods and untouched by man; and second nature, the cultivated and engineered landscape. Sixteenth-century humanists proposed a third nature: the aesthetic landscape of the garden. These three natures have been an enduring conceptual framework for landscape architects, and yet in the twentieth century, the profession largely abandoned second nature to engineers, foresters, farmers, and other practical fields. The profession instead largely focused on first nature, in park design and natural resource management, and third nature, in the design of social landscapes.

In 1903, Gifford Pinchot published the first volume of *A Primer of Forestry*, which described the composition, structure and function of forests, and defined practices for sustainable timber harvesting. That same year, Frederick Law Olmsted died at his home in Massachusetts. A foundational era in the profession had ended, and the profession was entering a second generation. Olmsted spent his career balancing the art of design with the practicality of natural resource management and stewardship. One of his final works was a master plan for George Vanderbilt's Biltmore Estate. Olmsted proposed turning much of the estate to forestry, and in 1892, recommended Pinchot, then 20 years old, as Biltmore's first chief forester.

For a brief period, landscape architecture and forestry occupied the same physical and conceptual space. The design of landscapes and the management of natural resources were inextricable. Over the intervening century, the two fields have moved apart, following internal imperatives. Yet throughout that period, some landscape architects have continued to design productive forests.

Frederick Law Olmsted, Jr. worked with Pinchot at Biltmore for two years. Through close analysis of the younger Olmsted's planting strategies, this essay reveals early twentieth-century forest design practices. It uncovers the persistence of these practices in the works of Lawrence Halprin. At Sea Ranch, Halprin proposed a management plan for the sustainable harvest of timber to provide funding for the development. And an analysis of several contemporary projects reveals current strategies in forest design, and provides a new lens for understanding the second nature of contemporary landscape architecture.

The Ancient Roman Promenade: Gendered Performance

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Keywords: history, archaeology, Rome, gardens, antiquity, movement

Recent archaeological discoveries of ancient Roman garden terraces laid out in long parallel walks, or ambulationes, are bringing to life the designs of public parks and villa gardens. Remains found of the Temple of Elagablus on the Palatine and in the Great Peristyle of the Villa Arianna in Stabiae reveal that these walks were not laid out with shady allees of trees but with very open, low and varied plantings, offering the stroller views of a great variety of plants. Yet to the modern eye, these designs seem devoid of character.

This paper reviews recent scholarship on the cultural act of strolling to show how it animated the public stage. Although the importance of the promenade in Rome's parks was pointed out by Pierre Grimal in the 1940s, recent work on ancient texts by Timothy O'Sullivan and others emphasizes that Romans judged one another not by their bearing, but by their walk, their gait, as well as by their dress. Were the people themselves the main display in these gardens? To explore this question, students in a history seminar studied the bearing of ancient statues and ancient texts describing the correct manner of walking for men and women. They then acquired the correct hairstyle and dress, and worked with a dance choreographer and a military trainer to achieve the posture of the statues and retain this carriage while walking. The paper presents the results as video clips shot in a "black box" setting, paired with a Unity model of the ambulationes of the Villa Arianna at Stabiae to show how this apparently simple design fostered, yet controlled, encounters between strollers in the garden and created a vibrant landscape setting.

The Force of Things: Constructing the Panama Canal

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Keywords: Panama Canal, ports, Olmsted, Jr., infrastructure, restoration ecology

Ports and shipping canals are landscapes of utmost importance—geopolitically, economically, logistically, and ecologically. They are continually evolving landscapes, distributed globally and culturally significant. Despite this, the practice of landscape architecture does not have a history of deep engagement with this landscape type. The Panama Canal offers an instructive example.

In the early 20th century the French military engineer Bunau-Varilla noted that the strategic geography of the Panamanian Isthmus seemed to possess its own agency, saying that “the force of things drives men to build at Panama.” In the past five hundred years, the difficult terrain of the Isthmus has been the site of a succession of megaprojects: it called forth the first colonial city on the Pacific Coast, was laced with overland transport routes to move Bolivian silver, saw the first railroad crossing the continental divide in 1855, and tempted the United States and French into building a canal uniting two oceans. Amidst all this striving, we find that Frederick Law Olmsted, Jr. was hired to consult on the design of the Panama Canal landscape in 1913. How might ports and shipping canals, and landscape architecture itself, be different today if Olmsted’s involvement had been the start of an ongoing engagement with landscapes of maritime infrastructure? More importantly, what might be gained if we now turn our attention to this historically significant but largely understudied landscape type? This presentation will offer a historical and theoretical account of the construction of the Panama Canal—including locks, channels, displaced populations, the urbanized Canal Zone, and the instrumentalized watershed—as a landscape. Using Frederick Law Olmsted and Daniel French’s 1913 *Report to the Fine Arts Commission* as a starting point, and drawing heavily from environmental, political, and technological historians, as well as a body of technical literature, our presentation employs actor-network theory as a method that places cultural and natural forces on equal footing.

This presentation will distill important concepts and lessons that the discipline of landscape architecture can learn from studying maritime landscapes and demonstrate that a landscape architectural approach offers technical and conceptual tools needed to grapple with the large-scale assemblage of material, ecological, and cultural forces at work in these important and complex places. In line with similar efforts such as Sonja Duempelmann’s airports research, this presentation argues that the profession of landscape architecture is uniquely positioned to synthesize the array of environmental, economic, and cultural issues in play in these landscapes.

The Jardin-Anglais as Public Self

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Keywords: French 18th century gardens

At first glance, the jardin-anglais of 18th century France appears to be composed of a standard set of pieces. There is the Sublime grotto, the Beautiful round temple, the tomb, the Exotic pavilion, the ferme orneé. A closer examination of the details of specific gardens, however, reveals that elements were often chosen in order to "fit" the garden to the patron. This paper argues that these choices were intended to make each garden into a kind of portrait of its owner, an important means of projection of self to others.

Three gardens outside Paris are examined in detail: Marie Antoinette's garden at the Petit Trianon at Versailles; Mon. De Monville's Desert du Retz; and the Desert d'Ermenonville, the garden of the Marquise de Girardin. A "close reading" of the follies and features of each garden reveals that each plays on the standard repertoire to turn the garden into public self-portrait of its creator as he or she wished to be seen. Perhaps the most telling example of this is the variety of dedications of the ubiquitous tholos. Marie Antoinette, young and lovely queen of the court, dedicated her temple at Versailles to Love. Mon. de Monville, a notorious ladies' man, dedicated the tholos at the Desert du Retz to the satyr Pan. The Marquis de Girardin was a philosophe who supported Rousseau, and who left his temple to Philosophy unfinished to allow for the addition of future sages. In each case, the dedication evokes and publicizes an association desired by the patron.

Other details add to the desired public image – whether there is a tomb and who is buried in it, the use made of the ferme orneé, or the presence or absence of a hermitage. Together, they add up to three very different public images of the self projected by three gardens with very different atmospheres. The new innate self of the second half of the eighteenth century was to be "cultivated by a spontaneous relation to nature" (John O. Lyons, *The Invention of the Self*, 198). It is perhaps not surprising then to find nature as expressed in the garden being in turn made into the means of projecting the self to others. It might even be argued that the popularity of the jardin-anglais among patrons before the Revolution was in part due to the opportunities it offered for creating a public image of the self.

The Sublime in Modernist Landscape Architecture: Dan Kiley and the Artificial Infinite

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Keywords: sublime, artificial infinite, modernism, Dan Kiley, Edmund Burke

Scholarship regarding modernist American landscape architecture would suggest that it is unaesthetic. For example, none of Marc Treib's six axioms of modern landscape architecture explicitly invoke aesthetics (Treib 1993). Rather than an era of landscape architecture devoid of aesthetic concerns, this paper argues that early modernist landscape architecture exhibits a unique expression of previously defined aesthetic properties. One of the leading practitioners of early modernist American landscape architecture, Daniel Urban Kiley (1912-2004), is a valuable case study for documenting the existence of aesthetic intention in modernist landscape architecture. Most scholarship on Kiley can be categorized as biographical accounts, project descriptions and analysis, design critiques, or, quite often, combinations of all three. When the discussion focuses on Kiley's designs, it is his "classical" language of landscape elements inspired by André Le Nôtre and his modernist spatial theory inspired by contemporary European architecture that tends to take center stage. But there is little understanding of how Kiley's work is related to larger themes beyond his immediate sources of inspiration within landscape architecture. As evidenced through selected design projects, writings, and interviews, Kiley was quite explicit about his intention to create a sense of infinity in his designed landscapes, and we can see how his design philosophy regarding infinity parallels Edmund Burke's concept of the artificial infinite. In *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful*, Edmund Burke described the "artificial infinite" as one of the identifying characteristics of the sublime. The infinite "has a tendency to fill the mind with that sort of delightful horror, which is the most genuine effect, and truest test of the sublime" (Burke 1759: 67). Burke suggests that the artificial infinite can be expressed as a sequence or repetition of uniform elements (1759: 68) or as spaces with obscured or indeterminate boundaries or limits (1759: 58-67). Kiley's use of the grid and other models (allées, avenues, bosquets, and linear hedges) to repeat landscape elements, along with the creation of continuous spaces and indeterminate boundaries, exemplify how he intended to create a sense of infinity in his designed landscapes. (Beardsley 2009; Bleam 1993; Kiley 1963; Kiley 1993; Kiley and Amidon 1999; Meyer 2009; Porter, Kiley, Olin, Rainey, and Streatfield 2009; Walker and Simo 1994). Kiley's expression of the infinite in his designed landscapes therefore exemplifies an expression of a key aesthetic category, the sublime, in modernist landscape architecture.

Theorizing the Efforts of Merging Ecology and Aesthetics in Landscape Architecture

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Keywords: ecological aesthetics

This study shows an endeavor to theorize contemporary landscape architecture design strategies to marry ecology and aesthetics. While ecology has widely been recognized as a core value in the landscape architecture discipline, the lack of summary of design vocabulary at human scale is always an obstacle. In one aspect, landscape architects find that the fundamental ecology-derived conclusions can hardly deduce a decent design with enough formative or spatial clues; on the other hand, bold design explorations that artistically celebrate ecological values might bear the risks of resource consumption and environment degradation. While scholars call for the necessity and value of merging of ecology with aesthetics, few recognize the consequential conflicts or the irrelevance. More urgently, few efforts have been made on summarizing the grammar and vocabulary of merging ecology and aesthetics.

This study constructs a framework by conducting a rhetorical analysis of recent writings on ecology-concerned landscape architecture design. From *Landscape Architecture Magazine*, I selected 50 articles on projects associated with water that ranged from 1990 to 2010. Having comprehended the landscape architects' design strategies of engaging ecological concerns in projects, I investigated how the significance of each project is highlighted and generalized by writers. According to the study objective setting, five code categories are conceptualized and employed in the later phase, as ecological effect quality (disturbance-healing), ecological effect degree (in site- beyond territory), design scale (human scale-regional scale), aesthetic (innovative-conventional) and commentary attitude (reasonability-criticism). Not only are the different emphases on each category revealed, but the conflict, competition, and compatibleness among them are also examined. Lastly, a set of design modes are summarized that resolve potential conflicts of ecology and aesthetic, and celebrate potential resonations of the two.

This is Not a Site

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Keywords: site ethics, politics, design

While the legal and contractual definition of the sites we work with treat them as discrete and independent pieces of ground, we all know that sites are part of large and integrated environmental, cultural and political systems. There are many issues of practice that mitigate this conception of sites from zoning codes to water retention requirements to endangered species legislation. I will argue, however, that we need to not merely understand that the use of a site is contingent on impacts that cross property lines as legally defined but that we need to change our understanding of sites and engage them as multi-temporal intersections of human-human and human-nonhuman relationships. Once we understand a site in this way, we should subsequently understand our interventions on sites as actions that influence existing relationships or create new ones. This foregrounds the discussion of justice by making us consider whether we are treating the parties to those relationships fairly or preferentially. This moves our work in landscape architecture squarely into the realm of ethics and politics, where I propose that it belongs. This in turn should impact the way in which we conduct site analysis as well as our design priorities and inform the foundations of our discussions with clients and what we propose in resolution of their programmatic requirements.

I will illustrate this theory of site by expanding a particular site in graphic format for discussion of how it can impact both practice and pedagogy.

Threat and Challenge Regarding Cultural Heritage in Rural-Urban Area Under Chinese Urbanization Background – A Case Study on "Three Hills and Five Gardens" in Beijing

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Keywords: Urbanization, Urban-rural Binary system, Urban-rural fringe zone, cultural heritage protection

Beijing's northwestern suburb is favored with superior natural conditions surrounded by mountains, abundant ground water, and year-round bubbling spring water. A collection of royal gardens called "three hills and five mountains" is located here, and includes JingYi Garden on Fragrance Hill (Xiang Shan), Jingming Garden on Jade Spring Hill (Yuquan Shan), Garden of Clear Ripples (Qingyi Garden) on Longevity Hill (Wanshou Shan), the old Summer Palace (Yuanmingyuan Imperial Garden), and Garden of Eternal Spring (Changchun Yuan). In addition, there are many gardens and yards in this area that belonged to nobility, private owners, temples, former celebrities' residences, etc. This charming landscape used to attract feudal rulers to work and live here, making it the secondary political center only after The Forbidden City. Predominated by landscape culture, the over 800 years old "three hills and five mountains" area has formed a multicultural complex composed of celebrities, temples, tombs, Eight Banners, agricultural areas, etc.

However, with Beijing's increasing urban sprawl, the "three hills and five mountains" area is facing tremendous threats and development pressure. Contradictions in the urban and rural dual system are significant, and can be seen in "three hills and five gardens" as it is located in the urban fringe. As the population and standard of living increase, town areas are growing rapidly. This is further exacerbated by local towns earning revenue through land enclosure, increasing building density and height, constructing unauthorized buildings, and ignoring the planning and design for these areas. Meanwhile, since the low cost of living attracts large floating populations, local residents have started to rent their properties as a main source of income, which has resulted in the creation of more temporary buildings. This phenomenon is called the "Tile Economy". According to research and surveys, the ratio between permanent residents and floating population in some towns has reached 1:5. Not only does it pollute the environment, but it also raises a series of social problems. On the one hand, local citizens rely completely on rental fees. On the other hand, due to the cheaper rent newcomers are eager to stay regardless of their living conditions, which results in crowded living spaces and an excessive number of people living under one roof. These phenomena directly lead to horizontal expansion, terrible internal environment, lack of municipal infrastructure, and tightly connected buildings. These result in fire safety issues, surrounding landscape and environmental destruction, and social stability problems.

Touring the DMZ: Demilitarized Values and Representations of 'The Environment'

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Keywords: political ecology, habitat, ecotourism, postcolonialism

The Demilitarized Zone (DMZ) between the Democratic People's Republic of Korea (DPRK) and the Republic of Korea (ROK) dramatically instantiates contending values and representations that exploit rubrics of "the environment." The zone, while in fact heavily militarized, provides crucial habitat to a diversity of animal, insect and plant species, some of which are endangered and known to survive only there (Healy 2007). This condition makes the DMZ a focus of international efforts, advanced by ROK President Park, to designate it a park and/or conservation zone upon reunification or improved relations (Healy 2007, KBS 2005, Park 2013). My presentation examines the DMZ's militarized, politicized and capitalized ecology from an interdisciplinary perspective drawing on social and landscape/architectural theory. It further speculates on what the proposed "Peace Park" might look like, looking to an adjacent landscape/architecture project for bird watching and the recent Yongsan Park competition in Seoul. Kim (2013) considers the zone a form of border urbanism, an interesting point in light of the park typology's urban and political history.

Contestation of the DMZ takes place and form, most prominently, in its tense, heavily armed guards and the international negotiations on either side, where "side" signifies a complex of spatially dispersed political and economic networks. But it also occurs more ordinarily in the face of this tragic drama through everyday acts like: military maintenance inside the zone by both sides, rezoning of adjacent controlled areas on both sides, property claims from Korean citizens on both sides, privatized capital development interests on both sides, publicized environmental interests on both sides, and the normal occupations of nonhuman species migrating between both sides. Such appropriations pose differing valuations of the territorial boundary that this zone represents, and therefore is. The boundary, which appears on first glance to be so divisive and resolute, is seen on closer examination to be transgressed, transfigured, and utterly ignored by those nonhuman occupants most directly – and positively – affected by its constraints. The paradox of the DMZ's contested yet neutralized occupations portrays the many, co-constitutive conditions lumped together as "the environment." It thereby lends with hyperbolic effect to a rethinking of how those multiple conditions are staged by mediating as well as polarizing claims on it. It suggests reformulation of the environment as a mediating space co-produced by many species and forms of occupation.

Townmaking as Foil, from Brazil to The World's End

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Keywords: Landscape films, Townmaking, New Towns, New Urbanism, Garden Cities

This paper identifies and explores popular-culture films that utilize "townmaking" settings as an element of a critique of the social order that the townscape setting reflects. The films present planned landscapes as problems of both scale and style; I suggest that this critique is an important cultural/social context for designers and design educators who presume to make proposals for comprehensive community planning schemes.

When Stanley Kubrick adapted Anthony Burgess's futuristic *A Clockwork Orange* in 1971, the modernist London-area 1960s new town of Thamesmead was freshly constructed and its concrete barrenness contributed memorably to the film's coldly dystopian aesthetics; anti-hero sociopath Alex DeLarge seemed quite at home. Contrast this circumstance with Terry Gilliam's *Brazil* (1985), which utilizes the comparably modernist French commune Noisy-le-Grand (a district within the 1965 Paris-area new town Marne-la-Vallée) as the oppressively regimented hometown for harried technocrat Sam Lowry. Lowry can only dream of escape to freedom in some gentler place beyond. In Peter Weir's 1999 *The Truman Show*, Truman unwittingly lives each day as the star of a reality show within the simulacrum world of Sea Haven, which is actually the archetypal 1980s new urbanist resort town of Seaside, Florida. Like *Brazil*'s Lowry, Truman longs to break free from his patterned and predictable existence to find love and adventure in a wider world.

Most recently, Edgar Wright's 2013 *The World's End* has its band of forty-ish road-tripping protagonists making an attempt to relive their youthful carousing by returning for a pub crawl through "Newton Haven", the culturally dead-hearted hometown from which they had all gladly escaped as young men. Upon arrival they sense something vaguely sinister, before a plot shift reveals that the town's residents are actually human-replica automatons directed by aliens whose intent is to perfect the human social order worldwide. This film is set in the English garden cities of Letchworth and Welwyn, whose orderly open spaces and gardens become scenes of devastation and annihilation at the film's climax.

As a continuing cinematic theme, planned townscape-as-foil (whether garden city, modernist new town or new urbanism) illustrates a durable and significant popular sentiment that apparently resonates with audiences, who seem predisposed to understand comprehensively planned communities unsympathetically—at best they are assumed to be inauthentic or banal, and at worst seen as schemes of oppression. Such prevailing attitudes lend support to a libertarian argument for the limitations of townmaking-scale developments to achieve progressive design goals.

Turkey Run State Park and the Hoosier Imagination

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Keywords: Indiana State Parks, Local Place Attachment, Environmental Conservation, Land Ethics

This project focuses on the region surrounding what is now called Turkey Run State Park, near Marshall, Indiana. The impressive old growth forest and scenic sandstone gorges of Turkey Run were part of what made it a critical site in the early formation of Indiana's State Park system during the 1910s. This study analyzes Hoosier attitudes toward this particular location and seeks to understand the local meaning(s) of Turkey Run—both before and after its designation as a State Park—and thus, attitudes towards the formal conservation of space in Indiana.

Designation as a State Park greatly increased the notoriety and visibility of a given site for all Indiana residents, however, the landscapes that would become State Parks, such as Turkey Run, were already entrenched in the minds of local residents. This project asks what role such landscapes played in the Hoosier imagination and in the construction of both local and state identity? What allowed local residents (and subsequently outsiders) to develop and maintain deep personal and/or cultural connections to this particular landscape? Personal documents (journals, etc.) of local residents such as Juliet Strauss—a key player in the conservation efforts—will be examined, and contemporaneous newspapers from nearby towns such as Rockville, Montezuma and Bloomingdale will be mined for information pertaining to popular attitudes and ideas about Turkey Run.

Ultimately, this project seeks to provide insight into an evolving Hoosier land ethic during an increasingly industrial age—an historical period that Richard Lieber called "Indiana's New Century"—although these findings may well be applicable to a variety of other states that were also developing park systems during this age. Further, the park system's upcoming centennial anniversary in 2016 (as well as the state's bicentennial the same year) suggests that now is an ideal time to re-evaluate Hoosier attitudes towards their parks, and the larger Indiana landscape.

Transparency in Theory, Discourse, and Practice of Landscape Architecture

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Keywords: Transparency, Landscape Architecture, Theory

This thesis presents an inquiry into the concurrent absence and presence of the term transparency within landscape architecture. Employing a mixed methods research approach, the thesis demonstrates that ideas and conditions of transparency are latently present within landscape architecture practice despite a lack of theoretical writing and discourse on transparency. The thesis concludes by arguing for a more intentional engagement with the operative potentials of transparency as a design device that can evoke new spatial territories and experiences.

The investigation starts by questioning the varied meanings of transparency by synthesizing architectural theories of transparency. A foundational work on transparency, *Transparency: Literal and Phenomenal* by Colin Rowe and Robert Slutzky, provided a starting point for tracing the lineage of transparency in modern, post-modern, and contemporary architecture. Through this research, it became apparent that there are clear distinctions in how transparency is defined. While transparency as a core topic remains consistent, it's varying uses – social, material, and phenomenal – get codified differently. The architectural modernist period, for example, developed out of tumultuous social conditions and technological advances. Transparency, its operative agent, was deployed in an search for democratic ideals through themes of openness, honesty, and clarity. Responding to this, post-modern and contemporary design shift the discussion to conditions of translucency, opaqueness and, eventually, obscurity by assigning words like blur, vagueness, and ambiguity to transparency.

This research activated a language that provided a framework to explore the theoretical and technical use of transparency in landscape architecture. A series of case studies (Dan Kiley's Miller Garden, West 8's Swamp Garden, and MVVA's Ice Wall – amongst others) clearly demonstrated the latent use of social, material, and phenomenal transparency in landscape architecture practice, but also served to illustrate a lack of substantial acknowledgement of transparency in theory and discourse. Furthermore, research revealed that transparency use in landscape architecture in some cases, like Kiley's Miller Garden, co-evolved with its contemporary application in architecture; while in others, like Front Garden by Paul and André Vera and Jean-Charles Moreux, its use departed from architectural trends to provoke new spatial experiences.

The inherent qualities that are attached to the ideas and conditions of transparency are intrinsically tied to the design profession of landscape architecture. Its suggestive potentials in contemporary landscape architecture lie in its ability to respond to dynamic societal and environmental change and to capture and display the temporal qualities of the landscape that heighten sensory perception.

Underground Ecologies

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Keywords: Cultural Ecology, Spatial Theory, Political Ecology, Urban Waterways

Intended to support normative surface urbanity, the storm sewers in Oakland, California have quietly curated a parallel sub-urbanization. Referred to in architectural study as Subnatures (Gissen, 2009), Freakologies (Fletcher, 2009) and other eco-contractions, dismissed ecologies of the storm sewer represent the reality of urban ecologies: confused, visually discontinuous and entangled in physical and virtual space. This paper is a recodification of territory – from the perceived non-environment of the storm sewer - to a zone of evolving pipe ecologies.

Depression era encampments were the first to colonize. Like the Ohlone of past centuries, waterways in Oakland have guided this spatial settlement. Storm water contaminants have negated the human-to-site function of providing drinking water and food, but remain a source for cleansing. Colonization of the underground has evolved from a pattern of lateral settlement, to point-source communities. During the 1970's and 1980's, social and political anarchists the Suicide Club reached further, transforming the storm sewer from a single point system into a network ecology used to bypass surface regulation of space. The underground allowed the club to mount famed demonstrations on the surface world: the Oakland Army Rail Yard Protest, 1981 and the Midway Games, 1982.

Today, contemporary explorers, geo-cachers and artists are breaking the constrictive form of the pipe through virtual exhibition and organization. Scavenger groups use social media sites such as urbanexplorers.net to post clues for prizes hidden under the streets. "Pipers" use a similar platform to document their urban wake boarding skills and advertise low-flow summer showdowns.

In 2004, Alameda County, California passed measure DD – a multi-million dollar riparian bond used to remove homeless encampments, commission public art installations and daylight waterways in the East Bay. Current remediation efforts build on a history of ecological manipulation, reaching back to 19th century port dredging and redirection of streams for North Country mining. Introducing Oakland's underground into this narrative creates new readings of urban ecological thinking, revealing overlooked connections important to understanding contemporary urban landscape systems and positioning new strategies for remediation.

Urban Barn-Raising: Activating Collective Ritual to Promote Communitas

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Keywords: Karl Linn, Neighborhood Commons, community development, urban renewal, ritual studies

This paper will introduce the concept of "Neighborhood Commons" developed and deployed by landscape architect Karl Linn beginning in 1960 in North Philadelphia. With local residents, Linn and his University of Pennsylvania students transformed vacant lots into gathering places meant for "extended family living, based not on blood relationships but on mutual aid and intergenerational support that would generate the growth of neighborhood community," in Linn's words. Linn used such tactics of "neighborhood renewal" to remediate the damaging social effects of "urban renewal" clearance and displacements in long-neglected areas of declining American cities, including Baltimore.

After situating his concept for "Neighborhood Commons" in the socio-political context of American cities at this time, the paper will investigate the process of developing these commons as a collective ritual that parallels, according to Linn, rural "barn-raising." To Linn, this kind of urban ritual was less about the physical outcome than the collective act of communal effort. The use of ritual action for community development will be contextualized within cultural anthropologist Victor Turner's contemporaneous theories on the ritual process as a means of achieving communitas (see Turner, *The Ritual Process*, 1969). Finally, the paper will suggest what implications such a method of working may have on designing shared spaces in the city today.

Urban Gradient: Boundary Interfaces on the Watery Horizon of Change

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Keywords: political ecology, posthumanism, sustainability, productive landscapes, dynamic landscapes, landscape performance

Crossing the disciplines of landscape and architecture, we examine contending claims on the mercurial gradient of the Lake Pontchartrain Basin extending through and around New Orleans, Louisiana. This gradient, consisting of ocean gulf, barrier island, saline lake, salt marsh, brackish lake, freshwater lake, and swamp, butts up against the hardscape boundaries of the New Orleans levee system. The lowlands' dynamic interface of wet to dry and soft to hard juxtaposes the city's identity, technologies and structures with a wide range of flora, fauna, biogeochemical processes and their resulting forms. Paradoxically and problematically, the biophysical disturbance cycles that replenish the gradient's resource abundance continually undermine the urban structures capitalizing on that largesse.

We turn to Posthuman theory for its conceptions of identity that re-cognize the needs and claims of multiple species reliant on the gradient's rich but precarious edge environments. Our Posthuman formulation of 'occupant' brings identity politics to bear on discourses of sustainability and land tenure surrounding technologies of lowland defense. We argue that these discourses must value the identities, claims and habitat forms of multiple species, not solely the urban human, to attain sustainable objectives – and survive. We ask: How can disturbance regimes produce more resilient city and landscape forms that find promise in mutation? How can Posthuman interpretations of interdependent species, materials and processes introduce new design paradigms? And, finally, how can the design disciplines exploit such revolutionary vocabularies in the face of "free" market urban redevelopment accompanying coastline protection programs?

Applicable to the world's numerous port cities confronting rising tides and temperatures, our inquiry catalogues complicated identities of the gradient landscape, its occupation and occupants through photography, video, site observation and documentation of defense and restoration projects. From these we derive design strategies that exploit the adaptive mechanisms of resident flora, fauna and their technologies of defense. We deploy a language of landscape/architectural performance inflected with a Posthuman appreciation for the contributions of co-evolving species, materials and processes in producing the gradient's varied environments. The often ambiguous, entangled and hybrid identities of these occupants offer proven starting points for adaptation. We look to them for performance criteria and methods that cross hydrophobic and hydrophilic boundaries through resilient design forms and strategies. With such architectures, we propose incorporation of use and exchange values that account for multiple lives in a landscape that is flat only on the surface.

Why the American University Campus Matters!

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Keywords: university, campus, design , planning, master plan

Of the approximately 85 institutions still in recognizable forms since 1520, seventy are universities in the same location (Kerr 2008). Unlike most American institutions and companies American universities have rarely moved from their original locations. These and other characteristics make the American university a unique example of community design and planning. It is also well documented that many of the thriving American cities are hosts to a major university (Rybczynski). This presentation will explore the history of university design and planning to determine what are the principles that can be applied too cities, non-academic communities and the larger landscape. Like cities universities have had to respond to mega trends in population, integration and multiculturalism, changes in modes of transportation and infrastructure, aesthetics, technology, cultural shifts and the demand for sustainability.

Academic institutions range in populations from a few hundred to over 50,000 making it possible to compare them to a range of communities and cities. Historically campuses have shifted from periods of being conservative revivalism to periods of progressive leadership in community design and planning. This presentation will argue that we are in one of the periods when many campuses are leading the country in addressing contemporary issues of landscape design and planning. Most importantly many universities are turning toward their landscape as the principle medium to express vitality and values. Specific topics this presentation will address will include.

1. Brief history of campus planning and design from the Grove of Academus in 4th Century BC Greece to contemporary campuses such as the University of Cincinnati.
2. What are the underling design and planning theories and responses made by academic institutions that can inform us today?
3. In what ways are contemporary campuses engaging their host communities to create a synergy that benefits for both entities?

LANDSCAPE PERFORMANCE

"Park Seventeen" Residential Roof Garden: Landscape Performance and Lessons Learned

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Keywords: sustainability, urban heat island, green roof, stormwater

The purpose of this study is to present the results of landscape performance investigations and lessons learned from quantifying benefits of the Park Seventeen project, a ¾ acre residential roof garden in uptown Dallas, Texas. Park Seventeen is the residential component (25-story tower) of an urban mixed-use development completed in March 2011. It is complemented by a 19-story office tower that sits to the immediate east of Park Seventeen. The research team was formed to quantify their landscape performance benefits during the summer of 2012. Because of limited resources (funding and time), the research team identified simple environmental, economic and social metrics that could effectively provide meaningful performance information. Metrics were used to investigate urban heat island mitigation qualities of the roof garden, stormwater detention characteristics, residents' satisfaction and sense of community, and cost comparison between a conventional rooftop and the project. By measuring the air temperature on ground and roof surfaces, researchers found that the roof garden mitigated urban heat island effect by reducing the average air temperature by 1.3 °F, and the average surface temperature by 15.9 °F. The growth media used on the roof garden could hold the equivalent of 2.5-inch rainfall. For the cost comparison analysis, the cost for constructing a park on the ground within the uptown Dallas of the same size would be much higher than that for the Park Seventeen project. As for the social benefits, 78% of residential and commercial tenants who regularly used the roof garden felt the sense of the community through socializing with others. The researchers documented the lessons learned related to material selection and wind/heat effects on user's comfort and safety during the summer. Elements that are deemed sustainable are also compiled as a guide for designing future urban roof garden projects in hot climate areas.

A 'Texas Three-Step' Landscape Performance Research: Learning from Buffalo Bayou Promenade, Klyde Warren Park, and UT Dallas Campus Plan

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Keywords: Landscape Performance, Urban Landscape, Evaluation, Case Study, Survey

This research evaluates the performance of three acclaimed landscape architecture projects in Texas conducted as part of the Landscape Architecture Foundation (LAF) Case Study Investigation (CSI) Program in 2013: 1) Buffalo Bayou Promenade, Houston by SWA Group; 2) Klyde Warren Park, Dallas, by Office of James Burnett; 3) UT Dallas Campus Identity and Landscape Framework Plan, Richardson by PWP Landscape Architecture. The research's review of the procedures and findings highlights the importance of a consistent set of criteria to measure environmental, economic, and social performance and to establish a comprehensive and systematic framework to examine an array of projects.

Architecture and design literature often argue that a completed projects' performance must be evaluated to assess its value and inform future design practices (Preiser et. al., 1988; Hall, 1966). Landscape architecture projects are no exception to this. Literature from the past two decades broadly covers the value of landscape performance (Ozdil, 2008; Francis, 1999; Marcus & Francis 1998; Bookout et. al., 1994). In continuation, LAF has begun to document the performance of critical landscape architecture projects since 2011 under the CSI program. This body of knowledge set the stage for an inquiry to seek a consistent set of criteria to establish a framework for multiple cases.

This research combines quantitative and qualitative methods to evaluate three landscape architectural projects (Deming & Swaffield, 2011; Murphy, 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 for all three case studies. The LAF's Case Study Briefs (LAF, 2013), the relevant design and planning literature (Francis, 1999; Gehl, 1988; Whyte 1980), the 750 surveys and on site observations (Dilman, 1978, Marcus & Francis 1998; Whyte, 1990) conducted by the research team, and finally secondary data informed the research findings and results.

In conclusion, the presentation primarily reviews excerpts of social performance findings from the surveys, as well as selected economic and environmental performance benefits. Overall, the benefits respond to the health, safety, and welfare performance aspects for these sites. While each project displays a unique range of character and complexities, the presentation highlights the importance of research design to acquire consistent methods and measures for widespread applications. Such emphasis is belied to be a critical dimension of performance research and landscape architecture in the future to communicate the greater impact and value to the society.

Anticipating Change: Positioning the Profession of Landscape Architecture as a Leader in Climate-adaptive Design Services

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Keywords: climate adaptation, ecosystem services, urban ecological design, sustainable development

In January 2013, a new federal draft document evaluated the anticipated impacts of climate change nation-wide, and looked comprehensively at these impacts in seven selected sectors: human health, water resources, energy supply and use, transportation, agriculture, forestry, and ecosystems, biodiversity and ecosystem services (NCADAC, 2013). Soon after, on February 12, 2013 President Obama in his State of the Union address highlighted the need to react to climate change as one of the top five agenda items for his second term (Whitehouse, 2013).

While the science and policy of climate change have been developing strongly, and the anticipated impacts of climate change on urban infrastructure are becoming clearer, the design community has just begun to confront climate change as a serious design driver. Yet climate change significantly impacts the fundamental charge for which landscape architects are responsible daily: protection of public health, safety, and welfare. In this way, no other profession is better positioned to develop climate-adaptive design responses as landscape architecture. In fact, many existing design methods and practices already possess climate-adaptive potential, yet they are not yet properly calibrated and packaged as a comprehensive climate-adaptive design response.

Landscape architecture can further expand its design impact by reinforcing and leveraging ecological processes in cities (Pickett and Cadenasso, 2008). By drawing from existing approaches, and building on emerging aspects of ecological landscape design (Beck, 2013), climate-adaptive planting design (Hunter, 2011) and resilience theory (Folke, 2006), this paper proposes a climate-adaptive design framework approach composed of seven strategies (floodplain storage, stormwater design, resilient planting design, connectivity and migration support, pollinator support, urban heat island mitigation, and carbon sequestration), each achieved by reconfiguring existing and commonly employed planning and design practices, to provide a more comprehensive and adaptive response to the impacts of climate change on many urban areas.

This approach was tested in a graduate ‘design research laboratory’ studio in Spring 2013. This paper describes the methods, processes, and performance metrics that were used, and highlights outcomes that suggest how to better set objectives and measure the benefits of climate-adaptive design. It suggests that incorporating site ecosystems into the climate-adaptive design process can improve the climate-adaptive potential of a project, and that climate-adaptive design solutions can be optimized when a project’s systemic context is considered. Landscape architects are uniquely equipped to provide climate-adaptive design services; by acting now, the profession can position itself as a leader in this growing design area.

Assessing Residential Landscape Performance: Visual and Bioclimatic Analyses through In-Situ Data

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Keywords: Multifunctional landscapes, Sustainability, Visual quality, Design with climate

The Landscape Architecture Foundation's Landscape Performance Series (LPS) made its debut in 2010 and more than seventy case studies were generated during 2011 and 2012. However, residential landscape projects, though a common project type in professional practice, remained missing in LPS' portfolio. To fill this gap, in 2013 a Utah State University research team collaborated with Design Workshop, Inc. on the assessment of three residential projects in Pitkin County, Colorado. In this presentation we will introduce two sets of analyses that have not been tackled in the previous LPS cases: visual and bioclimatic analyses based on in-situ data. In one of the residential projects a landscape buffer was designed to screen undesirable views of an adjacent roadway. In another project, careful placement of multi-layered vegetation was done to achieve comfortable outdoor microclimate conditions. To evaluate to what extent these design strategies are effective, the research team conducted extensive first-hand data collection, including a vegetation composition survey and measuring wind speed, temperature, and relative humidity. To perform the visual analysis, the research team assessed the residential property's visual exposure to the roadway from a commonly used outdoor seating area. Using Photoshop, the research team assembled a photo montage of the pathway of a vehicle travelling along the adjacent roadway. This photo montage was then used to quantify the percentage of pixels in the photograph where this vehicle could be seen from the residence, both with and without the landscape buffer design (i.e., before vs. after design intervention). Results show that 97.8% of the highway traffic view is blocked, which suggests an effective landscape buffer design. In the bioclimatic analysis, the research team sampled 66 locations in a grid pattern on the property during a typical sunny day in June 2013. A Kestrel 4000 weather meter was used to record the wind speed, temperature, and relative humidity for each sampling location. The kriging function used in the ArcMap was applied to interpolate the bioclimatic conditions throughout the site. Results show that the percentages of outdoor spaces surveyed that fall into the Human Comfort Zone are 77% (morning), 42% (afternoon), and 48% (evening), suggesting an effective bioclimatic design. These findings were also in accord with client's self-reported outdoor behavior mapping. We will end our presentation by discussing the potential effects on ecological systems, such as species diversity and stormwater management in these two residential projects.

Contrary Remediation: The Contrary Creek Design-Build-Destroy Performance Sculpture

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Keywords: aesthetic performance, ecological performance, public sculpture, 3D video, acid mine drainage, limestone, environmental art, design-build, demolition

Contrary Creek is a heavily polluted, acidic stream that flows through a post-industrial mining wasteland in central Virginia. With local volunteers and community partnerships, 15 tons of limestone were used to construct a 10' tall sculpture and pathway in the acidic water. The sculpture was intentionally demolished in a public art exhibition that encouraged a dialog via a visceral encounter with this forgotten landscape. Filmed in 3D with dozens in attendance, the demolition-dedication event aimed to reveal environmental and cultural narratives, and provide an ecological service with the acid-neutralizing limestone. This project proposes a unique strategy and theoretical framework for remediating and reimagining contaminated landscapes through contemporary aesthetic theory.

Situated in Virginia's Gold-Pyrite Belt near the historic town of Mineral, the Contrary Creek watershed was once a major industrial mining complex. Today however, sulfuric waste piles still saturate the groundwater with acid mine drainage (AMD) making it one of the most acidic streams in Virginia. The pH registered at 2.9 in July 2012, which is 10,000 times more acidic than neutral water at pH 7.

Limestone, with its high pH, is often used to help neutralize acidic water near mining sites. However, the limestone's ecologic function at Contrary Creek was also meant to compliment its aesthetic function—the spiraling tower and pathway paid reverence to Robert Smithson's Spiral Jetty, and other land artists who have grappled with how human visions of beauty relate to artistic making and visions of landscape. Further, the role of the landscape architect as both designer and community representative for the cultural landscape was emphasized in order to coordinate dozens volunteers and partnerships, as well support from state agencies.

As quickly as it was built it was celebrated through destruction. The demolition-dedication event was a public sculpture exhibition on Saturday August 25, 2012 with 35 people in attendance. Local bbq and a banjo player added to the poly-sensorial experience. Small limestones were painted with VOC free, highly alkaline blue pit lime paint, and tossed into the water like a wishing well to begin the revival of the landscape. Finally, Mayor Harlowe released the 50lb wrecking stone to commemorate the event, similar to a christening of a sea-faring vessel. Thus, one dramatic performance was over to allow the more subtle ecological performance to begin. Contrary Remediation demonstrates that landscape architecture is a cultural practice with many methods of revealing forgotten, but essential, social and ecological values.

Defensible Metrics

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Keywords: metrics, landscape performance, tools

Evidence based design is becoming increasingly important to both the discipline of landscape architecture and society (Aher 1999, Mussachio 2009, Ulrich 1985, 1992). Brown and Corey (2011) compare landscape architecture to the profession of medicine, suggesting that landscape architecture can become more respected as a profession if it "embrac(es) scholarly information, methodical recordkeeping, monitoring, and reporting" (328). Academics have a role in developing a stronger base of evidence and in communicating their research to practitioners in order to assist them (and society) in making better decisions about the land.

In 2011, the Landscape Architecture Foundation (LAF) initiated a case study investigation series (CSI) to assess landscape performance and to provide empirical evidence associated with landscape benefits The LAF paired teams of academic researchers from across the country with firms to measure the performance of built landscapes. Researchers used a variety of methodologies to quantify benefits including: predictive calculations; modeling; and onsite measurements. In 2013, LAF initiated a research effort looking across the case studies to gain a better understanding of gaps in the assessed benefits and commonalities and differences.

This presentation describes findings from the first phase of the 2013 comprehensive review and analysis of the database created from the 58 published LAF case studies. Methods used to review the 58 studies included: examining the findings and methodologies of each case study in order to assess validity of claims; literature review of existing and potential tools/methods.

Two aspects of the analysis will be presented:

Results from examining existing methodologies and instruments in an effort to identify limitations and strengths of different approaches to gathering/generating evidence.

Results from a literature review of existing and potential methodologies and tools that have been validated through peer review but which may not have been employed in the LAF research. These methods and tools may prove useful in future measurement of landscape benefits.

Drawing upon this analysis, the team will provide summary statistics that show the comparative breakdown of case studies deriving their findings from models, observations, and/ or literature to inform future best practices for evaluating performance.

Ultimately, this LAF case study review aims to provide guidance to help practitioners assess landscape performance. Defensible methods and metrics are key to building the body of knowledge of the discipline; and in securing landscape architecture's place among other professions and disciplines that value empirically based decisions.

Developing a Bottom-Up Methodology for the Valuation, Management, and Preservation of European Landscapes: the EUROSCAPES Project.

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Keywords: landscape performance, landscape preservation, landscape value

In 2000, the Council of Europe approved the European Landscape Convention (ELC), a treaty signed by 40 countries calling for the protection of the continent's most valuable landscapes. The convention included a definition of the landscape as "those portions of the environment valued by individuals and communities for its aesthetic, ecological, cultural qualities" and charged local authorities with the responsibility to identify and protect them. The ELC provided the conceptual grounding for the 2010 EUROSCAPES project, a three-year long effort funded by the European Union's Interreg IVC program aimed at developing a methodology for the identification, maintenance and preservation of significant landscapes.

In November 2011, the project leadership charged a research team from the University of Oregon with the analysis of landscape policies, plans and maintenance and preservation practices used by the 14 partners. The research sought to highlight areas of convergence and divergence between partners. Case studies, methodologies and GIS practices were first analyzed for their adherence to the ELC and later evaluated against the project's overall goals. Partners were asked to list their indicators of success for landscape-related projects. These were synthesized into a benchmarking system to measure the projects' socio-economic, cultural, and ecological impacts.

Among the EUROSCAPES' main achievements was the partners' adoption of the ELC's mandate for community participation in landscape planning decisions and their embracing of GIS technologies to disseminate the goals and gather residents' perceptions vis-à-vis their most valued landscapes. The partners struggled to provide quantifiable evidence of economic success of their plans, and their larger economic impacts. The discussion on economics revealed a split between a British/German model emphasizing private-public partnerships, accountability and financial performance and a Southern and Eastern European approach to landscape management relying heavily on top down decisions and public subsidies. It also raised the question of whether a performance-based, abstract approach to landscape valuation may be compatible with the cultural, ecological, and economic heterogeneity found in Europe as in other world regions.

Discuss on Creating Synthetic Evaluation Index for Landscape Planning of Horticulture Shows

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Keywords: World Horticultural Exposition, landscape planning assessment, evaluation tool

As China is undergoing rapid urbanization, major cities are facing issues with urban sprawl, which makes economic development of new city areas an emerging issue. The World Horticultural Exposition is an internationally renowned event that has been successfully held in four Chinese cities since 1999. As a result, each expo has brought significant economic benefits to its host city. For example, increasing the local land value and promoting regional development, while also helping the city to enhance its image and international reputation.

Qingdao as the host city of the next World Horticultural Exposition in 2014, uses the experience of previous events, and will also provide lessons learned for the upcoming events in China in 2016 and 2019. Moreover, a landscape assessment for the planning stage is an important factor for the success of the project itself, because potential flaws and corrective suggestions can be made before the project's completion, which allows time for the project team to make modifications, and thereby serves as a dynamic correction process. Furthermore, a systematic evaluation standard is also a bridge to raise citizen's awareness in regard to their landscape environment.

Through a thorough study based on previous completed world horticultural expo or garden shows, synthetic principles for landscape planning of this type of landscape project are abstracted and summarized, in terms of site selection, spatial planning and landscape identity, etc. The assessment system is expected to be used as a way to discuss or evaluate a horticultural expo or garden show project, either by the project client or designers. Also it can be used as a standard or target checklist to compare different options, or guiding the landscape planning of future horticultural expos.

Evaluating Public Amenities at Stormwater Management Demonstration Projects in Philadelphia, PA

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Keywords: Stormwater Management, Public Amenities, Green Infrastructure

Green stormwater infrastructure, mimics natural infiltration processes and has the potential to function as a public amenity. This study evaluates public amenities at 20 structural stormwater management projects built in Philadelphia within the past 5 - 10 years. A rubric was developed based on the work of Echols and Pennypacker, which scores design techniques on a Likert-like Rating system (1-5) in six different categories: education, recreation, aesthetics, safety, publicity, and best management practices (based on aligned chapters of the Sustainable SITES Initiative). Scoring was conducted on site, after taking photos and producing simple sketch diagrams in plan and section. Data revealed a 60 % correlation between education and aesthetics across all sites. Post evaluation data (surrounding land use, population, total site size, cost per square foot, volunteers, partnerships, typology, water quality volume and proximity to water) were interpreted to affect the total score of public amenity. Additionally, public visual assessment categories developed by Kaplan and Kaplan were grouped with study criteria to create a basis for further study in the field of public interpretation of stormwater management sites.

Drawing on technical, theoretical and city planning documents, this thesis works to inform the conceptual process of stormwater management site design. At the neighborhood scale, it was found that high surrounding populations coincide with higher, more costly systems. Similarly, high park and open space around stormwater systems are associated with higher recreational amenity scores. If stormwater management BMPs are used as gateways into surrounding parks /open space areas, the public can capitalize on recreation amenities of these sites. At the site scale, it was found that a high level of public involvement was associated with sites resulting in high aesthetic scores. By reconnecting people and water in the landscape the opportunity exists to create a new public discourse on water quality, quantity and access.

How Does It Change After One Year? A Comparison of Benefit Composition of the Landscape Architecture Foundation's Published Case Studies in 2011 and 2012

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Keywords: landscape performance, benefit quantification, benefit composition

Since 2011, Landscape Architecture Foundation (LAF) has started to support a Case Study Investigation (CSI) program to systematically quantify performance of built landscape projects in the three environmental, economic and social aspects. The goal of CSI is to test whether performance of landscape solutions fulfill designer's intentions and contribute toward achievement of sustainability.

Last year, we analyzed the 39 landscape performance case studies published by LAF in its 2011 CSI program. Results of the study suggest that the composition of the CSI projects is unbalanced in terms of project type, location, and size. In addition, most cases have more environmental benefits documented, especially for projects of larger sizes and those located in rural areas. We attributed this finding to the following:

1) Landscape architecture professionals are not trained to quantify economic and social benefits of landscape projects.
2) There are not sufficient metrics and guidelines to measure and calculate economic and social benefits.
3) Collecting economic and social data within limited time is challenging.
4) It is possible that economic and social benefits require longer time to be shown, while most CSI case studies are new projects.

Realizing the unbalanced benefit documentation in 2011, LAF required 2012 research teams to particularly document economic and social benefits. Each case study should report a minimum of five performance benefits and there should be at least one of each type – environmental, economic, and social.

The purpose of this study is to examine whether these requirements transformed benefit composition in the 2012 CSI case studies and to discuss how to improve future CSI programs. In this study, we will use the landscape performance benefit composition scale we created when analyzing the 2011 CSI case studies to exam the newly published 2012 CSI case studies and test four hypotheses:

1) More economic benefits are documented in 2012 CSI projects than in the 2011 CSI projects.
2) More social benefits are documented in 2012 CSI projects than in the 2011 CSI projects.
3) Environmental benefits still dominate in the three environmental, economic and social categories.
4) Completion dates have a significant influence on benefit composition.

We anticipate this study will further clarify the reasons why economic and social benefits are not well documented and contribute to our understanding of landscape performance benefits.

Landscape Performance Assessment of Urban Wetland Park Planning and Design: Case Study of Wuzhou Wetland Park in China

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Keywords: Landscape Performance Distribution Map (LPDM), LPA (landscape performance assessment), Multi Scenario Analysis (MSA), Wetland Park

The study is to assess the landscape performance of a wetland park planning in China by comparing and quantifying eight key metrics with three different planning proposals. A Landscape Performance Distribution Map (LPDM) approach was introduced to interpret the relationship between sustainability and landscape performance.

The method of the research was to apply a Multi Scenarios Analysis by using GIS and quantified landscape performance assessment (LPA). The case study focused on three phases: metrics selection, LPA and LPDM application. For the first phase, the objectives for the wetland park planning defined by the decision makers provided eight metrics to assess the environmental, social and economic benefits. Then, based on the statistic analysis on the past 63 years precipitation and upstream storm water volume data, flood storage capacities (20 years, 50 years and 100 years) were calculated by inputting the three planning proposals using spatial GIS methods. Eight different metrics including the flood storage capacity were calculated following LPA case study investigation method.

The study proved the feasibility to apply LPA in landscape planning stage provided LPDM as a potential method to bridge sustainability and LPA from environmental, economic and social aspects. The visualized result of LPDM improved the understanding how the tradeoffs would alter between economic, environmental and social aspects.

Landscape Performance Measures for Stormwater Retention, Biodiversity, Urban Agriculture and Industrial Reclamation in Germany

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Keywords: LAF CSI Landscape Performance Series, Brownfields, Study Abroad, Undergraduate

The purpose of this study is to investigate performance benefits from four high-profile projects in Germany and document the study by following the format for the Landscape Architecture Foundation's (LAF) Case Study Investigation (CSI) program. The projects include the Zollverein World Heritage UNESCO site in Essen by PlanerGruppe GMBH Oberhasen, Potsdamer Platz in Berlin by Atelier Dreiseitl, Landschaftspark Duisburg Nord in Duisburg by Peter Latz, and the Edible City Project in Andernach by Lutz Kosack and Heike Boomgaarden.

The investigation was conducted as part of the study abroad semester in Germany. Students of landscape architecture and urban planning majors from Texas A&M University were led by a landscape architecture professor. Prior to visits, students reviewed existing CSI documents online to learn about possible methods, features and benefits to be used. Methods were derived from site visit observations, independent reading and investigation by students, discussion with faculty and direction from LAF staff.

Benefits varied across projects. The Zollverein site is a former 247-acre coal mine site and coking plant built in 1851. PlanerGruppe GMBH led efforts to reclaim the site for recreational and business use. Benefits include increased developer yield by 40-50%, over 900,000 visitors per year, 2 miles (3.5 km) of paths connected to regional trails, and many tons of materials retained on site. The Landschaftspark Duisburg Nord site is a former steel mill converted to a 568-acre recreation park including trails, a museum, restaurant, cultural events, and a 32-acre urban farm. The park manages 80%-100% of the stormwater that falls on the site, has over 200 plant species, bats, toads, 100 species of beetles and over 60 bird species. Pottsdammer Platz is a high-profile three-acre urban redevelopment site in Berlin that has 50% reduced energy use and 70% reduction of carbon footprint (compared to conventional development), over 3 million gallons of water (rainwater and wastewater) annually circulated through a wetland filtration system. The Andernach project is a seven-acre urban agriculture site on public lands. The land is maintained by 20-25 long-term unemployed citizens, some of which work on the city's permaculture farm. The permaculture farm supplies the local store and contributes to social justice by providing affordable produce. The LAF CSI program coordinator Katherine Burgess reviewed the case studies at the end of the fall semester. Although none of the case studies were ready for publication, one student is continuing work on the Zollverein UNESCO site spring 2014.

Landscape Performance Series Case Study Review and Analysis: Strengths, Weaknesses, and Prospects

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Keywords: Landscape performance, Performance benefits, Methods, Evaluation, Case studies

In 2010, the Landscape Architecture Foundation (LAF) launched a seminal research program, the Landscape Performance Series (LPS), the goal of which is to showcase exemplary built projects with quantified landscape performance benefits. Each LPS case study includes a variety of environmental, economic, and/or social benefits, which LAF classifies into 31 sub-benefit categories. Each case study also includes a methodology document that explains how benefits were measured. From 2010-2012, 58 LPS case studies were published. In 2013, a new study reviews the published case studies in order to reveal the occurrence and frequency of the benefit types presented in the first 58 cases; to analyze the methods used to quantify each benefit type; and ultimately, through literature review, suggest valid and replicable methods for use in future performance assessments. Our preliminary findings suggest that (1) environmental benefits have the greatest occurrence and frequency in the 58 cases; (2) project type (e.g., scale, age, and context) impacts the performance benefits evaluated and choice of applicable methods and metrics used; and (3) there is a large variability in the methods used, the choice of which seems to be strongly influenced by the quality and availability of data, as well as the cost and time needed to conduct the analysis. Cases which use first-hand data (e.g., in-situ bioclimatic data collection and focus-group interviews) show a higher degree of research validity, whereas cases that use data sourced from key personnel's memories are difficult to replicate and validate. We will further elaborate on the preliminary findings as well as highlight examples of social, environmental, and economic benefits where valid and replicable methods have been used.

One Project at a Time: Measuring Social Performance for LAF Case Study Investigations

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Keywords: Landscape performance, CSI, social benefits, research methods, surveys, site observation, Gehl method

The Landscape Architecture Foundation (LAF)'s Case Study Investigation (CSI) program sponsors researchers and practitioners to work together to measure the performance benefits of exemplary landscapes. In 2013, the CSI program saw the inclusion of a range of quantitative and qualitative methods for studying the social, economic and environmental benefits of site design.

This panel will focus on ways to assess and measure social benefits, such as economic stimulus, social cohesion, building social capacity, improving public perception, and increased social interaction, among other things. This panel presentation by 2013 CSI participants introduces methods for studying social benefits including on-site surveys and site observations, focusing on the opportunities and challenges presented in the context of each site. Panelists will discuss how and whether methods are scalable, how they met their respective University's ethical standards for research with human subjects, and how they were adapted for use in a short-term timeframe. After an introduction from LAF, panelists will present the methods used and lessons learned for three cases:

In the first case study, the researchers introduced an on-site survey instrument (also adapted to online platform) to assess users' experience at Klyde Warren Park in Dallas, Texas. The instrument measured variables such as quality of life, sense of identity, health and educational benefits, safety and security, and availability of informal and organized events. The presentation will also focus on the procedures and protocols followed to build and conduct the survey as well as the summary findings from 224 responses.

A second case study analyzed public reception of stormwater retention strategies designed for the Ann Arbor Municipal Center. The researchers developed an online survey instrument in concert with a Municipal Center staff member. A QR (Quick Response) code offered easy access to the survey through handheld mobile devices, allowing the researchers to rapidly gather feedback from a large number of respondents. Responses were then coded and emergent themes discussed.

The final case study used a public observation method based on Jan Gehl's Public Life Public Space survey to evaluate and quantify the social success of Director Park in Portland, Oregon. Data about length and time of stay, age, gender, purpose, activity, body position and location were collected through site observations over three days. While the method offers compelling metrics about social performance and is gaining professional and academic acceptance, its use is constrained by an absence of baseline data and time-intensive data collection.

Plants for Stormwater Retrofits: Aesthetics, Performance, and Maintenance

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Keywords: green infrastructure, plants, stormwater, landscape policy, private property, CIP

This presentation explores the recent emphasis on the promotion of green infrastructure interventions on private property and in the public right of way in Montgomery County, Maryland. A “pollution diet” was established for the Chesapeake Bay in 2010 by the United States Environmental Protection Agency (EPA). New nutrient and sediment load reduction targets (TMDLs) for watersheds were established. MS4 permits issued by the state to the counties set the reduction and control thresholds. County watershed managers were charged with developing a variety of programs, and policies to meet the MS4 requirements. This included identifying retrofitting opportunities on previously “unregulated” landscapes that were not designed with water quality objectives in mind: i.e. private landscapes and adjacent public landscapes that were built prior to stormwater regulations in the 1980’s. Many of these retrofits are intended to be implemented on single family detached properties, considered the largest metropolitan land uses by area - approximately 70%. Other retrofits are intended to control public stormwater in the ROW. These green infrastructure retrofits include a variety of BMPs, e.g., tree plantings, rain gardens, green roofs, and downspout disconnections to conservation landscapes. This research compares the planting systems and principles / measures of two different but related stormwater reduction efforts. First, the authors present a selection of case studies from the Rainscapes program. RainScapes focuses on the voluntary installation of BMPs on private properties by County property owners. This presentation covers the challenges that surround plant selection, installation and maintenance of these water-centric BMPs. Issues of education, homeowner acceptance, funding, installation, and management will also be discussed. In contrast, the authors also present a selection of case studies of recent installations of Capital Improvement Projects (CIP) installed in ROWs in selected neighborhoods. A comparison of the issues that emerge on private properties vs. ROW Green Street locations of BMPs is useful in understanding the success and challenges of both of these programs. The authors provide a summary of lessons learned from the selected case studies.

Urban Soils Remediation and the Use of Organic Amendments

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Keywords: Soil remediation, site assessment, plant establishment

Background – Soils are fundamental to all built environments that we engage as landscape architects. In most cases, soils have been significantly altered affecting structure, pH, drainage, and the overall ability for soils to successfully support plant growth. Soil structure texture and chemistry is typically altered through site construction and other human activities on the land.

This research summarizes over a decade of site-specific work associated with mechanical remediation of soils with various amounts of organic material, compost and mulch resulting in the sustained improvement of soils. The focus of this work demonstrates how relatively simple mechanical remediation of soils with organic amendment and annual mulching with shredded wood bark can considerably improve soil structure, percolation rates, water-holding capacity, and fertility of urbanized soils.

The methods for this project included developing a detailed assessment of soils to be amended prior to planting. The assessment methods included:

1. Determination of soils texture, percentages of sand, silt and clay;
2. Developing percolation rates in the field expressed as inches per hour;
3. The bulk density of soils
4. Understanding the history of a site its prior disturbances such as construction staging areas, soils manipulations and potentials for the destruction of soil structure.
5. Solar aspect and potential heat load on the plant

Once the assessment methods for documenting specific soils are performed, remediation methods for incorporation of organic amendments are determined based on use and expectations for plantings. Typical organic amendments might range from 33 % to 50% by volume depending on existing soils.

This study is also investigating the long term methods that retain percentage of organic amendments through the use of annual surface mulching. Data for over 10 years on-campus sites has been collected tracking the retention of soils health over a multi-year period.

The findings of this study demonstrate the ability to significantly alter severely compacted and altered urban soils and improving the success of new plantings. The methods for soil remediation can be replicated in all plants of the world using readily available materials and cost effective and sustainable practices.

Using a Delphi Method to Develop Criteria for High Performance Public Spaces that Contribute to Community Sustainability

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Keywords: Delphi Method, Public Realm, High Performance, Sustainability

Over the past two decades, local communities in the United States have sought new ways to become more sustainable. Local sustainability initiatives include open space preservation, brownfield/ infill development, affordable housing and public transportation (Saha, 2009). Communities are also developing sustainability plans, sea level mitigation plans and climate action plans in response to economic, social and/ or environmental issues. One frequently overlooked opportunity to improve community sustainability is through the 'public realm', which generally refers to a community's system of "streets and sidewalks, parks and civic spaces, historic and cultural areas, and natural areas and trails" (Barth, 2012, p. 11). It also includes public infrastructure such as drainage swales, stormwater treatment ponds, utility corridors and/or other lands owned and managed by city, county, regional, state and federal agencies. A community's public realm system can generate significant sustainability benefits, ranging "from property value to tourism to unforgettableness [sic] and civic pride" (Harnik, 2010, p.7) to economic prosperity, environmental sustainability, and alleviating social problems (Crompton, 2007, p. 61). However no criteria exists to identify public spaces that generate these types of benefits, referred to as 'High Performance Public Spaces' (HPPSs) (Barth, 2013, Chapter 4). This study used a Delphi method to develop such criteria. The Delphi method is an "iterative process to collect and distill the anonymous judgments of experts using a series of data collection and analysis techniques interspersed with feedback. The Delphi method is well suited as a research instrument when there is incomplete knowledge about a problem or phenomenon" (Skulmoski, Hartman, & Krahn, 2007, p. 1). Initially 40 criteria were developed for HPPSs based on a literature review of 1) sustainability indicators, and 2) principles of public space design. In the first 'round' of the Delphi method, 21 sustainability experts were asked to individually review and comment on the criteria. The criteria were revised based on the participants' input. During the 2nd round of the Delphi method, the sustainability experts were asked to prioritize the list criteria, resulting in a list of 25 criteria to identify HPPSs. This criteria will be used to identify case studies for the next phase of the study, identifying the key factors that lead to the planning, design, and success of HPPSs.

Waterfront Ecologies: Opportunities and Challenges of Assessing Site Performance

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Keywords: Landscape performance, CSI, waterfront ecologies

Sites are not static, nor contained– their stories and dynamics cross multiple dimensions of time and space. Studying site performance therefore requires methods to understand a broad range of on-and off-site, past and future, influences and effects. Within complex ecological settings, this is even more critical.

In 2013, the Landscape Architecture Foundation's Case Study Investigation (CSI) program featured a number of projects of a particularly complex type: waterfront ecologies. The CSI program seeks to quantify exemplary landscapes' environmental, social and economic benefits, with the projects represented including a range of typologies.These coastal projects – including shoreline restorations and flood protection plans – introduce new challenges to researchers assessing their impact. This panel will focus on the opportunities presented by studying the performance of waterfront ecologies, and the appropriateness of different research methods to study this typology. Kristina Hill of UC Berkeley will begin the panel, framing the discussion by addressing the concept of landscape performance within the context of both LAF's Landscape Performance Series and her research on urban ecological dynamics and waterfront ecologies.

Two panelists will then continue by discussing their experience examining the performance of two very different waterfront sites through the CSI program in 2013. Mary Pat Mattson of IIT, will begin, introducing her research on the 63rd Street Beach restoration in Chicago. The 3-acre cultural-historical beach site, adjacent to Jackson Park, is part of a much larger milieu, the regional context of the Great Lakes and Mississippi Flyway dynamics. Critical to understanding the site's performance benefits, the team pursued an evaluation of integrated objectives and design outcomes across a larger territory.

Aidan Ackerman of Boston Architectural College will complete the session by discussing his work studying the Watch Factory, an adaptive reuse site on the Charles River. In examining the performance of the Watch Factory's riverfront landscape, the research team measured the impact of stormwater remediation, measuring runoff before it entered the site's rain gardens and after it exited the rain gardens and flowed into the Charles. The team also studied related improvements to wildlife habitat within the Charles River, and the social impact of stormwater remediation within the landscape.

LANDSCAPE PLANNING AND ECOLOGY

A Theoretical Method for a Net Zero Waste Alabama

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Keywords: Landfills, Geographic Information Systems (GIS), Alabama

Over the past several years, the people of Conecuh County have found themselves in a heated battle over the future of their homes. A group of developers acquired several thousand acres of this rural community in Alabama and planned to build the nation's largest landfill. However, the developers did not expect this small town to fight back. After several years and millions in taxpayer dollars, the developers lost the court case. While this was a major victory for the people of southern Alabama, it will do little to stop developers from pursuing similar projects in the future.

The risks associated with landfills are too great for the process to be left to the free market. For example, the proposed Conecuh County landfill would have consumed over 5,000 acres of land and would have been located on the headwaters of the Escambia River. The location of the landfill would have posed a threat to the environment. In addition, it could have effected nearby residents' health and home values. With the advent of new mapping technologies such as GIS, local and state governments could identify the best possible sites for the location of landfills and other potentially hazardous land uses.

This presentation will examine the current system for the location of landfills in Alabama. Participants will then gain an understanding of the threats that landfills pose to public health, aquatic, and terrestrial environments. Finally, the presentation will explain the how landfills could be sited through the use of GIS to minimize these threats. This system would allow the State of Alabama to identify new landfill locations based on need, public safety, and environmental safety. This new method would create criteria that could be used to site a new kind of waste management facility.

The State of Alabama will accept five times more waste than it generates this year. At this time, Alabama is wasting these valuable resources. This session will go on to explain how the State of Alabama could turn this hazard, into a commodity.

Adaptive Landscape Planning for Climate Change: A Case Study of Water System in Wenshang, China

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Keywords: water system, landscape planning, climate change, adaptive strategies

Climate change is projected to exert great adverse impacts on the built environment, especially the water systems. In landscape architecture and other aligned disciplines, efforts are being made to develop adaptive strategies that would mitigate the corresponding negative impacts. This paper presents a case study of Wenshang, China, where exemplary adaptive planning and design strategies are proposed for the city's water system across scales.

Wenshang is located in Shandong Province in northern China. The city belongs to the North Temperate Zone with continental monsoon climate. It is hot and rainy in the summer, while windy and dry in the spring, fall, and winter. Wenshang is well known in the history as the northern water-town because of its abundant water resources. It also made its name as a canal city emanating from the famous Jinghang Grand Canal culture. However, coupled challenges of climate change and urbanization worsen the problems that Wenshang's water system is currently facing, including water scarcity and pollution, aquatic ecosystem degradation, and loss of regional character.

This study tackles the above challenges through suggesting a series of adaptive planning and design strategies at three nested scales. At the macroscale, the main planning task is to adjust the spatial layout of the water system (e.g., improve connectivity) in order to achieve optimal allocations of the water resources and to protect naturalistic features. This would enhance the city's self-adaptability and resilience to water-related disasters, as well as its practice in sustainable water usage. At the mesoscale, different types of waterscape are classified according to their functions, themes, and characteristics. Planning for the water bodies is integrated with their surrounding green spaces in order to fuse the urban Blue-Green network. In addition, the proposed plan aims at facilitating water circulation for better purification, restoring the natural ecosystem, and highlighting the unique Jinghang Grand Canal culture. Finally at the microscale, the proposed design follows ecological principles, where new approaches are tested in the waterfronts, revetments, and vegetation species selections. The presentation will end with a discussion on how these designs would simultaneously achieve biological productivity and landscape performance and aesthetics, for the (re)creation of a healthy water system in Wenshang.

Agrowatersheds of the Atlantic Northeast Megaregion

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Keywords: Agroforestry, Urban Forest, Productive Landscape, Watersheds

This paper defines the term 'Agrowatershed' and explores it as a design model in which food production is a land-use that works in concert with existing forestry management of drinking water resource lands.

The PURPOSE of the paper is to provide historical context for protected drinking watershed forests in the Atlantic Northeast and to outline a scenario for agroforestry, or the integration of agricultural and forestry techniques, on these lands. The Agrowatershed design will be presented as a series of maps, photographs, and illustrations of the Quabbin Reservoir and a new design for Quabbin Agrowatershed Park.

Background:
In 2009, 14,297 surface water systems served over 2 million people in the United States. [1] Held to the standards of the SDWA, states have spent millions to protect the quality of these water systems. Forest cover provides the best protection for drinking water because it acts as a water filter and slows soil erosion. [2] The United States Forest Service along with departments of conservation and recreation manage forests within protected watersheds by selectively harvesting timber in order to increase age-diversity and resilience of tree specimens. However, in fiscal year 2013 income from hydroelectric power, fishing and recreation, and forestry on resource watershed lands in Massachusetts, for example, was only $959,000 and has been steadily decreasing since 2010.[3]

As the Northeast United States develops to accommodate growing populations of people, protected watersheds become some of few open spaces that are not sold for private redevelopment and more profitable land-use. As such they face increasing development pressure. The Agrowatershed is a speculative design research project that tries to address the increasing pressure by proposing a new design model for development.

The Agrowatershed supports layered development of high quality watershed lands in such a way as to minimize negative impacts on quality of drinking water and maximize usefulness and economic yields of open, fertile land near major metropolitan areas. The result of this layering is a localized agroforest that is able to engage the public as a civic landscape. The agroforest has potential to supply food for nearby densely populated areas and function as an open space and urbanism generator.

An Approach to Improve Coastal Resilience Through Planning and Design of a Recreational trail: A Master Plan for the Mississippi Coastal Heritage Trail

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Keywords: Trails, Coastal Community Resilience, Landscape Infrastructure

This research presents an approach to the design process of a recreational trail with the goal of improving coastal community resilience. As coastal populations are growing and the number of coastal disasters is escalating, communities are beginning to look for ways to increase coastal community resilience following catastrophic events. This is especially true in places where hard infrastructural barriers have failed in the midst of a disaster, e.g. New Orleans' flood wall during Katrina. While greenways have the potential to connect communities, ecosystems, and destinations, and also boost local economy, their positive influence on stimulating coastal community resilience has not been discussed in the literature. Greenways, being long linear connective tissue, could act as a landscape infrastructure and help promote symbiotic relationships between ecological and social systems and become catalysts for building stronger community.

Using the Mississippi Coastal Heritage Trail (MCHT) master plan as a model, the study attempts to bridge the gap, presently observed in the literature, between the theory of coastal community resilience and coastal recreational trail planning. It focuses on developing a methodology for greenway planning with the main goal to stimulate coastal community resilience. To achieve this goal, the study first employs review of community resilience focused planning literature to aid in formulation of the goals and objectives for the master plan. Some of these resilience building objectives overlap with conventional aims of greenway master plans (such as direct access to nature and natural systems) while others are explicit to resilience stimulation goal (e.g. increase public awareness of natural and man-made disasters). Secondly, the identified objectives guide all the phases of MCHT planning and design process, from suitability analysis to design proposals. This planning process involves spatial data gathering and analysis using GIS software to assist in trail alignment with consideration to socially, ecologically and culturally significant areas of the region. GIS analysis is accompanied by follow-up site visits in order to assess the conditions along the proposed trail. A final stage of planning consists of site specific design proposals, based on the preceding research.

The methodology, explored in the study, can provide an efficient way for landscape architects and planners to account for larger regional interests in the stimulation of coastal resilience during the design phase of a multi-jurisdictional trail. The author expects that this research will be instrumental for coastal residents and local officials in creating greenways that perform on multiple levels.

Applying Local Multi-Pond Systems to Manage Stormwater in the Development of Mountainous Cities: A Case Study in Liangjiang New Area, Chongqing, China

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Keywords: flood mitigation, water quality, urbanization, runoff, landscape metrics

Stormwater issues are very important in China, due to rapid urbanization, ignoring environmental constraints and local environment knowledge. On the other hand, many researchers found that local water systems rooted in traditional knowledge have been very successful before urbanization, although to what extent these local systems can be used and customized to fit the urbanization process is uncertain. To further understand the role of traditional systems in new urban settings, this study aims to investigate the multi-pond systems (MPS) in mountainous agricultural areas: Liangjiang New Area, Chongqing, China. Liangjiang New Area has been undergoing a rapid urbanization process since 2010, when it was approved as a national-level development zone. The developments in this area have begun to destroy the original multi-pond system, change the runoff pathway of natural water systems and deteriorate water quality of rivers and lakes.

The purpose of this study is to explore whether MPS can function for flood mitigation and water purification during urbanization, and how to regulate urban stormwater systems based on traditional MPS. This study will identify the structure and function of multi-pond systems in mountainous areas, and summarize the factors affecting the capacity of stormwater storage and water purification. The relationship between landscape metrics of ponds and water quality objectives in estuaries of 19 small watersheds will be analyzed. Storage capacity of multi-pond systems will be estimated. This study will calculate peak unit discharge of runoff and further examine the impact of event mean concentrations on the ecosystem. Pollutants to be analyzed include total nitrogen (TN), total phosphorus (TP) and total suspended solids (TSS). In order to maximize the storage capacity, as well as minimize the impact on water quality, the number, size and spatial pattern of MPS in different watersheds will be analyzed. GIS and SPSS techniques will be used in this study.

This study is anticipated to identify landscape features such as edge density, patch density and aggregation index of MPS that could affect the water quality of estuarine and lakes. The study will also suggest the area of multi-ponds and ponds in the key locations of each watershed to be protected or utilized to enhance performance.

Assessing the Ecological Value and Residents' Perception of Farm Pond Habitat Conservation

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Keywords: Patch quality, logistic regression, conservation perception, farm pond

Ponds are important habitats for birds and other wildlife. In Taiwan, artificial ponds are created on farmlands for irrigation purposes. Although creating ponds is a typical farming practice, it also provides habitats for birds. The question is how much ecological value a farm pond can provide, and how do surrounding residents perceive the value of the ponds? The objective of this study is to assess the ecological value and residents' perception of farm pond habitat conservation in Yulin County, Taiwan. In this study, bird survey data were collected from the Wild Bird Society in Yuilin from 2005 to 2010. Land use and environment data were collected from the government of Taiwan. Logistic regression will be applied to create a Black-crowned Night-Heron present probability model in farm ponds in Yulin County. The present probability will be categorized into high, medium and low probability groups. Furthermore, the residents living close to farm ponds have been surveyed by questionnaire in 2011. Residents will also be divided into high, medium and low perception of farm pond habitat preservation, respectively. Finally, we will compare the Black-crowned Night-Heron's present probability and residents' preservation perception to identify the ponds that are in the high present probability group with high preservation perception or low preservation perception. The finding can assist decision-makers in implementing farm pond's preservation for bird habitat conservation in rural areas.

Attitudes and Methods for New District Development - Case Study of Longwan Central Business District Landscape Planning and Design in Huludao City

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Keywords: human, nature, rivers, urban new district planning

As a developing country, China has long been in the process of urbanization while simultaneously creating new cities or districts. The planning and establishment of new cities should conform to the principles of a proper scale eco-city, integrating both human settlement and nature, embodying not only natural but also human ecology.

In this sense, landscape architects and designers should explore a green approach with Chinese characteristics for urban planning and development. We keep blazing new ways by drawing experiences from traditional Chinese urban planning, landscape design and even philosophy to create locally distinctive “Shan-shui” cities, where human beings can live harmoniously with nature. Combining the beauty of nature with human needs through the creation of urban natural environments will return human nature to an ecologically based nature.

Longwan central business district (CBD) is located in the southern part of Huludao city in southwestern Liaoning Province, and has a designated area of 763 hectares. This article takes Longwan CBD as a case study, proposing a design basis for integrating nature and human civilization in future urban development. Through an investigation and survey of the site’s existing natural characteristics, we brought the past into the present by connecting humanity with nature. These are the attitudes and methods for new urban district development, which are based on historical natural laws clearly identified by Chinese sages 5,000 years ago. Comprehensive and multi-scale site analyses were conducted using ArcGIS. The development and construction of a city strongly influences human history. Planners and designers are main participants in this activity, and they should continuously strive to comply with nature and act responsibly with commitment and clear thinking.

Central Park's Woodlands: The Urban Forest Reimagined

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Keywords: Urban forestry, woodlands, Central Park, ecosystem services, Frederick Law Olmsted

Are woodlands compatible with dense urban centers? Certainly they provide numerous ecosystem services, including improving air quality, absorbing rainfall, and sequestering carbon. Within Olmsted's Central Park, completed in 1859, three woodland zones are now defined by the Central Park Conservancy: the Ramble, the North Woods, and the Hallett Nature Sanctuary. This paper discusses both the history and character of each of these Central Park woodlands, examines current management practices, and presents student design proposals enhancing their unique characteristics. Olmsted did not necessarily consider the ecological benefits of a dense forest ecosystem within the urban realm; ecology had not been developed as a field. Rather, his design approach included carving long, picturesque vistas through the terrain, as described in his 1889 treatise "The Use of the Axe." Yet gradual densification of tree growth within these zones in Central Park has occurred over time, and the Park, agile enough to accommodate radical transformations of ideas of recreation, health, and nature, must now address the urban forest. Each of the Central Park woodlands is unique. The 38-acre Ramble and the surrounding Lake are inseparable features of the Park. With its internal complexity contrasted with unexpectedly open external vistas, the Ramble is an exemplary manifestation of the American picturesque. The North Woods, at the northwestern reaches of the Park, is a 90-acre hardwood forest traversed by the deep Ravine and the watercourse of the Loch. Olmsted imagined this section of the park as a simulacrum of the Adirondack Mountains, a grafting of wild nature into the city. The surrounding city disappears upon entering the Ravine; the North Woods is an extraordinary example of the American sublime embedded within an urban context. The smallest of the woodlands is the four-acre Hallett Nature Sanctuary. Sited at the Pond and Promontory at the southeastern section of the Park, this was once a wetland valley with rocky bluffs rising to the northwest. The Promontory was designated a Bird Sanctuary in 1934 and closed to the public. Re-named the Hallett Nature Sanctuary in 1986, the area was enlarged and enclosed with a padlocked chain-link fence. This relatively undisturbed area in one of the most popular areas of the Park became an experimental site in which a forest was allowed to grow untended. This design studio case study of the woodlands of Central Park serves to transform our perspective on the role of woodlands in an urban ecosystem.

Creating Multifunctional Working Rural Landscapes Through Collaborative GeoDesign

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Keywords: performance modeling, visualization

The working rural landscape is undergoing a “facelift” as a result of societal interests in incorporating cellulosic biofuel energy resource development as well as water quality regulation and habitat enhancement into the mix of ecosystem services delivered by agricultural ecosystems (Millenium Ecosystem Assessment 2005). Use of collaborative planning strategies and GeoDesign technology can help assure multiple rural stakeholders that pursuit of such multifunctional rural landscape management strategies will be profitable for individual producers as well as society (Jordan et al. 2011). By coupling the creation of design proposals with their performance across multiple landscape systems (Flaxman 2010), GeoDesign technology enables the development of designs that optimize the delivery of multiple ecosystem services. Its deployment in iterative, communicative, and reflective decision making by multiple stakeholders leads to consensus–based collaborative decision making processes toward construction and evaluation of design scenarios (Steinitz 2012, Stokols 2006).

This paper reports on an eight-month process of integrating GeoDesign technology into the collaborative design by multiple stakeholders of multifunctional landscapes that provide food and biofuel commodities as well as enhanced water quality and habitat value in rural southern Minnesota. The system integrates performance modeling afforded for water quality (Gassman et al. 2007) and habitat quality (http://beaver.nrri.umn.edu/EcolRank/habitat-quality/) with landscape visualization technology. Using a 55” touch-sensitive display, stakeholder groups create landscape designs at multiple scales. Instantaneous feedback on several parameters relating to water quality (e.g. runoff, suspended sediment, phosphorus), habitat quality, carbon sequestration, profitability, and visualization allow stakeholder groups to work iteratively toward development of optimally performing design scenarios.

Results to date suggest that stakeholders readily grasped and enjoyed using the GeoDesign technology. Educational efforts to explain the complexities of multifunctional rural landscape design were integral to enhancing use of the system. In comparison to more conventional stakeholder engagement technologies used earlier in the design process, stakeholder interaction produced by use of the GeoDesign technology was higher. Stakeholders pursued creative exploration of rich alternative design scenarios and reported feeling enfranchised by the experience.

Ecosystem-Based Marine Spatial Planning: Assessing Methods Used to Evaluate the Balance of Ecological Concerns with Human Use

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Keywords: Marine spatial planning, environmental planning, community planning and landscape architecture

Marine spatial planning (MSP) is a sector of environmental planning. It is a comprehensive, decision-making process designed to identify and reduce potential conflicts of human uses, and to organize marine and coastal activity in a spatial context that best maintains ecosystem functions and services. (COS, 2013) Ecosystem-based MSP is natural, science-based and strives to address conflicts and organize human activity in coastal areas and ocean spaces, while maintaining ecosystem health, functionality and services. MSP promotes stakeholder involvement and allows for a more effective, efficient, accessible, and transparent use of coastal and ocean resources.

Regulations associated with coastal sectors such as port authorities, fisheries, or dredging, have traditionally been used to manage coastal environments through individual permit decisions based on single use. (Douvere, 2008) Though locally effective, these reactive policy methods lack stakeholder participation and strategic planning for the future. Much like a city comprehensive plan, ecosystem-based MSP has the potential to organize human activities within the context of a place-based marine ecosystem and regulate areas of conflict within them, thus minimizing the impact of humans on sensitive marine environments. (Crowder & Norse, 2008; Douvere, 2008) However, policy lacks clear demonstrations of how and where MSP is implemented.

Spatial planning and place-based planning are also terms found in traditional community planning and landscape architecture. Here ecological planning embraces spatial planning and environmental protection which can be either reactive or strategic. Spatial planning methods described in landscape architecture literature comprise traditional methods of ecological planning rooted in natural science. However, the visual quality of the landscape is seen as the driving force of nature protection. Resulting ecological plans generated in landscape architecture typically include an element of design or management of aesthetics. (Eckart and Schmidt, 2000) Such plans qualify the planning and management of landscapes largely on how we understand, evaluate, and interpret the landscape. (Ndubisi, 2000)

This paper analyzes three case studies in MSP, the Galapagos Marine Reserve, Galapagos Islands, (Haylings & Bravo, 2007) Laughing Bird Caye National Park, and Gladden Spit Marine Reserve in Belize. (Pomeroy and Goetze, 2003.) Borrowing from traditional community planning and landscape architecture, it advances a critical synthesis of case studies, and evaluates the balancing of ecological concerns with human use. This article argues that though significant overlap exists among methodologies, MSP could be further enhanced using methods found in community planning and landscape architecture.

Ephemeral Water and Concrete Attachments in Arid Landscapes: Exploring Attitudes to Water in the Los Angeles Aqueduct Watershed

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Keywords: water, arid, attitudes, Owens Valley, Los Angeles Aqueduct

Located in the central eastern area of California along the border with Nevada, the Eastern Sierra is facing the global effects of climate change, which are altering precipitation patterns, increasing extreme weather events, and changing ecological processes. Within the Eastern Sierra, the Mono and Owens River Basins together make up the watershed supplying the Los Angeles Aqueduct. The inevitability of increased fluctuations in the water supply threatens the health of inhabitants and ecosystems of the Eastern Sierra as well as the Aqueduct's end users in Los Angeles. Since before the Aqueduct's completion in 1913, the multi-faceted relationship between the Eastern Sierra and the City of Los Angeles has perpetuated continued discussion over resource extraction and water usage that extends outward into the greater United States (Libecap 2003). As part of a larger set of projects related to the design and planning of the LA Aqueduct, several groups of students and faculty worked with the communities in the watershed to identify their concerns, conflicts and priorities for planning for the future. Landscape and quality of life factors are difficult to address using superficial questioning techniques. People tend to give economic responses to quality of life questions when given simple choices or written surveys. The need to understand deeper issues related to water necessitated more complex analysis and multiple methods. As such, data were collected using focus groups, interviews and questionnaires of various groups, and data analysis was performed in the aggregate, looking for themes, patterns of responses, and sequencing, rather than a more traditional content-oriented approach.

The meta-analysis indicated the following themes and patterns related to water in the Los Angeles Aqueduct watershed:
• Water is a symbol of control and power.
• Water is more significant in its absence.
• Water is perceived as most important because of its impact on recreation and aesthetics.
• Reduced access to water is not seen as mitigated by conservation, rather it is mitigated by ownership.
• Development is good; additional water consumption is bad. The two are not related.
• Private land ownership leads to water conservation and small business development.
• Land and water are inextricably tied together.

Results suggest a relationship between residents and water than necessitates an approach to water conservation planning that is directed at public participation, the tangible results of water, rather than the water itself, and strategies that leverage changing demographics and community characteristics.

Examining the Role of Green Roofs as Supplemental Habitat for Avifauna Especially Migratory Species

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Keywords: green roof, avifauna, biodiversity, best management practice, habitat island

Whether intentional or not, the presence of vegetation on green roofs attracts wildlife. If green roof structures are going to be touted as a means to increase biodiversity in the urban landscape, it is important to understand how species interact with these structures in a variety of climates and contexts across the globe. The humid subtropical climate of the Southeast United States is no exception. The Mississippi Flyway is one of the primary migration paths for a large portion of birds in the Americas. In this region, we are just beginning to see the implementation of green roofs as a best management practice to offset the urban heat island effect, as a treatment for stormwater, in greening the landscape, and providing habitat opportunities to a host of species with a variety of ecological functions. The users of green roofs are varied: pollinators, insects, small mammals, and avifauna each provide a different ecosystem service in the constructed habitat created by the presence of green roofs. Because of their mobility, birds are a unique indicator of climate change and habitat availability as they will seek out new territory and habitat if their needs are not being met by their current habitat due to degradation or destruction.

This study measures the avian species, frequency and duration of visits, and behaviors observed over two sites in Starkville, MS. Preliminary observations indicate a variety of avifauna users over the changing seasons. As species are exposed to these structures, many are finding at least part of their habitat requirements being met by green roofs. Vegetative composition and proximity to other green spaces impact the avian users as the green roofs offer a variety of opportunities for foraging, resting, calling or singing, mating, and defensive or aggressive behaviors.

In order to understand the role green roofs will play in the development of our future landscapes, we must first identify what species are present and how they are using the roofs. We need to understand how these trends progress over the changing seasons. In order to promote biodiversity and create supplemental habitat, there must be a base point from which to start developing regionally specific designs to fit the needs of avifauna users in a particular area at a specific time of year.

Greenway: A Landscape Planning Strategy for Urban Transformation in China

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Keywords: Greenway, China, landscape planning

Pearl River Delta is one of the most densely urbanized regions in the world with a population of 120 million, and it has become one of the main hubs of China's economic growth since the launch of China's reform in 1979. However, with the great economic achievement, the traditional growth method (unlimited sprawl of urbanized regions and built-up areas) has negative impacts on the natural environment, which is not sustainably developing. Thus, during the past four years (2010-2013), China has constructed over thousands of miles of greenway networks at Pearl River Delta (PRD), in order to maintain regional ecological safety, to improve regional livability, to stimulate economic growth, to protect cultural and historic resources, and eventually to stimulate urban transformation (He et al, 2010).

The preliminary success of implementing a greenway at PRD stimulates a potential greenway movement in other cities in China. However, the relationships of implementation and urban forms were not well known. This research asks two questions. First, how are greenways is applied as a landscape planning strategy? Second, how does greenway implementation affect the urban pattern?

To address these questions, we conduced a case study of greenway networks at PRD to understand the development and function of greenways in China. Three levels of greenways (regional, city, and community greenway) at PRD were assessed. The purpose of this paper is three-fold. First we examine how greenways are applied as a landscape strategy. Second, we explore how greenways could help the city to transform. Third, we discuss the future of greenways in China. The key findings revealed that:

(1) Jack Ahern’s four principal strategies of greenways: Protective, Defensive, Offensive, and Opportunistic (2002) are successfully employed within PRD regional greenway networks as an overall landscape planning strategy, through combining ecological planning, tourism planning and urban transformation.

(2) City and community level greenways are proposed to weave "fragmented" urban green space to satisfy ecological and social demands, and also as a way of extending greenway networks into the inner-city fabric.

(3) A top-down planning approach provides an excellent opportunity for developing regional and national greenway network; yet, public participation is still lacking. The results indicate greenway implementation is a green "economy" for cities during the rapid transforming period in China since greenway development could stimulate tourism.

Greywater Policies and Perspectives in the Southeast United States

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Keywords: Greywater, State Policy, Public Perception

Water rights and water availability worldwide continue to be a focus issue and are frequently associated with climate change. Water recycling methods are gaining increasing notoriety and are currently implemented as best management practices (BPMs). The use of greywater -- water recycled from sinks, washing machines, dishwashers, and bathtubs as an irrigation source -- has been evaluated and is used more frequently in landscapes with water resource deficits.

While research programs studying the effects of greywater reuse as an irrigation source for landscape plants have become more frequent over the past decade, this has primarily taken place in arid environments. The use of greywater has become more common in parts of the United States, Africa, Australia, Europe, and the Middle East (Snodgrass, 2010). Some states have become proactive and have designed legislation that promotes greywater use; whereas, other states, such as the Southeastern United States, hasn't approached the issue. Further analysis of policies that proactively encourage greywater use and those that are not as effective will help determine the future of greywater policy. Data on the perspectives and attitudes toward greywater is also lacking but could further the argument for greywater use. An examination of current policies and perspectives on greywater use may encourage policymaking for greywater use in the Southeastern United States.

This paper aims to examine current U.S. state legislation, and that in other countries currently affecting greywater use. In this study, a case study analysis of greywater use policy across the southeastern United States is used to compare and contrast greywater use laws or lack thereof. A discussion of the current perspectives and opinions regarding safety, public health and the environment effected by greywater use is examined. Potential implications regarding greywater policy in the Southeastern United States is evaluated.

Hydrological Cell Networks: Integrating Public Space into Wetlands through Parametric Modeling

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Keywords: wetlands, public space, parametrics, landform

This poster visualizes a new landform typology of constructed wetland as well as the method to derive it. Through defining areas of saturation which have a depth relative to their size, and size relative to circulation paths, this project uses parametric modeling to manipulate basins for wetland cells that better integrate human circulation and occupation.

An 11-acre site in Charlottesville, Virginia provided a test location for the deployment of a pinched grid strategy to create wetland cells. This site currently is the location of a public housing project built in a former stream valley. A culvert below site drains a large portion of Charlottesville's downtown, eventually draining into the Rivanna River. If the culvert were to be daylit, wetland cells would help take on the new volume of water introduced to the site's surface. These hydrological cells could accommodate public circulation and use while performing necessary retention and infiltration of site runoff, through a new typology of land formation allowing for moist centers, filtration buffers, dry circulation paths, and water features.

Grids are a universally employed spatial arrangement and organizational tool. The manipulation of a grid provides contrasts between sets of organizing principles, producing exciting shapes and spaces. In this project, grids are pinched in strategic areas of connecting circulation to achieve greatest porosity of the grid relative to human use areas. When used to create a surface, letting a draped surface sag over these larger pores in the grid achieves the creation of areas that are deeper and therefore can hold more water or fill in times of flood.

The site in Charlottesville was selected in order to develop this model as a scalable prototype. As more legislative bodies become aware of the necessity of reducing stormwater loads high in the watershed, approaches such as this can be used to allow for infiltration on programmed public spaces. Localized water collection can assist with rejuvenating aquifers. Further intentions of this project are the integration of biofiltration with the parametric strategy in order to produce cells that effectively manage urban pollutants.

This project calls into question the separation of water and flooding from the urban condition. As climate change continues to affect cities at ever increasing intensities, an acceptance of flooded landscapes is essential in urban cultural consciousness. Wet landscapes that are at times uninhabitable may grow to be the norm, and appreciated for the temporal experience of their qualities.

Integral Resiliency: Vacant Land as a Catalyst for Merging Surge Protection Infrastructure with Landscape Connectivity

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Keywords: Surge suppression, resiliency, geographic information systems, corridor ecology, community development

Surge protection infrastructure systems have proven effective in protecting populations in disaster prone areas. The Ike Dike is a projected $6,000,000.00 surge protection system which could protect the Galveston-Houston MSA from a 10,000 year flood. The Texas coast has been devastated by nearly 40 hurricanes since 1900 including Hurricane Ike (the namesake of the proposed system) in 2008. The Ike Dike is a proposed coastal spine which extends parallel to Galveston Island to protect the port of Houston, the second-busiest port in the nation with an economic base of 178.5 billion dollars a year. This research assesses the ecological efficacy of the proposed system focusing on structural and non-structural mechanisms for ecologically integrated surge protection, using evidence from the Netherlands and New Orleans. Negative ecological impacts of these mechanisms are compared across cases and include water exchange between fresh, salt, and brackish waters, increased sedimentation, topographic alteration, land cover conversion, and habitat fragmentation. This research proposes that vacant lands, which occupy approximately 35% (3,106,359 acres) of the land area in the Houston-Galveston MSA, may prove to be a significant component to the feasibility of the implementation of the Ike Dike. In an effort to alleviate typical negative ecological effects, advanced Geographic Information Systems (GIS) modeling techniques are utilized to generate a large-scale ecological framework of the proposed project site. The analysis focuses on maximizing the structural connectivity of the landscape by utilizing vacant land as a linkage device for existing habitat patches and wildlife conservation areas. A modified cost-surface was developed which illuminates the contributions of existing natural facets as a central component of the analysis. Once parameterized, this surface was then utilized as part of a graph-theoretic connectivity modeling framework to develop a network of structurally connected natural lands. Results indicate that vacant land can be linked with existing green infrastructure and wildlife conservation areas with relatively minimal negative impact on development potential, should the coastal spine be implemented. Corollary, the integration of vacant land within structurally-based landscape connectivity models may prove useful in developing storm surge infrastructural systems which produce fewer social, cultural, and ecological barriers. The strategic use of appropriate surge protection mechanisms and integration with ecological processes to mediate water exchange, strategically utilize excess sedimentation, and afford the reclamation of lost habitat will further enhance the Ike Dike's ability to cultivate ecological integration while generating resilient communities.

Landscape Design and Planning: a European Perspective

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Keywords: landscape planning, design, theory

Over the last three decades, landscape design (LD) and landscape planning (LP) approaches have developed differently in European countries that have distinct, legal landscape or environmental planning frameworks. It has been observed that towards the end of the 20th century, LP has become more scientific and “environmentalised”, whereas LD has focused more on form and aesthetic. The divergent development appears to have led to a different set of theoretical, ethical and methodological concepts. On one hand, this may lead to a confining specialisation. On the other, it has potential to broaden and qualify the methodological approaches of landscape architecture as a whole.

The objective of this paper is to analyse this difference and to identify potential opportunities to integrate design approaches into LP. The paper is based on the hypothesis that LP can be improved by integrating design approaches.

In a review of the relevant literature about landscape architecture theory, the conceptual differences between LD and LP are analysed with respect to their tasks and application context, definitions and ideas about the core term landscape, as well as ethical motivations or underlying values. The comparison is not based on a case study analysis. Rather, it reviews publications about landscape architecture theory. Core publications were discussed with landscape design colleagues and experts. Although in practice there may be much overlap, the findings show that prototypes of LD and LP can be identified in the theoretical literature, which are useful for describing the potential range of the discipline. The different foci between LD and LP archetypes may stem from their different, typical tasks and application situations. For example, LD tasks emphasize creation, changes, finding form, and characteristically, the clients own the project site. In LP the tasks focus on maintenance, rehabilitation, and development of landscape by analysing the existing conditions, property rights, and efficient implementation. The findings indicate that LD and LP refer to the same set of values, e.g. creativity, transparency, sustainability, biodiversity, beauty; but the freedom to choose between values and the emphasis placed on them differ. Finally, an archetypal classification of LD and LP is useful for characterising hybrid approaches, and it can help identify opportunities to integrate design approaches into LP.

Without doubt, integrating design approaches into planning is a desirable goal. LD ideas and concepts can help to communicate and even implement LP objectives. Even conservation objectives may be more easily implemented with a fetching design idea.

Lines in the Sand : Landform Interventions for Adaptive Arctic Responses to Climate Change

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Keywords: Lines in the Sand, Coastal Engineering, Climate Change, Alaskan Native Villages

As a function of our transitioning climatic conditions, Native Alaskan coastal villages find their very existence under threat. A legacy of control, manipulation and neglect by government agencies and corporate economic interests has led many of these communities from a way of life based on a harmonious subsistence to a culture of subsidies and decay.

The remote nature of many of these communities makes intervening with material assistance an extremely complex and costly prospect. Our project focuses on an approach capitalizing on local resources as abundant and affordable building materials, and dovetails with a design implementation strategy for protective landform interventions.

The design approach to this particular site evolved after visiting two Native villages in Northwestern Alaska. The problem of assisting a remote village against their eroding landform was undertaken by utilizing driftwood--a natural, free and abundant resource and attempting to slow or reverse the sediment loss currently experienced at such an alarming rate by the Shaktoolik peninsula.

The resulting module is a “driftwood gabion” that can be deployed in the surf as an ocean energy dissipater, on the shore as a dune builder, or inland to act as a snow fence.

The primary purpose of our experimentation was to test the efficacy of driftwood gabions in providing a permeable barrier for knocking particulate matter out of suspension. Resisting the hydraulic and wind forces of coastal Alaska was not our intention. Rather, to harness their energies powerful vehicles for transported snow and sand and concentrate those into protective drifts, bars, and dunes was our goal.

Testing various arrays of the gabions deployed en masse was the secondary purpose: to model, on a larger-scale, landform interventions that could help protect and buffer an entire, coastal village. Finally, we sought to design these gabions using inexpensive, easily available resources coupled with low-tech fabrication processes to broaden their application base.

The conditions in Alaska's Norton Sound can be considered extreme by most coastal engineering standards. Addressing data regarding sediment transport in the Norton Sound, ocean currents, fast ice and permafrost dynamics all informed the design criteria. Modeled at two small scales, the gabions displayed promising results in both their individual and arrayed deployment schemes. Sand, breadcrumbs, powdered sugar and a fog machine were used to test their ability to allow for passive energy transport and build form.

Melt with Nature - Beijing Future Scientific Technology City Landscape Planning and Design

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Keywords: floodplain, phytoremediation, stormwater management, ecological restoration

The project is located north of Beijing, about 30 km from the center of the city. The 10 km2 site is envisioned as a nationally prominent research and development office park for 16 high-tech companies and institutions, with the goal of attracting top quality scientists for creative, innovative research projects. The companies will institute a recruitment program to attract global experts. The development program includes office, commercial, residential, cultural and transportation uses in order to create a self-sustaining and comfortable live/work environment.

The landscape planning and design of Beijing Future Sci-tech City focuses on creating a natural landscape with improved functions and maintaining a natural habitat for top class research and development institutions. The landscape planning and design component of the project represents 40% of the total land area (400 ha). The existing Wenyu River divides the site and flows from the northwestern to eastern corner. Protected by an existing levee, most of the land on both sides of the river is wooded, low and wet, preserved as a waterfront forest park with walking trails and bridge connections across the river. Where feasible, the area also provides for stormwater detention and recharge, appropriately planted to aid in filtering and cleaning runoff.

A lake and 15 m high hill (from lake excavation material) was created on the south side of the river, and is supplied by water from the river as well as processed effluent from surrounding development, further treated to landscape quality standards through a system of created wetlands and other natural techniques. The hillside, wetland and lake areas provide opportunities for walking, biking, birding, and boating. The eastern property line is bounded by a major highway, and the required 200 m wide buffer is expanded to create a vegetated zone to mitigate pollution effects and allow for recreation, including sports fields and playgrounds with easy access from contiguous residential development. The core area of the new development includes a major entry plaza to the waterfront park, as well as cultural and commercial open spaces (sculpture park, amphitheater and exhibition center) related to a circumferential canal. The core is also a major transit center for the subway and buses. An existing long allée of large poplar trees is preserved as a major pedestrian/ecological spine through the center of the project, linked with other open spaces.

Method of Xeriscape Planning in the Arid/Semi-Arid Regions - Chifeng West Mountain Scenic Region Landscape Planning

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Keywords: xeriscape planning, arid/semi-arid regions, sustainable stormwater management

China is a relatively water-poor country, water resources per capita are only a quarter of the world's average amount. In the arid/semi-arid regions of China, water is one of the most important restrictions for development, especially since surface water bodies are disappearing and one-quarter of groundwater supplies have been destroyed. The city of Chifeng, located in the semi-arid region of China, has an annual rainfall between 200mm-400mm. In recent years, with the rapid progress of urbanization and urban construction, one of the important issues is how to use water efficiently. Chifeng West Mountain Scenic Region has a severe water shortage, and groundwater resources are over exploited. However, the urban area is still growing, and it has become a challenge to figure out how to balance water resources, development, and ecosystems in a very short time.

An eco-development model at the strategic level for the overall planning of regional water resources has been implemented to achieve an overall reduction in the city's water demand. Using natural methods together with urban stormwater management and restricting development on riverfront properties and ravines will reduce urban flooding from torrential storms and water pollution.

Post-Industrial Ecology -The Road Less Traveled

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Keywords: Post-Industrial, Successional Trajectory, Assembly Models

Purpose: To examine the role of stochastic and deterministic models of vegetative assembly theory in the design of postindustrial landscapes.

Background: Sometime in 2008 an unprecedented global demographic transition occurred, the majority of us now live in cities. Within this context urban green-space will increasingly provide the experiential framework required for the development of an ecological identity, a prerequisite for a true sense of place.

Methodology: This paper examines two case studies in which ecological restoration was fundamental to the redevelopment of post-industrial sites. We explore the role of stochastic, or non-equilibrium models of assemblage development where species transition is determined by both abiotic and biotic filters and deterministic models with defined endpoints.

Liberty State Park: Various plant communities have re-colonized much of the site. Like the surrounding community of people, these assemblages are diverse, having origins throughout the world. However, high concentrations of soil metals have altered traditional successional trajectories and challenges the restoration design to be flexible, with multiple end points and periods of arrested development.

Freshkills Landfill: The landfill represents a landscape that has been re-calibrated to serve future social and infrastructural networks that contribute to the sustainability of society. The current design represents a deterministic approach in an attempt to maximize ecological services within the limitations of a manufactured site.

Conclusion: Postindustrial sites lack an ecological legacy and often do not respond predictably to traditional management practices.

Prairie Green Roof Establishment and Diversity: Measuring the Potential Outcomes for Increasing Species Richness and Evenness in Southeastern US Urban Ecosystems

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Keywords: green infrastructure, biodiversity, blackland prairie, species richness, evenness

In order to compare the effects of native soil on prairie green roof plant establishment and biodiversity, two different growing media compositions were examined and each composition was replicated five times on simulated green roof platforms. The experimentally-treated media included locally-native prairie soil comprising 16.66% by volume of the growing media. The control media consisted of commercially available green roof media only. Species native to the northeast Mississippi /central Alabama Blackland Prairie Belt were planted as plugs and sown as seed to compare diversity after establishment. The central hypothesis of the study was that the inclusion of native soil would increase establishment and survival of the chosen prairie species, thereby increasing the plant community diversity of the treatment roofs. Diversity was measured using species richness (α-diversity) and Simpson's evenness (E1/D). Mean diversity values were compared using mixed model analysis of variance (ANOVA).

Individuals of two of the five plugged species survived without irrigation after an initial establishment period. 9 of 22 seeded species exhibited some degree of success. A total of 67 species that were not introduced by direct seeding or plug were recorded across all data collection periods and both treatments (21 were not able to be identified to genus). Of the 46 identified species, 18 were present only on the treatment platforms and therefore there was a high likelihood that they were introduced in the seed bank of the native prairie soil. 21 species were present on both the control and treatment platforms and therefore presumed to have either spontaneously colonized the platforms, or been present in the commercially available media. 7 species were present exclusively on the control platforms. We found no significant difference between mean species richness and evenness values between treatment and control roofs. There was statistically significant variation by season amongst the roof plant communities, however, indicating that diversity varies throughout the year, with the highest diversity seen in spring and fall.

It is important that, when possible, we design for and measure biodiversity in urban systems and in green infrastructure designed for urban systems. We have the ability to bring native plant communities back into our urban fabric, which reduces the impact of built and managed systems on global biodiversity.

Regional Landscape Planning Studios: Assembling a Process and Discovering Methods

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Keywords: Landscape Regional Sustainable Planning Rural and Urban

This presentation describes different recent experiences in addressing landscape planning studios for terminal graduate studios. The student led studio format, especially for first professional degree programs such as the one discussed in the presentation presents special challenges, especially when the issues under study are not a clear-cut array of problems. This step of revisiting the information and data of the place requires a re-assembly of know descriptions of the place to develop relevant questions and select useful methods of analysis.

How can this highly interpreted version of a place help in defining future planning alternatives? Is this approach still relevant in a highly technical and GIS-based landscape planning environment? What is the right process to move back-and-forth between these two approaches? These are some of the questions a regional landscape planning exercise faces, especially in rural environments where resistance to change is stronger and the fragility of culture and place are evident and subtle. The presentation shares some experiences and the different methodological approaches that have emerged through the different cases discussed. Rural landscape planning exercises are a special challenge as data is not as abundant and conflicts are often polarized and localized. At the same time, these projects require students opportunities to explore new alternatives and adapt methods and procedures to move forward their analysis.

A working framework is proposed with a discussion of how it relates to known landscape planning frameworks such as GeoDesign, Suitability, and others.

Resilience Thinking in Landscape Planning: A Transdisciplinary Conceptual Framework

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Keywords: Resilience, Landscape Planning, Transdisciplinary, Climate Change

Landscapes involve dynamic changes intertwined with human and natural systems. Landscape planning under climate change challenge adds another layer of complexity and uncertainty. The contemporary schools of thoughts in ecology have opened a window for a more comprehensive paradigm in connecting ecological, social, and physical dimensions in cities. A social-ecological system therefore can be illustrated as the interaction between the biological and human ecosystems that integrate social, biological, and physical components. Moreover, a participatory planning process involving stakeholders, experts and the public—transdisciplinary planning— plays an important role in redefining planning issues and deliberating common values toward sustainability.

Resilience theory in the linked social-ecological systems has provided an alternative lens through which to view planning framework for both problem-setting and problem-solving (Wilkinson 2012). In what way can resilience theory improve landscape planning process in coping with uncertainty and the dynamics of change in the linked social-ecological systems? A revolving learning-by-doing feedback loop is proposed for adaptive planning processes includes goals and objectives settings, plan formulation, plan implementation, and plan evaluation in addition to plan monitoring (Kato and Ahern 2008). In addition, transdisciplinary participation plays a critical role in a sustained development learning process (Meppem and Gill 1998). The transdisciplinary planning process drives plan-making development to incorporate planning interventions and social-ecological drivers based on the goals and objectives in the planning agenda. Moreover, using empirical research for the evaluation of plans is critical to evaluate planning intervention based on indicators identified in the transdisciplinary planning process.

This paper provides a review of resilience theory applying to landscape planning practices and proposes a conceptual framework to untangle complex issues such as climate change and sustainability. In addition, a case study showcases the success of applying the framework to a Boston metropolitan area scenario land use planning process with an empirical research on climate change-induced flooding hazards in the Charles River watershed. This paper concludes that adapting resilience theory to landscape planning practices helps to reveal dynamic change in landscapes, which is crucial for the advancement in planning intervention and processes in coping with uncertainty and complexity.

The Fiery Landscape

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Keywords: Anthracite Mining, Reclamation, Biotopes, Remediation, Community

The Anthracite Coal Region is only a small part of the large scale energy extraction landscape in Pennsylvania. While hydraulic fracturing operations are the most recent extraction process that engages environmental, ecological, and economic concerns, in the past, anthracite coal mining defined that role. After many years of prosperous extraction of our earth's "black diamonds", the coal mining process has resulted in scarring the area's cultural and natural ecosystems. Degraded, baron and devastated landscapes became the norm in the region. The anthracite coal region is now stamped with abandoned coal mines, new landforms of mining waste and a contaminated landscape of sulfur and iron polluted watersheds. This acid mine drainage is visible in most of the region's streams, but there are resolutions to these hydrological and environmental problems. The purpose of this paper is to define the planning processes that must be enacted in order to successfully reclaim the mining sites, their individual ecologies, and communities in the coal region. This method of research begins with reviewing a successfully remediated bituminous coal mine in eastern Pennsylvania, and studying the planning methods of International Bauausstelling (IBA Furst-Puckler-Land for mining sites in Germany. This paper will analyze the successful remediation work of landscape architects, scientists, and engineers specifically due to community involvement. Innovative designs and planning measures will help rebuild post-mined landscapes into healthy, productive, and reusable land that will economically strenghten and re-energize the community.

The Pastoral Symphony: Harmonizing Rural Development with Rural Identity

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Keywords: rural identity, landscape architecture, planning, trails, trail system, greenway, greenway system, Edgewood, urban fringe, urban fringe development, exurb, exurbia, exurban, community, design, landscape design

In the past fifty years, land has been developed at exurban densities (one to forty acres per dwelling) at a far greater rate than either urban or suburban densities. Exurban development has increased from five percent to twenty-five percent of land area in the lower forty-eight states; while urban development has increased from merely one percent to merely two percent (Brown, et al. 2005). In spite of this, most research and design has been focused on improving urban and suburban developments. The inadequately planned development of exurban land diminishes rural identity, and it causes a host of social, economic, and ecological problems.

The study examines potential landscape design solutions for an urban fringe development to mitigate these existing problems and to restore its community function. The literature review revealed that a greenway system offers the greatest range of values and, as a public open space, would function as public education for resilient design further extending its value.

The study examines the Town of Edgewood, NM as a typical urban fringe development that would benefit from a greenway system. The methodology used is a case study analyzing the existing rural identity and the social, economic, and ecological opportunities and constraints of Edgewood. Personal involvement within the community as a resident contributed significantly to the strength of the case study.

The study proposes a flexible greenway master plan to serve as a guide to the community for long-term planning. The primary design strategy suggests that a comprehensive plan is necessary to enhance rural identity and social, economic, and ecological resilience. The master plan presented allows for growth, change, and unforeseen obstacles without requiring an extensive and expensive revision to the design.

The Town of Edgewood already has significant expanses of land that have been completely parceled, and the Interstate highway is a significant barrier to a trail system which could eventually be either improved or worsened as the town grows and additional exits are built. These findings highlight the need for developing a trail system sooner rather than later. The trail system is designed to be a major amenity for the Town of Edgewood; furthermore, the design concepts explored in this paper could be applied to other urban fringe developments in New Mexico with modifications to enhance the specific identity of the community.

Testing Nonlinear Relationship between Water Quality and Urban Land Uses in Watershed using Generalized Additive Model

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Keywords: Watershed, Stream water quality, Urban land use effects, GAM (Generalized Addicted Models), nonlinear relationship, GIS (Geographic Information System)

It is well known that land use types within a watershed are closely related with the water quality characteristics of the receiving water bodies. This study aims to examine the presence of the nonlinear relationship between water quality and urban land uses in watersheds. We used 527 sampling data of the five major rivers (the Han, Geum, Nakdong, Younsan, and Seomjin) in Korea. These data were collected under the National Aquatic Ecological Monitoring Program (NAEMP). For calculating the urbanization rate, we used land cover data of the Korean Ministry of Environment to build conventional analysis. Analysis of urban land uses occurred through the use of spatial analysis programs and geographic information system (GIS). We used the GAM (Generalized Additive Model) in R-package to estimate the nonlinear relationship between urban land uses and water quality. The results of this study can be applied into stream restorations and management to enhance the water quality.

PEOPLE-ENVIRONMENT RELATIONSHIPS

A Child's Endeavor: Harmony in the Healing Environment

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Keywords: healing landscapes, restorative environments, therapy gardens, children's wellness, children's health

This project investigates principles of healing landscapes, restorative environments, therapy gardens, and the potential relationship between the outdoor environment and therapeutic wellness. The research was conducted in conjunction with Harmony Adoptions, a non-profit organization, in Maryville, Tennessee. Harmony Adoptions conducts family therapy camps on a nearly 400 acre site formerly known as Camp Montvale, which is nestled in the foothills of the southern Appalachians. The family camps unite adoptive parents with children from the foster care system in a successful program of therapy and training aimed at better preparing the families for successful relationships. Harmony Adoptions has achieved a 1% adoption disruption rate, compared to a national average of 15-20%. This program saves the state $6.5 million annually, and, more importantly, builds healthy families. In order to better serve the families and children of Tennessee, the organization wants to develop a state-of-the-art site design that would allow its therapists greater access to the benefits of nature-based therapy programs, including equine therapy and healing landscapes. To this end, the authors began an investigation of current literature and research regarding outdoor environments and their potential impacts on the specific therapeutic goals of Harmony Adoptions. The project was further complicated by the fact that age groups attending the camps ranged from toddlers to teenagers, as well as the fact that therapists encounter a wide range of developmental and psychological needs - the most common being Post Traumatic Stress Disorder. When children arrive at Camp Montvale, they are often vulnerable and challenged. Harmony therapists help them to begin healing and prepare families for their adoption journey.

Rooted in this context, the primary research question we asked was: How might the Harmony Adoptions mission be furthered through the means of a holistic approach to site planning which would better include landscape in the therapeutic programs being administered to users? To answer this question, the authors designed a methodology to explore how the built environment supports healthcare and therapy delivery. This poster entry demonstrates the application of the basic concepts of this methodology for healthcare and education environments to the larger context of a natural and built environment in an effort to promote wellness. The authors have produced a document of site-specific programming and design guidelines based upon Harmony Adoption's mission to provide services for at-risk foster children and their families.

A Framework for Participatory Urbanism: Drawing from Experiences in Barcelona

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Keywords: Urbanism, Activism, Engagement, Participation, Reform, Grassroots

Activism in landscape architecture and urban design practice has flowered in recent years, revived under the names of design activism, DIY urbanism, tactical urbanism, creative activism, and spatial agency (Awan, Schneider, & Till, 2011; Bell & Wakeford, 2008; Crawford, 2011; Thorpe, 2012). I refer to these all as participatory urbanism; in these emerging practices, designers, urbanists and other citizens have assumed new roles and taken local control over urban space from its traditionally institutional places of control.

Participatory urbanism encompasses many kinds of action, whose motivations vary wildly. These can be revolutionary but also retrograde, promoting wholesale change or preventing change from occurring. In this paper I posit that behind all claims that activists make for change are one of four general motivations: maintaining the status quo, reforming the system, creating autonomous parallel alternatives, or overthrowing the system. These motivations express themselves as modalities of activism, which can be situated with respect to each other in a graph along an Arnsteinian ladder of citizen power from authoritarian to grassroots, as well as along a ladder of action from communicative to material (Arnstein, 1969). Abstracting and classifying urban activism is not merely an exercise in itself. By seeing how actions are connected to power positions, designers can better understand how their approaches to citizen-controlled city-making can be more meaningful and effective.

The initial point of departure for this investigation is a pair of case studies undertaken from 2011-2012 in Barcelona. The two groups of activists highlighted, Raons Públiques and LaCol/Can Batlló, illustrate the two central modalities of participatory urbanism: reform and autogestión (self management). By comparing actions and the ways these groups position themselves with respect to authority and citizens, it becomes clear that certain tools and methods used by design activists are more suited to support institutional reform while others foster local grassroots control. For example, a group promoting the status quo or reform is more likely to employ communicative actions like surveys, meetings or debates; a more autonomy-minded group pursuing self-management more often delves into physical actions like protests, DIY projects, and even occupations. This paper moves next to contemporary practices beyond Barcelona and the implications this framework might have for new emerging practices. Today, as Park(ing) Day transforms itself into parklets and designers seek to prototype, disseminate and even institutionalize their tactical practices, it is worth pausing to examine what kind of change this actually promotes.

A Landscape in Transition: The Reinvention of the Presidio in San Francisco

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Keywords: Presidio, San Francisco, transition

The iconic Presidio in San Francisco presents a complex web of land uses, cultural infusions, and environmental conditions. Because of its strategic location, the 1491 acre parcel has provided shelter, ocean access, and defense to a sequence of inhabitants. Archeological evidence indicates that indigenous groups occupied the peninsula 10,000 years ago. European military and geo-political occupation began in the 1770's, with Spain establishing a small military outpost at this location. This was followed by the Mexican army in the 1820's. Subsequently, the Mexicans were replaced by the U.S. Army, which claimed the area as a spoil of the Mexican-American War. Each group put their unique stamp on the peninsula; militarily, architecturally, environmentally. As its defensive significance waned in the late 1970's, the U.S. Army planned for a public takeover, starting with roadway improvements and increased public access. Today, the Presidio is a component of the Golden Gate National Recreation Area. It is managed through stewardship agreements between the National Park Service (NPS), the Presidio Trust, and the Golden Gate National Parks Conservancy. The landscape can be considered cultural not natural, as military occupations systematically replaced a grassland-dune environment with thousands of evenly spaced non-native trees. This provided windbreaks for hundreds of military buildings, and ceremonial parade grounds. Existing riparian corridors were also altered, and in some cased eliminated. The result, a highly synthetic landscape, presents challenges for existing stewards. While programs of native ecosystem reintroduction and riparian restoration have been initiated, the managed forest condition remains popular to the public. This paper will discuss the challenges with managing a major public facility that is artificial in quality, yet culturally significant to the community. And, because the Presidio is a unique NPS unit in that it is financially self-supporting, the paper will discuss the delicate balance between economic concerns and ecologic desires. Examples of student work, the designing of a cultural institute on a small site within the Presidio, will also be presented.

A Typological Study of Green Streets in Relation to Land Use Contexts

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Keywords: green street, green infrastructure, typology, stormwater treatment, environment, multiple benefits

Background: The value of green infrastructure systems in developing more sustainable urban environments has come into good currency among those concerned with stormwater management, stream restoration, and the regeneration of urbanized watersheds. The street networks of most urban settings present a unique challenge because space within the street envelope is limited and there are a great variety of functional and experiential demands. As a green infrastructure can promote various benefits to a community (Tzoulas et al., 2007), green streets also have potential to address many of these demands. However, it is not clear that the challenges and opportunities have been studied in a rigorous and comprehensive manner when implemented green street projects are studied and compared.

Purpose: One important aspect of making green streets more feasible and desirable is to design them in relation to their land use context. It is important to understand specific Green Street typologies and how they are connected to the environment so that Green Streets can be utilized and promoted in development of urban areas. The related literature in this matter is seldom found, and the study can contribute to the knowledge of Green Street design strategy.

Method: Green Street case studies are used to develop a typology of current design approaches and practices. 12 case studies can be collected from different cities where green street projects are actively implemented. Using the judgment of an expert panel, the approaches and practices found in the case studies are then evaluated for suitability regarding typical urban land use contexts.

Finding: The categorization of Green Street typologies summarizes overall Green Street strategies and presents multiple benefits that can be addressed. The analysis on suitability of Green Street strategies regarding land use contexts explains how Green Street practices are integrated and can be integrated with different settings of the urban contexts. The demands and expectations for Green Street practices found in the study can be utilized in future Green Street developments.

Impact: One of the chief arguments in urban green infrastructure systems is their ability to deliver multiple benefits at minimal cost. Despite this, many green infrastructure plans and projects are driven by metrics that can be easily monetized. The unique contribution that landscape architects can make is to demonstrate how practices like Green Streets are more economical, livable, and sustainable. Studying Green Streets design strategies in relation to land use contexts is a first step in that direction.

Alternative Views of Landscape Change and Human Intervention: Implications of Cross-Disciplinary Narratives on Design Pedagogy

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Keywords: Interdisciplinary, Landscape Change, Landscape Narrative, Visual Interpretation

Purpose: This exploratory research study aims to identify, compare and contrast disciplinary perspectives on visual scenes representing varying degrees of human intervention and disturbance in the built environment.

Background: Scholars have long written about how diverse meanings are ascribed to landscapes, communities, and places, depending on one's cultural values, contextual lens, and individual perspective. Literature within geography, landscape architecture, and allied disciplines highlights how individuals assign meaning (Barry, 1997; Tufte, 1997; Kress and van Leeuwen, 1996), given their own interpretations of visual representations of place (Meinig, 1979; Kaplan and Kaplan, 1989; Vining and Ebreo, 1991; Nassauer, 1997). Particularly, scenes depicting landscape change, development, natural resource extraction, and ecological restoration elicit varying responses from individuals. Building upon this theoretical context, this study draws comparisons between the reactive narratives drawn by students, when viewing photographs representing varying degrees of human intervention and landscape change.

Methodology: Students representing the disciplines of landscape architecture, architecture, interior design, and construction management at Washington State University viewed 12 images representing varying degrees of landscape change and human intervention in the built environment of the university's bioregional context. All images were presented without accompanying words or explanation. Using an open-ended survey methodology, each group of students was asked to provide a written narrative for what they believe each scene represents using common journalistic queries, such as who, what, when, where, and why. Their narrative responses are compared and contrasted with each other, and with additional information concerning each photographic scene.

Findings: Analysis of respondents' narratives illuminates similarities in each discipline's reactions to the imagery depicting landscape change, as well as some differences. In particular, respondents crafted narratives that aligned with the practice and values affiliated with their discipline. Results of this study highlight the power of persuasion contained in imagery, disciplinary differences in perception of the built environment, and opportunities for greater discourse among the disciplines.

Importance: In professional practice, students from each of the four surveyed disciplines will interact professionally in the collaborative design and construction of the built environment. These professional interactions are affected by the particular strengths and cultural values represented by each discipline. Within the formative context of interdisciplinary design and construction pedagogy, greater discourse among the disciplines provides opportunities to bolster awareness of disciplinary differences and commonalities among those who will shape future built environments.

An Understanding of Singapore Nature as Heritage and its Implications in Man-Nature Interaction in Public Parks

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Keywords: nature, Singapore playground, heritage, commodification, theme park, identity

Since 1963 - tree-planting day launched by the Prime Minister - Singapore constructs its image and physical landscape through the Garden City vision, developing into the City in a Garden.

Singapore Public Parks represent powerful symbolic monuments to the Government's efficacy to forge a Clean and Green city (Yuen 1996) built to attract investors, where crafted nature has been used as primary experimental vehicle in the branding and construction of an artificial tropical setting.

The "Singapore Playground" park-network strategy, apparently built expanding on the theoretical framework of the theme park, employs the narrative power of constructed landscape to re-interpret cultural references /manipulate nature in order to exercise control, induce new living habits and 'brand' carefully packaged tales which create a realm for consumption, where people acquire participation in whole lifestyles and landscapes (Potteiger and Purinton, 1998). Although Parks notoriously frame the experience of Landscape through cultural mechanism and related technical devices, the essence of thematization lies in the priority of "image" over the phenomenological experience of place (Ball 1993) to serve real, tangible capital.

Research questions the official Garden City image, and investigates the contradictions implicit in such commodification of landscape: Can the controlled, thematized and functional landscape allow local value and tropical nature to become an element of identity, thus taking distance from the theme park framework?

What forms of people-environment interactions are generated? Data collected from a user`s perception survey which expresses perceived values and perceived/ objective limits set by design to users` interaction with nature/site is cross-referenced with historic research and n on-site survey that records design strategies and identifies a thematic framework.

On-going research aims to evaluate if and how the themes shape places of cultural meaning, if they are perceived and are recognised as contributors to the significance of the site.

Looking at whether, from the community perspective, local landscape expressed by the parks is truly the State acclaimed "important facet of our identity" (Tan2013). The research seeks to uncover if a different vision of nature in Singapore, which treasures it as a heritage and a cultural identity (Singapore Identity Plan2000), is possible. The "total landscape idea" (Miodrag 2006) today shapes hybrid forms of privately owned public spaces, while more and more of its variation invade public space. (Boyer1992).

Expected findings cast a light on the Singapore theme-park strategy, which can have some relevance because of the modus-operandi and because Singapore structured, compact, pragmatic experiment echoes in and influences emerging Asian Megacities.

Calculating Green Infrastructure Benefits on - Human Health and Well-being

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Keywords: green infrastructure, human health and well-being, urban forest effects, questionnaire survey

The purpose of this study was to determine linkages between green infrastructure in the built environment and human health and well-being. Green infrastructure is an "adaptable term used to describe an array of products, technologies, and practices that use natural systems or engineered systems that mimic natural process – to enhance overall environmental quality and provide utility services" (USEPA, 2011). Research shows a positive relationship between nature (trees and greenery) and many aspects of human health and well-being (Kaplan et al., 1998), but there is little research that demonstrates the ancillary health benefits of the broader use of green infrastructure. The health effects investigated in this study included both field data on the ancillary benefits of air filtration and socio-cultural data about obesity, mental restoration, and place attachment.

This study identifies and quantifies the health effects of three different types of green infrastructure, using Blacksburg, Virginia as a study site. The investigation included air filtration, obesity, mental restoration, and place attachment.

The Urban Forest Effects Model, UFORE, which uses standardized field data from randomly located plots and local hourly air pollution and meteorological data to quantify urban forest structure (e.g., species composition, tree health, leaf area, etc) and its numerous effects (Nowak and Crane, 2008). The UFORE model quantifies air pollution removal values, and reductions in public health incidents due to air quality improvements of green infrastructure. The study also used the EPA's Environmental Benefits Mapping and Analysis Program (BenMAP) to estimate health benefits of a change in air quality. In the town of Blacksburg, 60 one-twentieth-acre plots were sampled using a stratified random sampling method across three green infrastructure types: forest park (20 plots), greenway (20 plots), and green street (20 plots). To investigate the obesity, mental restoration, and place attachment benefits of green infrastructure, a survey was taken to investigate how green infrastructure can influence people's health and well-being in terms of socio-cultural and emotional values. One control sample of a grocery store site was chosen to compare green infrastructure's socio-cultural benefits to the three types of green infrastructure investigated in the study.

The results of the study can be used to further identify and quantify green infrastructure as a valuable resource for improving human health and well-being. This study has implications for both policy and practice, in better understanding the value of green infrastructure and in improving the design of green spaces.

Challenges to Re Imagining Landscape after Disaster

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Keywords: Place attachment, disaster recovery, participatory planning

Not long after first responders and volunteers leave in the wake of disaster, community leaders and residents confront the daunting prospect of re-occupying a broken landscape, replete with painful reminders of loss. Rebuilding programs emphasize safer construction, more sustainable infrastructure and de-settlement of areas prone to risk. These prescriptions, while intended to improve resilience to future disaster risk, ignore the dynamics of socially constructed landscape values- place attachment and place identity- in local decision making, which have strengthened influence after the experience of loss. (Bowring,Burley,Horwitz)

In order to build more sustainable communities, the social construct of cultural landscape must be re-imagined simultaneously with other dimensions of landscape, preferably in the context of meaningful decision making about community re-development.

By engaging residents in narrative, visual and emplaced assessments of the community while also describing and visualizing less evident climate and landscape processes, planners can assist residents in capturing and affirming place values and identity while exposing troublesome processes that pose an ongoing threat if left unresolved. These qualitative investigations allow new place narratives to be constructed, providing residents with a meaningful framework upon which to hinge unprecedented development within once familiar, now lost, territories. This presentation will conclude with exploratory examples of intertwined disaster recovery and community re conceptualization methods.

Children's Perception of Walking Environment in New Urban Neighborhoods

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Keywords: children, neighborhood environment, physical activity, photo-projective method

Obesity rates in the United States have been steadily increasing over the past twenty years and included in this trend has been a rise of childhood obesity rates as well (Amis et al. 2012). In 2012 about 1 in 3 children aged from 2 to 19 were considered obese and had BMI-for-age at or above the 85th percentile of the 2000 Centers for Disease Control and Prevention (CDC) growth charts. From 2008 to 2009, the percentage of children between the ages of 5 and 17 who were classified as obese was 5 times higher when compared with 1973 to 1974 (American Heart Association 2012). Along with this increase in obesity rates, there has also been a steady decline over the years in children's walking frequency (Chaufan et al. 2012; Schlossberg et al. 2006). Walking can be a beneficial mode of active transportation for children, and that could have mediated these rising obesity rates. Most of the research focused on this subject has been conducted in relation to the walk to school and parents' perceptions of walking environment (McDonald et al. 2009). Relatively few studies have examined children's perceptions of neighborhood environments that would associate with their walking behaviors. Through studying New Urban neighborhoods in the American South, this study investigates how children perceive their neighborhood environment and how their perceptions impact their walking behaviors. This study also examines what micro-scale design features children prefer when they walk in their neighborhood.

The study focuses on New Urban neighborhoods located in the Southeastern United State. We assessed environmental and perceptual correlates of walking and walkability for children aged from 9 to 12 years old by using the Photo-Projective Method (PPM). The researchers asked the children to complete a survey which includes 17 items about their walking behaviors in the past week. The participants were also asked to take 5 to 10 photos of the features that they found most attractive when they walked in their neighborhood, with their comments written on a form provided by the researcher. Classification of neighborhood images and descriptions has been employed to examine what perceived neighborhood environmental features most correlate with children's walking behavior. The findings could be useful in guiding healthy community design that incorporates children's preferences in order to encourage more walking for children in the Southeastern United States.

Colonizing the Urban Wilds: Invader or Pioneer?

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Keywords: invasive species, weeds, urban ecology, queer theory, wilness, ecological urbanism

Conventionally, weeds, or invasive species, are harmful because they often displace plants, which human beings hope to grow, or they invade places where people do not want them to grow. However, this paper challenges this common notion, and re-identifies these weeds as pioneer species. Scientifically, the article analyzes the biological features and ecological benefits of this group of species, illustrating their value in the urban landscape environment. Moreover, the paper draws comparisons between this native/invasive dialogue and queer theory, analyzing the position towards nature that should be held by landscape architects. The site of East Franklinton was selected as the study field, because of the current situation and the revitalization plan it is facing. In the site, the concept of queer space is developed with three practices, which emphasize the infinite diversity and possibilities, instability and changeability, non-hierarchy and inability to classify urban spaces. Different from the traditional design philosophy, in these practices humans are no longer the dictator of the world who can dominate, select and control everything. The practice is aimed to explore what is the real nature, instead of human centered nature.

Community-Oriented Visual Assessment as a Framework for Brownfield Management

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Keywords: local brownfield, community, visual assessment

This research is to examine the viability of visual assessment as a tool that can be added to existing brownfield management. EPA cannot assess and remediate all brownfields because this would require enormous amounts of money and time. Under EPA's hazard ranking system, the top priorities go to larger, more contaminated sites. A significant portion of the money available is spent assessing and cleaning-up these lands, while many lightly-toxic or non-toxic lands have been largely excluded from the list. These neglected brownfields are often small vacant lots in neighborhood and are problematic, since residents continue to experience visual blight, lack of amenity and reduced property values. The management of local brownfields occurs through local community-oriented projects. Since 2010, under the BF AWP (brownfield area-wide planning pilot project), about 23 local communities have received grant funding via a national grant competition for lesser contaminated sites. For the prioritization of these local brownfields, the criteria are based mostly on concerns for existing pollution hazard conditions and local market potential. However, visual blight in these local brownfields is also important to local property values and sense of community. The impact of visual blight of brownfields is not considered in the site prioritization process and is largely ignored in program objectives. Therefore, this research suggests that visual assessment can be a viable tool for the site prioritization and remediation. This research is based on a survey of community attitudes and preferences for different types of brownfields and brownfield remediation options. Of particular concern is how local citizens can be provided with understandable information and given a meaningful voice in the decisions regarding visual enhancement and remediation options. The first iteration of this ongoing research project, a pilot study in the four neighborhoods along the rail yard in the City of Roanoke that has been selected as recipient of BF AWP program fund, was conducted through resident's survey during a neighborhood meeting and door-to-door visits. The preliminary findings from the pilot study indicate some interesting clues for physical attributes affecting attitudes and preferences such as vegetation and built structure, citizen knowledge and understanding of local brownfields and the need of remediation and reuse, and the acceptance of different brownfield remediation scenarios that include different types of visual enhancement and remediation intervention.

Comparison of Child versus Parent Reports on Attitudinal and Perceptual Variables Related to Walking to School

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Keywords: Walking To School, Environmental Perceptions

Background: Walking to school (WTS) is an important source of daily physical activity among school-aged children [1, 2]. Most previous studies on correlates of WTS used parent-reported data only [3-5], and only a small number of studies utilized child-reported data [6-8]. Correlates identified from the parental versus child studies have not been fully consistent.

Objectives: The objective of this study was to: (1) provide a systematic review of the previous literature, focusing on similarities and differences in correlates of WTS between child reports and parental reports; and (2) examine child versus parent reports on selected attitudinal and perceptual variables in predicting WTS controlling for important covariates.

Methods: This was a cross-sectional study using the parental and children survey data collected in 2010 from the Texas Childhood Obesity Prevention Policy Evaluation (T-COPPE) project. This study used 830 parent-child dyads from 78 elementary schools across Texas, who lived within 2 miles from school with no serious health problems. The built environmental control variables were captured in Geographic Information Systems (GIS) within 200 feet of the shortest home-to-school route buffer.

Results: Bivariate tests showed that parental and child perceptions are highly dependent on each other for most paired variables including neighborhood safety, physical activity, physical activity preferences, and self-efficacy. Two logistic regression models predicting the odds of WTS with child versus parent reports showed both similarities and differences in the roles of child versus parent reported variables in predicting WTS. School encouragement of WTS (+), safety in walking in neighborhood (+), children 'asking parents to WTS' (+) and 'being active is fun' (-) were associated with WTS only when captured as parental perceptions, while two self-efficacy variables, perceived ability to WTS despite long distance and despite heavy traffic, were significant only when captured from the children. Most other self-efficacy variables related to weather, social support, etc. were significant in both models but with parents measuring greater effect sizes (odds ratios).

Conclusions: The significance of child-reported self-efficacy related to heavy traffic and long distance suggests that pedestrian infrastructure improvements, effective traffic management around schools, and school-based pedestrian safety education and walking programs may hold potential for improving WTS. Neighborhood safety in walking was significant only as parental perceptions, implying that the previously documented built environmental correlates of parental/adult's safety perception (traffic speed/volume, sidewalk, crosswalk, lighting, etc.) may serve as important intervention targets for promoting not only their own walking but also their children's WTS.

Correlates of Functional and Perceptual Properties of an Outdoor Campus Environment and User's Sense of Relaxation

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Keywords: Functional Compatibility, Outdoor Campus, User's Sense of Restoration

Restorative environments reduce stress levels, promote positive moods, enhance recovery, and increase attention spans (Berto, 2005; Hartig, Mang, & Evans, 1991; Kaplan & Kaplan, 1989; Ulrich, 1993). A particular characteristic of a restorative environment associates with its degree of compatibility in which the physical environment fits the individual's preferences functions (Kaplan, 1995). The present study was motivated by the gap in knowledge of the associates of functional properties of campus environments promoting a sense of retreat. Indeed, most students are exposed to many stress and anxiety drawbacks due to academic achievements, studying, or career competence (Felsten, 2009; Lau & Yang, 2009). These mental stress and fatigue conditions can reduce their focus and attention spans for productive accomplishments (Kaplan, 1995; Tennessen & Cimprich, 1995). Research suggests that attention fatigues consequence performance errors and being irritated (Korpela, Ylen, Tyrvainen, & Slvennoinen, 2008).Therefore, research is needed to evaluate how outdoor campus features and functionalities can provide restorative experiences that promote mental health.

This study focused on an outdoor campus plaza within NCSU that situates between four main campus buildings, including the Hunt library. This plaza incorporated a variety of pathways, vegetations, elevations, and materials. Overall, 118 users participated in a survey with multiple-choice answers. Employing Cross-tab analysis, the results indicated a positive association with users' perception of a relaxing outdoor campus environment and opportunities for sitting, walking, private spaces, socializing, eating, reading, and lying on the grass ($P<0.001$). These functions can be provided through proposing design concepts that incorporate different pathway patterns, seating spaces, vegetation, elevations. The findings also implied a positive association between perception of creative, aesthetically pleasing, functional, and diverse environment, and restorative experience ($P<0.001$). Consistent with previous research (Bodin & Hartig, 2003; Kaplan, 1995; Kaplan & Kaplan, 1989; Kim & Kaplan, 2004; Staats, Kieviet, & Hartig, 2003; van den Berg, Koole, & van der Wulp, 2003), the findings accentuate the importance of diverse opportunities for movement, socializing, being private, and aesthetically pleasing outdoor campus environments to restore mental fatigue.

Cultural Landscape Connections: The Presence of Sense of Place in Landscapes of Longevity

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Keywords: longevity, sense of place, sense of legacy, cultural landscapes, vernacular landscapes, design and health

Currently, the vernacular landscapes of the United States support a society moving towards increasing obesity, diabetes, hypertension, and other chronic diseases—yielding longer life but lower quality of life for senior citizens. Simultaneously, with evolving technology, transportation mechanisms, and shifts towards a global economy, Americans are more transient and more likely to be two places at once—telecommuting, teleconferencing and texting. Due to this increased transience, U.S. citizens are losing the health benefits gained from a life-long connection to their cultural landscapes—namely a sense of legacy and sense of place .

In 2013, Landscapes of Longevity investigated three regions characterized by extreme longevity—Loma Linda, CA; Sardinia, Italy; and Okinawa, Japan. Through this project, we researched a) the physical aspects of the landscape that enable healthy communities and b) the importance of a sense of place on well-being, in order to understand how public places can shape cultures of healthy aging.

Our primary research method—film— was chosen because it enabled us to form a “synthetic vision of a site, where the relativity of time, space, and motion are all present.” It also allows us to understand the narratives of these people through “thick description”4—fostering a dynamic understanding of the relationships among people, culture, and public space.

Through the personal narratives of our interviewees, we found that a sense of place is significant to the elderly people of these regions in several ways—such as knowledge of medicinal herbs, spiritual connections with landscape features, and abilities to situate themselves geographically in the world. Further, this sense of place was directly tied to specific cultural landscape qualities of each region. These connections between people and place may contribute to their physical and psychological health—enabling them to live longer and happier.

Two premises for further research arise from this project: 1) public landscapes in the United States should be rethought and redesigned to cultivate a culture of wellbeing from infancy through old age, in order to reduce the impacts of chronic disease that will face future generations and 2) a strong connection to a cultural landscape can catalyze both the communal ties and personal spatial practices, habits, and rituals that foster increased mental and physical health. Landscape architecture should be used to transform current vernacular landscapes into public spaces designed for this objective. This will require innovative interventions that work with, and are not trumped by, patterns of increased transience and globalization in our society.

Disproportionate Conditions of Natural and Built Environments on Children's Active Travel to School

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Keywords: active travel to school, environmental inequalities, parents' perceptions of safety and thermal comfort

Active travel to school (ATS), on foot or by bicycle, has been considered a healthy source of daily exercise for school-aged children. Previous studies have found that a child's ATS behavior is associated with built environments [1-3], while little empirical evidence is available when it comes to the roles of natural environments on a child's ATS. Further, whether environmental conditions vary by income status and how parents concerns on their children's ATS are affected by the built and natural environments have not been fully examined.

The main research questions for this study include the following:
(1) Do the disproportionate environmental risks associated with a child's ATS exist by different income status?
(2) And thereby, do parents living in undesirable environmental conditions have higher concerns of safety and thermal comfort about their children's ATS?

The study area includes the Austin Independent School District (AISD) and covers most of the land area within the city of Austin, Texas. Selected for this study were 20 out of 81 elementary schools in AISD. This study uses survey items answered by 4,207 parents of children from the twenty schools, in 2010, about the safety and thermal comfort concerns about their children's ATS. The objectively measured built and natural environmental variables were captured in Geographic Information System (GIS) and Environment for Visualizing Images (ENVI) within a quarter and a half mile of the respondents' home buffer.

T-tests and chi-square tests showed that low income children faced more hostile built and natural environmental conditions around their homes than did high income children. Ordinal logistic regression models showed the associations between the built and natural environments and parents' safety and thermal comfort concerns about their children's ATS. Built environment variables associated with parental safety concerns included crime (+), crash (+), traffic speed (+), sidewalks (−), playgrounds (−), street intersections (−), and highways (−). Natural environment variables associated with parental thermal comfort concerns on their children's ATS included urbanized coverage (+), surface temperature (+), tree canopy (−), grass coverage (−), normalized vegetation index (−), presence of park (−), and tree height (−).

Findings from this study showed that the built and natural environment inequalities existed by income status, and parents' concerns of safety and thermal comfort on children's ATS were higher if neighborhood environmental conditions were unfavorable. This study proposes proper environmental interventions for minority or low income children to promote their safe and pleasant walking to school.

Effect of Fountains on Piazza Usage

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Keywords: Fountains, Piazza, Usage

Fountains are an important design element in public spaces because they are believed to increase usage in spaces and act as magnets, drawing people into the space. This research studies whether the presence of a fountain in a plaza increases the number of users in the space and affects their staying times in plazas.

This study was conducted through field studies comprising of direct observation of people's movement patterns in four piazzas in Orvieto, Italy. The piazzas were divided into two groups based on their size. Each group comprised of two piazzas - one with fountain and one without. Field studies were conducted four days a week for four weeks from 5:00 pm to 5:30 pm to avoid the afternoon Italian Siesta. Notes on the number of users and mappings of usage patterns were used to analyze the findings. Through the studies one can conclude that the presence of a fountain changes how people use piazzas in some specific cases. In piazzas lacking a fountain, circulation was primarily from point-to-point. People did not vary much from their chosen path. In piazzas with a fountain, there was more variation in how people crossed the site. Some people would move out of their way to walk by the fountain.

Fountains also influenced where activity occurred. In the piazzas without fountains, activity was primarily located on the edges of the space. In the piazzas with fountains, activity was more dispersed throughout the space. One notable observation was that the availability of seating around one fountain proved more of an attraction for participation than the fountain itself. In addition, both fountains did increase how long people lingered.

In the piazzas without fountains, the number of people lingering in the space decreased while in the piazzas with fountains there was a slight increase as the weather warmed up. It is possible that as the weather becomes warmer, more people linger in spaces with a fountain as opposed to those without. Thus, if a designer wishes to increase lingering times in an urban plaza, the presence of a fountain plays an important role. This study also reveals that the design of a fountain, such as integrated seating, is an important aspect to consider. In the piazzas studied fountains have a direct effect on how people utilize public piazzas in Italy, as it affects both the time people spend in plazas and the spatial distribution of activities.

Examining the Relationship between Access to Tree Canopy Cover and High School Student Performance

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Keywords: high school, tree canopy cover, academic performance, remote sensing

Purpose: The goal of our study is to examine high school's accessibility to tree canopy cover at multiple geographic scales, and its influence on the school's academic records. Our hypothesis is that as the accessibility increases, student performance enhances after controlling for demographics, socio-economic factors and teacher credential factors. Also, we further examines the scale that is most influential in terms of the effect on students' performance.

Background: High school students nowadays face increasingly demanding course work, various extracurricular activities and fierce competition in college application process, which result in high levels of school-related stress. The consequences of aggravated stress and mental fatigue include not only poor academic achievements, but also emotional distress, decreased behavioral skills, and physical health issues. There is mounting evidence suggesting direct or indirect exposure to trees and vegetation help reduce stress and mental fatigue across demographic groups. Despite the wide recognition of the effect of green space on mental and cognitive health of children and teenagers, the extent to which tree canopy cover in multiple scales around high school exert influences on school-level academic performance remains unclear.

Methods: To achieve the research goal, we selected 114 public high schools located in 24 counties in Illinois State. Lidar remote sensing, which has proved to be high in accuracy for tree canopy classification, was used. The tree canopy cover of each school campus and within 400m, 800m, and 1600m buffer area of the schools were identified from Lidar derivatives using a threshold classification approach. Total area within circular and network buffers and percentage of tree canopy coverage were calculated using ArcGIS. Schools' academic records including standard PSAE score, college readiness index, graduation rate and drop-out rate were retrieved from eReport Card Public Site of Illinois State Board of Education. Ordinary linear regression and spatial regression were tested to see how percentage of tree canopy cover influence the academic records.

Result and importance: The results show that tree canopy cover has a significant influence on students' PSAE score and college readiness index ($p<0.05$) after controlling for the other factor at certain scales. This result suggests that the immediate school campus landscape and its surroundings greatly impact student performance. The finding provides valuable information for educators, policy makers and concerned students and parents toward policy and design guidelines to provide healthy and productive education environment.

Exploring Collective Efficacy through Participatory Landscape Design with Urban Minority Teens

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Keywords: Participatory design, collective efficacy, minority youth

For landscape designers interested the regeneration of urban landscapes, participatory design is a helpful tool for understanding local community needs and empowering those who will sustain the landscape when the design process is completed. To gain insight into how this might happen, one can assess the presence of collective efficacy, which describes social cohesion among neighbors combined with their willingness to intervene on behalf of the common good (Bandura, 2000). For communities stressed by environmental, social and economic inequities (environmental justice communities), assessment of collective efficacy for landscape stewardship offers an approach to understand capacity of such communities to improve the physical landscape of their neighborhoods (Ohmer, 2006). This study captures the topic from the perspective of minority teens living in a post-industrial Midwestern city. It examines the nature of their collective efficacy relative to landscape regeneration and provides insight into their relationship to open green space.

During a participatory landscape design project, 9th grade students were asked to look at photographic images of outdoor environments in or near their community. Students choose sites most and least desirable for teen activity and asked to elaborate on their choices. They were also asked how they would improve the least desirable places, and about their sense of personal and collective efficacy for making those changes. Using grounded theory themes, answers were grouped and coded. Students' main responses described how they might function in or act upon a particular outdoor space; themes of physical comfort, functionality, and safety emerged. Accessibility to open space can support healthy social dynamics among teens (Owens, 2002). Therefore, student perceptions of key themes were distinguished by two viewpoints: how they would function in these places with other people and how the physical state of these places might reflect how others might perceive them.

The complexity of urban regeneration requires collaboration among designers and users to achieve sustainability of place because a willingness to use and become stewards of restored landscapes is pivotal to sustainability. The ultimate sustainability of a design is strengthened using research that identifies the concerns and desires of people who will use the space. Collaboration with youth on the re-design, installation and management plans for urban schoolyards offers youth a process that fosters stewardship and a positive sense of place. Beyond viewing students as collaborators, this research further highlights the importance of fostering collective efficacy in teens who can be future activists for landscape change.

Fracture, Gather and Generate: Signifying Value and Risk in the Fractured Landscapes of North Dakota

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Keywords: hydraulic fracturing, intrinsic value, land art, design activism, regenerative design, North Dakota, fossil fuels

This study identifies elements of intrinsic value in western North Dakota that are at risk of extinction due to extreme fossil fuel extraction and waste disposal associated with hydraulic fracturing. This study identifies visible and invisible consequences of choosing extreme extraction and asks what North Dakotans are willing to sacrifice of their community and environmental resources for monetary gain.

The study proposes that landscape architects may expand beyond previously relegated roles as decorators or reactionary reclamationists and contribute as pro-active catalysts bridging science, art and emotion to heighten public awareness, generating dialogue and conscious decision-making before irreversible devastation occurs. The communication tools employed by landscape architects may expand beyond traditional, site-scale drawings to include eco-regional and watershed scale film, regenerative land art insertions of “dangerous beauty” and unconventional educational exhibits to frame intrinsic valuables in a new way, asserting the significance of landscape as territory where people, behavior, choices, consequences and natural resources intersect becoming a place of critical opportunity.

In spite of a regional history of fossil fuel extraction, the intensity with which hydraulic fracturing has been occurring since 2008 in Western North Dakota is now fracturing human and non-human communities towards irreversible damage. North Dakota culture and ecology revered by locals and tourists and required for human and non-human life is being radically altered for the sake of economic prosperity and supposed domestic energy independence. Valuing such prosperity is based on speculative short-term economic gain over the coming 30 to 40 years. For many North Dakotans, benefits associated with the oil boom such as high-paying jobs, royalty payments and exponential growth are irresistible; oil money promises security, comfort – even luxury – for many who have subsisted as an agricultural working class.

Although this study does not unrealistically propose a cessation of extracting and consuming fossil fuels, it does propose a need for heightened awareness about the severity of what is at risk in North Dakota, particularly occurring on or invisibly under public lands.

The study was conducted via multiple visits to industrial, rural, urban, wildlife refuge, state and national park sites within western North Dakota over a five-year period. Interviews, film footage, primary and secondary source data identify intrinsic valuables being sacrificed. Reports by the North Dakota Game and Fish and Parks and Recreation Departments provide the ecological and cultural framework for the proposed activist, regenerative, educational insertions on public land along the proposed 1,051-mile “Gathering Route”.

Fragmented Water: Political Fragmentation in Local Governance & Water Resource Management

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Keywords: Political Fragmentation, Interjurisdictional competition, Water Resource Management Measures

Given significant challenges arising due to fragmented governance, how can we effectively attain successful water resource management and thus promote public health and welfare? Political fragmentation in local governance is often seen as a favorable institutional condition that can induce constructive inter-jurisdictional competition, promoting fiscal efficiency, welfare gains, and economic growth. Fragmented governance can, however, prevent us from managing environmental consequences. In other words, inter-jurisdictional competition may be destructive, indicating the possibilities of failures of resource management and environmental planning practices due to a lack of systematic cooperation in fragmented institutional settings.

A multi-disciplinary study empirically examined if political fragmentation in local governance is a significant barrier to successful water resource management. Our work quantified the degree of political fragmentation at multiple geographical scales – 1) site-level: 12-digit watersheds (HUC 12s) and 2) regional: metropolitan statistical areas or equivalent regions – and analyzed how water resource management outcomes vary with the level of political fragmentation, using a nation-wide land cover database and stream gauge data. Initial nation-wide findings suggested a relationship between level of political fragmentation and water quality as measured by TSS (Total Suspended Solids). As TSS can be influenced by many factors other than urbanization we next examined matched pairs of watersheds within the same eco-region seeking to minimize TSS variables. Our matched pairs of watersheds had one high in fragmentation and one low. It was also at this stage of the research that we conducted a flow (discharge) analysis of the 1.5 year recurrence flow (Q1.5) and how such discharge has been affected by urban development in the matched watersheds.

Regression analysis suggests that political fragmentation does matter. Level of fragmentation at the site-level (HUC 12) and at the regional level showed statistically significant impacts on TSS, which can be interpreted as a negative influence of fragmented governance on water resource management outcomes. Further analysis of matched pairs of watersheds showed increases of the Q1.5 and TSS in 80-89% and 47-56%, respectively, of all sites assessed (469 HUC 12 basins). Our findings thus far suggest that political fragmentation can present significant challenges to effective water resource management. This presentation will discuss the research design of this NSF CNH-Ex. funded project; elaborate the findings; and conclude with recommendations for improved water resource management in multi-jurisdictional urban watersheds.

From Past to Present - The Change of Urban Waterway Landscape Planning and Design in Northern China

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Keywords: Urban water system, landscape planning, Chinese urbanization

This paper focuses on Chinese urbanization and urban flood prevention, and riparian landscape planning. Within the last 30 years, half of China's 1.3 billion people became urban inhabitants; there are some costs associated with this rapid urbanization. Today, Beijing's population has tripled from 8 million in 1979 to 24 million in 2009. Beijing has experienced unprecedented economic prosperity, but environmental problems such as flooding have also increased. For example, Beijing from 2009 to 2012 experienced several torrential downpours, and because of inadequate infrastructure capacity, the city had extensive flooding. However, scholars agree that this was not a failure strictly due to infrastructure capacity, but it was also related to problems in planning theory and insufficient knowledge about climate change. The lack of scientific principles in urban construction during the 1980s led to Qian Xuesen to put forth "shan-shui city" theory in the early 1990s. He further requested that the government learn from this theory derived from the wisdom of ancient Chinese cities and imperial gardens, which retain a balance of aesthetics and scientific principles to maintain a holistic relationship with nature. Unfortunately, these ideas were not incorporated and rapid, piecemeal construction ensued sowing undesirable elements in city design practices.

On this basis, the writers organized a survey of Beijing's river system in 2013, in order to find the cause of conflict between the urban environment and the water system. The analysis of the survey includes a brief introduction about the 800 year evolution of the river system (since Beijing became the capital). The general study includes four main parts - the function change of the river system, the change of the river landscape, the study of old Beijing's flood prevention methods, and the reason of flooding in present-day Beijing. One fact, we learned from the survey, is that the Forbidden City has had no flooding for the last 560 years and also had no problems in the July 21, 2012 flooding calamity. Additionally, we learned that there was nearly 20 years of drought from 1980 to 2000, and that some construction areas paid little attention to flood prevention, which resulted in widespread problems due to climate change and heat island effect. The study of Beijing's urban water system and its relation to urban flooding has benefited our practice and allowed us to influence a new style of planning in some northern cities' water systems.

Grounding Diaspora: Negotiating between Home and Host

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Keywords: diaspora, ritual, multiculturalism, public space, Queens (New York)

The word “diaspora” implies a scattering, a displaced migration from homeland to varied host nations. It is a dynamic social formation – a process of settlement and tenuous sense of belonging based on the negotiation between the collective memory of home and adaptations to host. Geopolitical repartitioning, patterns of warfare and oppression, restructuring of the global economy and widening disparities in wealth distribution has stimulated this diasporic process. These demographic restructurings have forced us to reconsider concepts of democracy, justice, citizenship, and multiculturalism in urban and public space design. Though a global phenomenon, the local impact (1) creates challenging socio-spatial dynamics that require working through the fears and contestations that difference generates, (2) poses questions about who has a right to the city, and (3) enriches public life through the ongoing process of negotiation required to live together. In its most local form, these shifting patterns of settlement transform spaces of the city through the varied and overlapping inscriptions of new and adapted rituals.

Using a Landscape Architecture studio conducted at the University of Toronto as the experimental means through which to investigate these dynamic social phenomena and their implications for design, the paper focuses on both final proposals for the case study site and the methodology used to generate them.

Site: Students were asked to design a public space infrastructure for communities that abut JFK airport and stretch north from Jamaica Bay in Queens, NY. A palpable conflict between Gateway National Recreation Area park rangers and Guyanese Hindus from this area inspired site selection. As a substitute for the Ganges River, these citizens deposit ritual offerings in Jamaica Bay, while rangers argue the practice is causing harm to the bay’s fragile ecosystem. Students explored how such conflict might be reframed to enrich the complexity of public life in the city as grounds for negotiation and exchange.

Methodology: Because of the temporal quality of the inextricable natural and cultural dynamics under investigation – migrations, ecologies, rituals and everyday rhythms – students were asked to innovate and test various time-based representational techniques that revealed previously unforeseen relationships. These new site readings were then used as revelatory agents for their physical design proposals. As partners of foreground design agency, this methodology provides the framework for all our projects. The paper will culminate in an example of how we deployed this method of working to generate a proposal for the same area.

How Can Social Participation Process Shape and Foster Unique Landscape and a Sense of Ownership?

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Keywords: Social Participation, Branded Environment, Social Sustainability & Communities Rebuilding

The term social participation is in association with various different categories of usage. When it associates with the sense of belonging and ownership it starts to give the feeling that the process will end up in homogeneity; for that reason this paper is addressing as well the uniqueness of the place through branding its environment. This study is applicable from the scale of a residential community to a city.

Strong community participation contributes to enrich the outdoor environment and makes it belong to residents to keep it dynamically developing in a way makes the community more beneficial to them; as through participation, the social aspect of the life will be improved.

The paper discussed the principles of the environmental design that encourage participation, gave a clear idea about spaces that give the opportunity to users to interact with them and incorporates their touches without affecting the urban envelope.

On the other hand, paper discussed how to manage the participation process to conclude results; that includes the selection of the participants, empowering them and analyzing their input. It aims to keep communities rebuilding constantly through the participation in creating activities to sustain itself.

Figure 1 shows that achieving a unique socially sustainable environment may go into different directions, branched from the branding and the social participation, the positive side for branding is the uniqueness while the negative side is creating a great destination but unlivable, on the other hand the positive side of participation is the sense of belonging while the negative side is homogeneity. The paper aims to achieve the balance between the two pans.

It is concluded that branding synergizes the participation by which the environment will be maintained unique through a dynamic cycle. Also planning and execution with incremental process is a successful aspect to ensure participation.

Identity through Food: Food Sensitive Planning in the Municipality of Ridderkerk, The Netherlands.

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Keywords: food-sensitive planning, identity, food system

Regions located at the edge of urban areas struggle with their identity as they are in between the urban and rural landscape. Identity can be seen as the connection between people, place and time. As a result of globalization, the attention for local decreased. Furthermore, freedom of choice and individualization of society resulted in a decrease in traditions and social structures. When we consider the food system, globalization and specialization of supply chains have resulted in a loss of sense of belonging and identification with the region and food. The globalization of the food system contributes to the loss of identity; the disconnection of people, place and time. Recently, cities started to develop urban food strategies in order to reconnect people and food. These food strategies enable active involvement of cities, and specifically spatial planning and design. However, only a very limited number of articles and policy documents have tried to provide guidance on how to integrate food into science and practice of planning and design. Therefore, the following research question is formulated: What steps to adopt 'food-sensitive planning' on the local level can be defined?

To explore steps in food planning an analysis of food strategies of cities of London, Amsterdam and Malmö (Sweden) is carried out. The food strategies were studied for their characteristics (goals, target group and approach) and their integration in other local policies. The municipality of Ridderkerk formed a case study to analyze identity related challenges and food policy solutions.

A synthesis of the food strategies provided a five step plan to integrate food sensitive planning in existing plans and address environmental, social, economic and spatial challenges connected to food. Examples are local identity, access to public space, employment, and urban connectivity. Addressing these issues through planning and design on the local level encourages the re-connection of people and their environment. The research considers a food lens useful to find integral solutions and provide identity through food.

Implementing Traditional and Modern Potentials in Participatory Urban Landscape Design in Iran

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Keywords: Participatory design, community participation, urban landscape, democracy, native participation mechanisms, virtual environment, native landscape narratives, Iran

This paper provides a hypothetical framework for community participation in shaping urban landscape in Semnan, Iran. In current Iranian Society, amid multiple political and cultural obstacles for social participation, there are still two main potentials that provide opportunities for refining it: digital social networks and lasting old traditions in social participation. This framework takes advantage of both traditional indigenous mechanisms associated with shaping urban landscape and modern methods of participation in design that can be experienced in physical and especially virtual space.

The presented framework consists of three parts. The first part draws an outline for shaping urban landscape in Semnan and provides the participants with clues for sustainable design; this is achieved through analysis of public open spaces, urban farms and gardens and the traditional water division system. In the second part primary objectives and principles for participation are defined based on ecological concerns, reaching democratic values and practical aspects of projects and events. The third part is designing a structure for participation. Presented in a concept model, it identifies issues including spectrum of participants, their relationships, subject and means of participation and ratio between participation in virtual and physical environment. This structure is defined through two sources. First, the traditional mechanisms of participation in city's water management system, indigenous games and the Muharram ritual. Documenting roles and relationship between people and with urban context in a diagram provides a setting to this part. The second source is the analysis based on modern methods that concentrate on participation in real and/or virtual environment (design texts and HCI studies are indicated in references). These analyses are used to acquire adequate means and methods to design participation structure under the mentioned circumstances.

Initial feedbacks to this framework, received through questionnaires and early events, have revealed potentials for achieving the objectives in future. But there are also several problems which can be included in the concept model. Importance of the subject would be more explicit, considering the dominant top-bottom processes in contemporary design in Iran and lack of social participation. This research provides a plan for reading traditional mechanisms of participation and their relation to urban physical context in Iran and translating them into an internet-based model for participation in landscape design. Such findings yield opportunities in all circumstances to utilize local knowledge and memories in design process and also in dialogue, choice and participation as an experiment for democracy.

Interrelating the Factors Affecting Mental Wellbeing: Proximity to Green Spaces, Neighborhood Satisfaction, and Use Pattern

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Keywords: nearby nature, proximity, neighborhood satisfaction, mental well-being, use patterns

Living in large crowded urban areas often intensifies demands for directed attention, which over time results in mental fatigue and loss of effective functioning. Research in environmental psychology and public health has yielded valuable findings demonstrating that certain urban settings, particularly those that offer some experience of nature, promote mental well-being (Kaplan and Kaplan, 1989). However, the mere presence of nature seems to be insufficient. Even if green spaces are in close proximity to residents' home, they may not have the hypothesized impact on mental well-being if residents do not perceive the spaces as accessible, fail to use them, or have low satisfaction with their neighborhood. The goal of this study is to explore the impact of nearby green spaces on urban residents' mental well-being in terms of proximity to home, degree of neighborhood satisfaction, and the way nearby green spaces are used.

The study was conducted in a residential area in Chicago covering portions of four community areas: Logan Square, Avondale, Humboldt Park and West Town. A random sample of 350 residents participated in a survey, in which they were asked questions based on a five-point rating scale about their perception of green space availability, the amount and quality of green spaces, their general neighborhood satisfaction, frequency of use of outdoor spaces, and the type of activities done in such spaces. The mental well-being section of the survey included questions from the Attentional Functioning Index (AFI) (Cimprich et al. 2011), Positive & Negative Affect Scale (PANAS) (Watson et al. 1988), and Social Connectedness Scale (Lee and Robbins 1995). The results demonstrate that the participants, who perceive closer proximity to green spaces, generally use their outdoor spaces more frequently, have a higher level of satisfaction with their neighborhood, and a greater degree of mental well-being.

Little attention has been paid to the negative health outcomes arising from cityscapes that fail to support people's needs for restoration from mental fatigue. The negative effects of mental fatigue may include inability to focus in the face of distraction, unwillingness to learn new things, inability to pursue purposes, and reduced problem-solving capacities. Such consequences highlight the necessity of improving effective functioning through planning and design of green spaces that are closer to residents' homes, and meet their needs in ways that encourage them to use the spaces more frequently.

Landscapes of Madness / Landscapes of Compassion

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Keywords: Therapeutic gardens, health, mental illness, design/build, participatory design

The World Health Organization (WHO) defines mental health as a 'state of well-being in which every individual realizes their own potential, can cope with the normal stresses of life, work productively and fruitfully, and is able to make a contribution to her or his community'. WHO organization estimates that globally "one in four people will be affected by mental or neurological disorders at some point in their lives," and that the number of people suffering from mental health problems is expected to increase 15% by the year 2020. For many patients, their sense of hope is eroded by the illness, institutionalization and multiple medications. Miller (1992) views hope as important component of therapy as "hope is an anticipation of a future which is based upon mutuality, a sense of personal competence, coping ability, psychological well-being, purpose and meaning in life." Encouraging patients to participate in collaborative activities, exercise, physical, occupational and art therapies are several interventions that when conducted in natural environments stimulate hope and are therapeutic.

Many design students are unaware of both the pervasive and erosive effects of mental illness and the role of landscape architecture in creating therapeutic gardens for the mentally ill. This case study presents service learning design/build studios conducted from 2012-2013 in the Psihijatrijska Bolnica Rab, Croatia where students were asked to cross multiple boundaries, and create a garden for the mentally ill. Student's perceptions of "normalcy" were challenged and they collaborated with Eastern European students who view and study landscape architecture from a different perspective. Together the link the goals of the therapists with the garden design's potential for interactions with nature.

This muti-pronged collaboration with their Croatian peers and with the patients added a complexity, that once successfully navigated produced multiple benefits. For the patients the process of building and using the gardens had significant, positive effects on their coping abilities, engagement and hope for the futures. The collaboration between patient and patient, and patient and student opened up new possibilities for both therapy and learning through building. The patients who tend the gardens express heightened interest in working and being in the gardens. The students developed a greater awareness about mental illness. They understand how therapeutic environments can effectively increase the patients well-being and how the participatory design process results in responsive and empathetic designs.

Layers of Purpose / Layers of Support: Results from the 2012 National Community Garden Survey

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Keywords: community garden, urban agriculture

The appeal of community gardening to address multiple needs – food, recreation, open space, social engagement – has led to their inclusion in plans for sustainable communities, yet what is really known about community gardening as a practice? Before claiming outcomes, it is important to understand why people become and stay involved and what is necessary to sustain such efforts. A 2012 survey of community garden organizations, conducted by Rutgers University and the American Community Gardening Association (ACGA), collected information from 445 organizations covering 50 U.S. states and 8 Canadian provinces and representing over 9000 gardens. The purpose of this presentation is to report findings and to discuss implications for planning and design.

Until recently, scholarly discourse on community gardening focused largely on grassroots initiatives to claim community open space, though more recently some scholars debate whether these efforts represent stopgap solutions to facilitate neoliberal policies or 'rights to the city.' (Allen 1999, Frances et al. 1984, Linn 2004, Lawson 2005). With increased concern about local food insecurity and shrinking cities, designers and planners produce visionary proposals to transform vacant lots into productive gardens and farms (Viljoen 2005, Gorgolewski et al. 2011). Descriptive case studies, photographic essays, and citywide analyses support the capacity to address psychological restoration, social engagement, cultural expression, and economic opportunity (Armstrong 2000, Hynes 1996, Hou et al. 2009). Previous national data – collected in 1992 and 1998 – are now outdated.

This presentation summarizes data from a 2012 web-based survey sent to members of the ACGA and other gardening organizations. While not a census of all gardening activities, the large sample size provides a wealth of data that illustrate common trends and reveals differences according to organizational size and location. Analysis includes comparisons to past survey results, GIS analysis, and cross-tabulation. Key issues include participation patterns, organization types, land tenure, programming, benefits, and challenges. Findings show that interest has increased in the last 5 years in urban neighborhoods, suburbs, small towns, and rural communities. Community gardeners face many challenges not commonly documented in scholarly literature; for example, access to basic resources and funding for staff and programs are more pressing and regular issues than access to land. Findings reinforce the understanding of community gardens as equally grounded in people and place, and that their sustainability requires attention to both interpersonal and social needs as well as the pragmatic needs associated with gardening and open space.

Layers: Food, Community, and Design

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Keywords: urban agriculture, community building, food desert, artscape, health and environmental regulation, education

Urban agriculture can be described as a public or private industry that produces, processes, and distributes food within an urban center or city (Gorgolewski et al., 2011). Besides the initial purpose of food production, urban agriculture can play an important role in contributing at varying scales to the food security, social connections, and cultural sustainability of communities. These multifunctional landscapes can be used as design solutions for challenges posed by urban development. Landscape architecture has progressed to a point where its ability to encompass art, ecology, technology, and culture can be used efficiently to tackle the complex challenges of contemporary urbanism (Werthmann, 2011). Landscape architects can help facilitate the development of urban agriculture as: (1) a solution to urban food deficits; and (2) an opportunity to create interactive public spaces that can contribute to community identity and growth.

The University of Maryland panel will be presenting under the "People-Environment Relationships" track, with the sub-theme of "Layers: Food, Community, & Design". The panel will be composed of four graduate landscape architecture students from the University of Maryland, College Park and one law student from the University of Maryland, Baltimore. The presentations will follow a “need”, “design solution”, “execution” structure as the panel discusses the ways in which urban agriculture can be an outlet for design while serving as a medium for community engagement and growth. Panelists will present research on urban agriculture as an approach to designing public spaces that offer multiple opportunities.

Elisabeth Walker will present the role of urban agriculture in forming community identity; Amina Mohamed will discuss solutions to food accessibility deficits; Adriana Mendoza will explore urban agriculture as a medium for artscapes; Amy Marin will describe urban agriculture as an educational tool in public schools; and Cody Samet-Shaw will address legal questions associated with the execution of urban agricultural designs.

Nanjing Urban Wetland Landscape Pattern Evolution Research Based on GIS

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Keywords: urban wetland system, Nanjing, urbanization, strategies

Nanjing, as the capital for dynasties in ancient times, is rich in natural and cultural resources. Watercourse, branch stream, lakes and ponds from the unique water forms in Nanjing, carry the message of thousand-year human habitation at the Nanjing Wetland. The unique city spatial pattern with the natural landscape created a co-habitation between humans and nature. In the process of urbanization, various projects such as urban roads, high-speed rail, water and energy projects' construction have caused degradation or even the disappearance of wetland resource. The research on the single wetland could not resolve the problem between the urban development and natural resource protection, it needs to summon up a new research strategy for wetland investigation according to a history level and an overall urban frame level.

This paper will expand the research on the following points:
1.The wetland resources overall and allocation characteristics in the city from the historical perspective. The basis of the analysis is on three typical image materials——the ancient, the recent and the modern times. It sums up geological characters and allocation principles in urban space of Nanjing wetland, and the relations between other natural resources, urban green open space and central function zone in the city.

2. It engages in the research on the wetland pattern evolution trend and its relation with city development. Nanjing wetland landscape pattern evolution identifies the relation between city landscape and space structure, and it reflects a transfer of a much more harmonious method of human and nature in the urbanization process. In general, the intersection structure of various wetlands, such as river wetland, pondwet land and so on, maintains an active stability in the Nanjing central zone as the traditional historical urban form.

3. The following research framework is summed up according to the temporary "Nanjing Ecological Construction Scheme (2013-2020)".The following study will engage in the quantitative analysis in the relationship of Nanjing city wetland landscape pattern changes and city spatial structure affection (1979-2010) from the perspective of Landscape Ecology. The coupling mode of city wetland system and sustainable development of urban space is made according to the construction of city wetland spatial structure and function effective evaluation mode through Arc GIS.

People's Perception on the Values of Urban Forest and Effects on Public Health

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Keywords: urban forest, perception, socio-cultural values, public health

The value of the urban forest, in most of environmental policies, based upon economic assessment. Ecological and socio-cultural values of urban trees are underestimated and, many times, not taken into account in environmental planning and urban design. Even though people were well aware of the aesthetic values of urban green spaces and their significance in ameliorating urban blight since the 18th century City Beautiful Movement, the ultimate purpose of beautifying the city with trees and boulevards was economic advantage.

Urban forests provide intrinsic values, yet unmeasurable benefits, for urban dwellers. Olmsted believed that ‘nature scenery’ had positive effects not only on physical but also mental and moral health of people. Thus the deficiency of nature could lead to mental illness. There is research on the relationship between urban forests and human health that addressed a critical role of urban forests in enhancing human-wellbeing and improving public health. However, there is no explicit valuation assessment for urban trees based on socio-cultural values. There is a gap between the benefits of trees on human health and socio-cultural values of urban forest that could leads to the significant roles of urban trees in designing healthy cities. To examine how people perceive the values of urban forest and how they recognize the effects of urban trees on public health would be the way to create a sustainably built environment.

Place Attachment and Natural Resource Management Attitudes

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Keywords: attitude, ecoregion, place attachment

Cultural geographers have long characterized the effect of place attachment on environmental management attitudes. Some of these studies suggest attitudes are shaped by social factors, while others suggest that environmental factors explain attitudes, especially those toward natural resource conservation. These widely divergent and contrasting results merit further exploration of this topic.

Other research related to place attachment and environmental attitudes has focused on place as either “urban” or “rural,” and not the spectrum that actually exists. The Landscape Development Intensity Index (LDI index) is a land use characterization tool that helps to differentiate one place from another as it captures the differences along the rural-urban spectrum. LDI is a measure of embodied energy in a place, which characterizes land use at a high resolution and provides a scale for comparison across all land uses. LDI differentiates natural areas from managed areas that are often missed by conventional land use classifications.

This study used logistic regression to explore connections between place attachment and attitudes toward natural resource conservation based on environmental factors. Data from The National Water Survey Project was coupled with LDI Index values, population density and Level IV Ecoregions in order to foster a richer understanding of the relationship between place and environmental management attitudes. LDI explained much of the variance in natural resource attitudes, which furthers the understanding of place association and can inform policy and planning conversations when analyzing human interactions with the environment at a regional scale.

Planting the Livable City: Assessing the Research and Practice of Urban Greening for Human Health and Well-Being

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Keywords: Urban Greening, Human Health and Well-being, Urban Ecosystem Services

Municipalities in the United States and around the world are showing substantial interest in urban greening, defined here as the introduction or conservation of vegetation within the jurisdictional limit of cities. Underlying this bloom of greening activity is a belief in the salutary effects of contact with nature (Ward Thompson 2010), and an appreciation for green infrastructure (Rouse and Bunster-Ossa 2013) and ecosystem services (MEA 2005), which may promote human health and well-being (HHWB). Yet, many of the purported benefits of urban vegetation are poorly supported by empirical evidence (Pataki et al. 2011; Pataki et al. 2013), suggesting that there may be a gap between the scientific research literature and how urban greening practitioners perceive the HHWB benefits of flora in cities.

To assess this potential gap, I summarized peer-reviewed scientific literature on the HHWB benefits of urban greenery, consisting of nearly 400 citations addressing: air quality and asthma; cooling and heat related morbidity and mortality; physical activity and obesity; mental health; and social cohesion. Emphasizing direct human health outcomes and public health literature, this review shows that current research emphasizes the psychosocial benefits of nature contact. As a follow-up, I am comparing these findings with public documentation of urban tree planting programs and conducting a survey of more than 30 leaders of urban forestry organizations. This survey will ask questions that address perceptions about the HHWB benefits of vegetation in cities. While greening constitutes many types of urban design intervention using plant material, tree canopy is one of the primary metrics for assessing a city's vegetative cover (Nowak and Greenfield 2012), and trees also carry important symbolic value (Cohen 2004; Rutkow 2012).

This inquiry may have implications for the research, practice, and funding of municipal greening, which assumes heightened significance in light of pressures associated with global urbanization. For example, studies show that urban settings are associated with higher incidence of mental disease (Marcelis et al. 1998; van Os, Pedersen, and Mortensen 2004), mental illness (de Vries et al. 2003) and greater difficulty coping with stress (Lederbogen et al. 2011). Other scholars argue that humans have never spent so little time in contact with nature and the consequences of this are unknown (Katcher and Beck 1987; Pretty and Barlett 2005; Sullivan 2005). Thus, the scientific and practical bases that inform contemporary urban greening have potentially important implications for the livability of cities and HHWB in the 21st century.

Reexamining the Research on Suicide Barriers and the Lethality of Jumping Suicide

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Keywords: suicide barriers, suicide nets, fences

Communities across the country are facing a difficult question: Should they put up suicide barriers that infringe on natural and cultural views? Some experts argue barriers will save lives. Meanwhile, the most vocal opponents of suicide barriers will often argue that someone who seeks to kill themselves will always find another way.

Given that landscape architects often design overlooks, and they are becoming involved in planning and designing suicide barriers (at Cornell University and elsewhere), it is important that they understand the research on suicide barriers' effectiveness. It does not support either of these commonly held positions.

Studies have shown that making it difficult for people to obtain a previously popular means of suicide (like guns) may lead to a decline in the suicide rate. Many studies have shown that it is possible to eliminate suicides from a specific bridge or overlook by putting up a barrier. But no study has shown a decline in the overall suicide rate locally that could be attributed to a suicide barrier. The largest study of a single suicide barrier and its effects showed that when a barrier went up at North America’s second most popular suicide bridge, the Bloor Street Viaduct in Toronto, there was no change in the jumping suicide rate; more people jumped from other sites nearby.

Two Swiss studies by Reisch and Michel are commonly cited to support barriers, but they are problematic. Hidden within these studies, one will find there was no significant change in jumping suicides in Bern, Switzerland after a barrier went up on the Bern Muenster Terrace (the study's abstract actually suggests the opposite)and there was no significant difference between overall suicide rates in Swiss cantons with suicide bridges and without suicide bridges.

It is commonly held that jumping suicide is among the mostly deadly forms of suicide and any method substituted for jumping will be less effective. This is certainly true for those who actually jump. But data from the Golden Gate Bridge, analyzed by the author, show that a large percentage of those who attempt suicide by jumping are saved against their will, allowing their suicidal impulse to pass. This raises questions about what would happen to these people when a barrier goes up. It is possible that some of these people would choose a more effective suicide method, though other research suggests the increase in suicide overall caused by barriers would be insignificant.

Research Frame of Micro Climate Responsive Planning and Design Theory and Method in Urban Landscape Architecture

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Keywords: Landscape Planning and Design, Climate Responsive Design, Urban Livable Environment, Micro Climate of Landscape Architecture, Evaluation of Climate Adaptability and Suitability

With the background of global climate change and Chinese urbanization, the urban environment is deteriorating, while the demand of outdoor environmental quality has been increasing; thus landscape architecture should play an important role in this field. Based on the very fast financially supported research project by National Natural Science Foundation of China in the field of landscape architecture (No.51338007 Micro Climate Responsive Design Theory and Method of Landscape Architecture in Urban Livable Environment; project has been applied and approved from Jan 2013 through Jul 2013; research schedule is from Aug 2013 through Dec 2018), centering on the research framework of theory and method which could be applied directly to urban micro climate responsive landscape architecture planning and design, this research is quite different from traditional "environmental physics".

According to the preliminary achievement during Jan 2013 and early 2014, wind, humidity and temperature testing in systematic sites, the content of this research is: (1) figuring that the current problem of micro climate responsive landscape architecture research is that most former research focus on "environmental physics" and "evaluation" but lack of the most direct planning and design methods and patterns; (2) the key of the research is not the "environmental physics" but from three aspects of function of urban landscaping climate system (adjustment), structure of spatial element and spatial form (reconstruction), and physical and perceptional evaluation of adaptability and suitability (evaluation) as: a. with the objective view of wind, humidity, and temperature, based on the original testing methods, generating the mechanism of landscape architecture change in response to micro climate; b. finding the co-relation among climate factors and various typical landscape architectural space, topography, planting, and waterbody, generating the pattern which can be directly used in planning and design; c. providing the specific mode and actual use with evaluation based on physical perception.

Expected results: with the basic field survey of landscape architecture in various spaces, a research frame will be formed.

Importance: to be the directly application of the research, practice, and innovation of landscaping micro climate responsive planning and design.

Restorative Landscapes: More Than Beauty at Play?

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Keywords: restorative environments, stress, sacred landscapes, cultural services, ecosystem services

The study of environmental perception has shown that affective responses to scenes high in beauty are highly preferred, meaning that people like them more than less-beautiful scenes (Daniel and Boster 1976; Balling and Falk 1982). Further research has shown that time spent in preferred environments or even looking at pictures of them can have significant psychological and physiological benefits (Ulrich 1984; Hartig et al. 1997). These benefits include improving mood, reducing heart rate and blood pressure, lowering stress levels, and improving one's ability to concentrate and perform mental work (Ulrich and Simons 1986; Hartig et al. 1991; Herzog et al. 1997; van den Berg et al. 2003).

This paper is a literature review examining the body of work surrounding the restorative environment and highlighting gaps in the research where further investigation should be made. In particular, the authors posit that primary research has focused on physical and mental aspects of restoration, and has only recently begun to explore the spiritual or sacred domain. New research in this area has focused mainly on sacred architecture such as churches or monasteries (Ouellette, Kaplan, and Kaplan 2005; Herzog, et al. 2011) and not in sacred landscapes. Thus, sacred landscapes represent a potentially rich research area.

The importance of the sacred can be seen through the lens of cultural services as they relate to ecosystem services and landscape performance (Daniel et al. 2012). Sacred landscapes have high cultural value, including providing cultural heritage and identity, tourism, and shared cultural understanding (Nolan 1992; Stiebel, Gunner and Sithole 2000). Better understanding the benefits people can enjoy in sacred environments can help to provide greater political and economic will to protect them or make them more widely available and accessible. Defining "sacred" is a challenge due to wide variations in personal and cultural backgrounds. This paper therefore attempts to define the term in a context suitable for application to restorative environments, again through literature review.

Restoring the St. Louis River Estuary: Assessing Knowledge and Perceptions to Design for Environmental Stewardship in Western Duluth

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Keywords: St. Louis River Estuary, Minnesota, Wisconsin, Great Lakes, stewardship, stakeholders, wetland habitat, sediment contamination, legacy pollution, GIS, LiDAR, connectivity, sustainable, volunteer, advocacy, waterfront, education, outreach, collaboration,

In the Great Lakes region, the EPA has designated 43 sites contending with legacy pollution as Areas of Concern (Angelos et. al, 2013). The St. Louis River estuary bordering on Minnesota and Wisconsin in the Lake Superior watershed is one of these federally listed Areas of Concern. A coordinated network of federal, state, county, tribal, non-profits, academic and scientific stakeholders created an adaptive management framework in order to address beneficial use impairments, which include water quality, wetland habitat, and sediment contamination. This design project seeks to address a problem that many environmental restoration projects struggle to accomplish due to financial constraints.

These project goals include outreach and waterfront design to engage local environmental stewardship as a crucial part of addressing the EPA defined impaired habitat and legacy pollution problems. In order to motivate engagement in stewardship activities, people must develop a personal connection to their landscape and natural resources (SLRA, 2013). This can be achieved through designs enhancing this connection as well as direct recreational experiences such as kayaking on a river. This research collaborates with the City of Duluth and the non-profit citizen advocacy group, St. Louis River Alliance, to plan and design for education and outreach to foster stewardship. This study combines economic, ecologic, and social factors to address local neighborhood scale issues.

Methods include a survey of mixed-industrial waterfront designs and models for environmental interpretive centers. Focus groups were conducted of Wisconsin and Minnesota St. Louis River corridor residents and a questionnaire was administered to assess knowledge and perceptions about the river. I analyzed high resolution LiDAR, natural factors, and water land use zones in GIS. The findings were then extrapolated in order to evaluate how best to develop recreational experiences for neighborhoods adjacent to the St. Louis River. Through my methodology a series of design strategies were developed to create an elevated sense of place in the St. Louis River Corridor. This site design emphasizes connectivity of roads and recreational activities to serve as an impetus for stewardship. Collaboration between planners, scientists, designers and volunteer advocacy groups is key to sustainable and successful projects.

Running as a Means for Deep Place Readings

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Keywords: Running, cultural history, natural history, place studies, reading landscapes

This study evaluates running as a method for engaging in readings of place and landscape. In particular, running as a repeated activity over various routes through the same territory is explored. These runs provide clues to the networks and connections of places, as well as deep readings of historical layers and ecological systems. Earlier studies have evaluated reading landscape and place through other means of movement, e.g., walking (Vaughan 2009 and Wunderlich 2008), biking (Spinney 2009), and driving (Appleyard, et al. 1965). Also, the use of running to inform site design has been explored (Pollan 1997). However, running as a deliberative means of strengthening one's cognitive map and understanding place has not been thoroughly examined. This study contends that running can contribute to a unique and valuable evaluation of place and landscape that is not possible or practical with other modes of movement.

The authors draw on their own experience of running over and through familiar landscapes and places, both urban and rural. In particular, three aspects are described: ecological systems, cultural and natural history, and networks and community connections. The authors present cases of how their repeated yet varied runs through an area give rise to deep readings and understandings that were not understood previously and/or understood by non-runners. These cases are evaluated through descriptive and explanatory case reports and by comparing cognitive maps of runners and non-runners. This study introduces a practical tool and strengthens theories on reading places and landscapes.

Seasonal Plant and Vegetative Changes, Preference, Mystery, Legibility, and Complexity

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Keywords: Landscape preference, mystery, legibility, complexity, seasonality

PURPOSE: To examine whether seasonal plant and vegetative changes affect laypersons' landscape preferences and estimations of mystery, legibility, and complexity.

BACKGROUND: Rachel and Stephen Kaplan (1989) presented four concepts — coherence, complexity, legibility, and mystery — in a two-by-two matrix, which together suggest a shared preference for contemporary landscape patterns that can be easily understood and encourage exploration. The results of an examination of preference for depictions of timber harvesting and road building conducted by Benson and Ullrich (1981) implied that plant maintenance residue, snow, plant germination and growth may affect preference ratings. Following an investigation of whether the degree of enclosure depicted in an urban park in summer affected respondents' preferences, Jorgensen, Hitchmough, and Calvert (2002) suggested that visual seasonal changes in plants and vegetation may impact preference. Kuper (2013) found that the seasons depicted in color photographs taken at three different times in the year had a significant effect on experts' estimates of legibility and a non-significant effect on estimates of coherence, complexity, and mystery.

METHODS: Color digital photographs were recorded for each of four locations across four seasons at three sites in New York and Pennsylvania. Two-hundred and twenty-one laypersons viewed and evaluated 48 photographs using four separate Internet-based survey instruments: 53 participants evaluated the photographs for preference; 62 for the presence of legibility; 56 for mystery; and 50 for complexity. Separate repeated measures analyses of variance (ANOVA) were conducted on mean ratings provided by participants. Three repeated planned contrasts were performed chronologically for each criterion. Pearson's product-moment correlation coefficients were also calculated to examine possible relationships between variables.

FINDINGS: The season depicted in the photographs had a significant effect on preference ratings and estimations of mystery, legibility, and complexity. Planned contrasts showed that preference ratings and complexity estimations were significantly different between each season; mystery and legibility estimates were significantly different between summer, fall, and winter. Mean-per-scene preference ratings and mystery estimations were moderately and positively correlated, as were complexity and mystery; a moderate, negative correlation between legibility and mystery was also found.

IMPORTANCE: Landscape preference ratings and estimations of criteria were affected by season. The criterion of legibility may need intensive further examination to warrant continued use as predictor of preference in future research. To ensure more stable preference ratings and criteria estimations, practitioners may, for example, include more evergreen plants to complicate forward views (mystery) and display landscape color and texture (complexity) in winter.

Seniors' Outdoor Survey (SOS): An Observational Tool for Assessing Usable Outdoor Environments at Long-Term Care Settings for Older Adults

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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. To assess the effectiveness of outdoor activity areas within senior living facilities, the Seniors' Outdoor Survey (SOS) has been developed. This audit tool can be used 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.

While it is possible to simply count benches or measure the proportions of vegetation compared with hardscape, it is more meaningful to also evaluate qualities and overall supportiveness of the built environment. Using an approach that emphasizes "affordances" (how elements within the built environment support specific behaviors), outdoor spaces an be evaluated on their apparent capacity to support desirable usage and satisfaction on the part of elderly residents.

After testing at 150 sites in multiple regions of the U.S., the tool was revised for usability, reliability, and validity, based on survey findings from 1560 staff and aging residents. The revised constructs and items were informed by user responses regarding environmental features such as greenery, safety/comfort, activity, accessibility, and connectivity with the surrounding community. The revised tool was examined by two trained raters in 22 additional sites, in different types of senior dwellings. Interrater reliability tests found intraclass correlation coefficients (ICC) of .935 for the overall tool, and ranged from .805 to .977 for the five main constructs. Test-retest reliability was .911 for the overall tool, ranging from .756 to .985 for individual constructs.

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.

Sense of Place: From Concept to Construction

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Keywords: sense of place, conceptual development, community design, chatham village

"Sense of place" is a fundamental, yet presumptive concept within the planning and design disciplines. Many scholars have suggested that the design and planning of the built environment should capture and expand upon a sense of place (Ellis 2005). However, sense of place is a subjective concept, whose meaning has varied over the course of the last forty years. Recent empirical studies regarding sense of place contradict the contemporary derivation of the term. In addition, popular efforts to exploit the term as a marketing tool have further convoluted the concept. As a result, there is an increasing lack of clarity within the fields of design and planning, which questions whether sense of place can remain a useful concept for the professions.

This presentation will review the conceptual development of the sense of place construct and seeks to provide clarity by highlighting recent research within the context of the neighborhood of Chatham Village. Chatham Village is a historically significantly master planned community of garden city conception, and registered National Historic Landmark (Bamberg 2011). Framed as a qualitative case study, narrative interviews were conducted with seventeen residents to discover their sense of place. The inductive analysis revealed a range of social experiences harbored by an invisible and intricate weave of public to private spaces found to be consistent with Henry Wright's original intent (Wright 1930). Such results provide a renewed direction for the allied design and planning professions as they continue to embrace the sense of place construct.

Soundscape Evaluation on Mississsippi 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 (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 aspect. 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). Thus, this research examines 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 and climatic 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 sites is that each of them has different sound characteristics, such as Mitchell Memorial Library has sound of chatting and walking; Colvard Student Union has sound of vehicle; Bell Island has sound of church bell and water fountain; and Sanderson Center has sound of birds. These locations will be assessed through soundwalks (objective measurement), and questionnaires (subjective evaluation).

The research aims to determine the demographic variations related to sound perception. For the subjective evaluation, two steps will be conducted. In step one, as a pilot study soundscape walk will be conducted with small groups in four study sites. In step two, questionnaire surveys will be conducted in these sites and analyzed by SAS software in order to understand subjective evaluation. To capture the time and seasonal variations, the survey will be conducted over four seasonal periods and at different time intervals. For the objective measurement, the sound of these locations will be recorded by a sound level meter. And these recorded sounds will be analyzed for creating sound maps and graphics by sound software. The research will characterize soundscapes of different types of public open spaces in the MSU campus in order to understand the demographic variations in perceiving and evaluating the sound qualities in these areas. The results will contribute to new understandings of acoustic environment in the design process. Key words: Human perception; soundscape; public open spaces; acoustic comfort; sound preference.

Systems, Not Symptoms: Diabetes Prevention in the Syracuse Neighborhood Health Study

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Keywords: environmental health, neighborhood health, walkability, interdisciplinary, survey research

This presentation reports results from the first phase of a multidisciplinary study of the relationship between human health and the physical environment of neighborhoods. The focus is diabetes, and the research was conducted by a team of eleven researchers from four institutions in Syracuse, New York, led by the author, a landscape architecture professor. Issues of multi- and inter-disciplinary collaboration in health research will also be discussed in the presentation. Members of the research team represent the following disciplines: physiology, physical therapy, geriatrics, psychiatry, endocrinology, demography, sociology, public health, nutrition, community redevelopment, urban design, and spatial analysis/GIS.

The research is a pilot study to establish the feasibility of a detailed baseline needs assessment for diabetes prevention and community-scale intervention in underserved neighborhoods in Syracuse. With a large percentage of African American residents and a high rate of poverty, the study area is an urban neighborhood that lies immediately south of Downtown Syracuse.

The pilot study combined an assessment of health behaviors with a walkability assessment. Regarding health behaviors and perceptions, data was gathered through personal household interviews, modeled on the survey questions and approach of the National Health and Aging Trends Study (NHATS). Non-invasive health measures such as height and weight were collected. Walkability of the study area was assessed by using a modified walkability audit tool. Geospatial mapping and analysis aided integration and communication of environmental and social data collected in the interviews and audit.

The purpose of the study was to test survey techniques for investigating relationships between the structural and social characteristics of neighborhoods and the health of residents; gather detailed information about the physical conditions affecting walkability; and examine health status and behaviors, levels of physical activity, and perceptions of neighborhood walkability of residents aged 40 and older.

Study participants were randomly selected from a voter registration database, supplemented by the parcel database for households with no registered voters. A unique approach using paired teams of neighborhood residents and university students was used to conduct the surveys.

The study team plans to use the pilot study results to develop an expanded study of resident health status, neighborhood perception, and physical conditions relevant to physical activity-based diabetes prevention and treatment strategies. We would also like to use the results to inform public policies for infrastructure investments that improve the quality of the pedestrian environment in underserved neighborhoods in Syracuse.

The Association of Neighborhood Design with the Active Travel of Children

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Keywords: neighborhood design, active travel, walking, biking, children

Children's active travel (i.e., walking, bicycling) has declined substantially during the last decades. Especially for independent active travel, degrees of freedom to move around independently have diminished significantly. An increasing amount of literature examines how the built environment supports or restricts children's active travel with correlates of demographic, family, school, social and physical environment. However, few studies have examined children's everyday independent mobility beyond the school travel.

This article investigates the association between neighborhood design and children's active travel to/from school and other places. A survey of children's travel in neighborhoods was conducted with 4-5th grades, 367 children in two elementary schools in Chapel Hill, NC. One of the schools is located in conventional suburban neighborhood and the other is in new urbanist neighborhood. Children took part in a group administered survey at the schools with the lead of teachers. The questionnaire items of travel behaviors were developed from Safe Route to School survey. Built environment variables such as distance to school, children's population density, mixed land use, road density, intersection density and sidewalk density were measured within 1/4 mile buffer of each participant's home in ArcGIS.

For neighborhood level analysis, t-test was performed to examine the differences of travel behavior between neighborhoods. The result indicated that there are significant differences in days of walking and biking to/from school between neighborhoods. Children in the new urbanist neighborhood walk or bike to/ from school at least two times or more than those in the conventional neighborhood. For individual level analysis, general linear models were created to look at the significant built environment predictors. Consistent with previous research findings, distance was consistently associated with active school travel, and intersection and street density were significant with some outcome variables. Though intersection density contributes to connectivity it sometimes negatively associated with walking/ biking, which may be involved with traffic hazard for children. The findings broaden our understanding of the open space features that may influence social interaction and perceived social cohesion among children.

The Campus Community Experiment: Flexible and Speculative Landscapes for Research, Learning and Outreach

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Keywords: campus design, community outreach, learning landscapes

The principles guiding the development and improvement of campus landscapes over the last three decades recommend sustainable principles and best management practices as part of a long term vision for a purposeful and growing university. These guides for stormwater management, planting of native plant communities and the use of more efficient and recycled materials (Posner and Stuart, 2013) are part of traditional campus master plans. These master plans document existing concerns, project future expectations and envision the university campus as the programmatic development of indoor and outdoor spaces, much like a town or city (Dober, 2000). Not all campus master plans detail their landscape vision, leading some to develop separate initiatives for sustainability and landscape management, divorced from the master plan and at times from other landscape proposals.

This paper will discuss an alternative view of campus landscapes that can bridge the gap between large programmatic campus planning and disparate landscape initiatives; specifically how campus open space can address student, research, maintenance and community needs. This approach views the campus landscape as a flexible and experimental space. Following the concept that supported the creation of the State University Experiment Station and Cooperative Extension system (the advancement and diffusion of knowledge to the community at large) (Rasmussen, 1989) the authors propose that open space at a university campus can serve as space that demonstrates ecologic systems and communities; experiments with construction materials, water, plants and soil; and finally, serves as a place for the exchange of social, artistic and scientific information between the university and neighboring residents (Lopez, 2013).

Collaborative and multidisciplinary initiatives underway at Rutgers University, including Biomaker fabrication labs, hands-on construction of green infrastructure by high school students and research on concrete's capacity to store carbon, are forming the foundation for a new way to envision campus space. This paper will discuss design, research, studio work, curriculum improvements and community outreach used to embed research and design into the physical form of the campus. This initiative is being led by the department of Landscape Architecture in association with the School of Environmental and Biological Sciences and Campus Planning and Facilities.

The Gardens and the City: From Marginalization to Integration of Community Gardens into the Urban Parks System

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Keywords: community gardens, urban parks, temporary use, P-Patch, Seattle

Community gardens have long been a marginalized land use in American urban landscapes. Historically, urban gardens have been created during wartime and recessions, with support subsiding when they were no longer deemed necessary. Despite their recent popularity, community gardens are often viewed as a temporary use of vacant land (Francis, 1987; McNair, 2002; Lawson, 2004, 2005; Nordahl, 2009). As such, they are often subject to relocation, if not demolition, when lands are developed. In New York City, for instance, more than one hundred community gardens sites were almost sold off to developers by the City in 1999. In Los Angeles, after a long battle between civic activists and the City, the 14-acre South Central Farm was demolished in 2006 to make way for private development. Even in Seattle, where community gardening enjoys wide support from communities and the city government through its renowned P-Patch Program, community gardens were still considered as interim use of land within the city's parks system as recently as 2000. It was not until more recently that community gardens began to be considered as a fixture on parks property and as a legitimate use of park spaces. The experience in Seattle reflects a wider movement in North America. According to the Trust of Public Land's 2008 survey of the parks systems of the seventy-seven largest cities in the U.S., 682 gardens are specifically owned by park departments and located on parkland (Harnik, 2010). As a leader in community gardening movement in the United States, this paper uses the recent experience in Seattle as a case study on the integration of community gardens into the urban park system. Based on interviews with Parks and P-Patch Program staff and community garden leaders in the city, the paper examines why and how such transformation took place and identifies the continued issues and challenges for integration. Specifically, it identifies diminishing resources for park maintenance and increasing demand from community users as two primary drivers for the acceptance of community gardens as a regular feature and a program element of recent park projects. It also identifies the negotiation with other uses of park space as a main challenge for successful integration. Using examples of recent projects, the paper further examines how such conflicts have been addressed through both design and garden management.

The Image of the Water City: Designing for Universal Place Attachment with Water-Coherent Urbanism

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Keywords: mental mapping, imageability, universal place attachment, place identity, wayfinding, wellbeing

Water-coherent urbanism synthesizes water retention with urban design for climate change mitigation and adaptation. This approach could potentially induce water-based universal place attachment, for cities with diverse residents and tourists. In addition to semi-structured interviews with questions for water-based emotional bonding (Scannell and Gifford, 2010), place dependence (Gibbons & Ruddell, 1995), and comfort from stress relief (Scannell and Gifford, 2010), this study incorporates mental mapping (Lynch, 1960) and photovoice (Duff, 2010) to capture water-based familiarity (Brown & Perkins, 1992) and place identity (Proshansky & Fabian, 1987). 53 residents and tourists from 21 countries are conveniently sampled from city halls, airports, transit stations, hostels, and ethnic stores in Berlin, Hamburg, Ghent, Bruges, Rotterdam, Amsterdam, Almere, and Giethoorn. Regression analysis indicates water-based place identity (β =.402, $t(49)=3.445$, $p=.001$) and place dependence (β =.38, $t(49)=3.257$, $p=.002$) account for a significant portion of water-based emotional bonding ($R2$ =.408, $F(3, 49)=11.273$, $p=.000$), regardless of length of stay (β =-.014, $t(49)$ =-.129, $p=.898$). Multiple Mediation Analysis (Preacher and Hayes, 2008) substantiates water-based place attachment as a tripartite concept (Scannell and Gifford, 2010) of emotional bonding, place identity and place dependence, and a similar notion to interpersonal attachment, based on familiarity and comfort (Scannell and Gifford, 2013).

The Impact of Rural Community Environments on the Health-Related Behaviors of Individuals with Disabilities

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Keywords: disability, health, rural

Participation in health-related behavior, such as physical activity, is affected by the form and quality of the built environment. These built environment factors disproportionally affect individuals with disabilities in comparison to the general population, resulting in fewer opportunities to engage in health-related activities, which may contribute to an increased risk for sedentary behavior and the associated disparities which persist in nearly every aspect of health among individuals with disabilities. For the general population, there are significant health-related behavior disparities for those living in rural environments. While there is a greater proportion of the population with disabilities who reside in rural areas, little is known regarding the impact of the rural environment on their health-related behaviors. The intent of this study is to explore this relationship. Specifically, the study involves an extensive review of literature regarding individuals with and without disabilities, urban/suburban/rural environments, health status, and health-related behaviors (such as physical activity, leisure-time physical activity, activities of daily living). Search criteria were developed to reflect the impact of 'rural' 'environment' on the 'health' and health-related behavior of individuals with 'disabilities' in limiting order. The Boolean search operators used were…

(TITLE-ABS-KEY(health) OR TITLE-ABS-KEY((welln* OR wellb*)) AND TITLE-ABS-KEY(rural) AND TITLE-ABS-KEY((disab* OR handicap* OR impair*)) AND TITLE-ABS-KEY(environ*))

Using the Scopus citation database of peer-reviewed literature, selected as the most appropriate database given the topic areas, 369 instances were identified. The title and abstract of each of these was reviewed to determine initial relevancy, resulting in the identification of 14 peer-reviewed articles. These 14 were systematically evaluated in their entirety to assess the study purpose, research questions, research design, number of participants, setting (built environment factors), measures, results, and contribution to the purpose of this study.

Ultimately, eight peer-reviewed published research efforts addressing the impact of the rural environment on the health and health-related behavior of individuals with disabilities were included in this study.

The results are limited in suggesting early best-practices. However, the results do offer some insight into the relationship between individuals with disabilities' health and rural environments. The results strongly support the need for focused future exploration. The most serious error made in rural health efforts affecting individuals with disabilities has been the application of models and approaches developed in urban and suburban areas without a thorough understanding of the behavioral, cultural, and environmental differences in rural populations with disabilities.

The Mediation Model Verification of Stream Complexity on Land Uses of Area Adjacent to Stream and Fish Assemblages

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Keywords: IBI, Fractal dimension, GIS, Mediation model, Streamline complexity, Land use

Many studies suggest that the land use of areas adjacent to a stream have strong relationships with the stream ecosystem. They show that urban land uses can have an adverse impact on water quality and biotic communities through the edges of the stream ecosystem. Based on a landscape ecological perspective, edges are an important factor in controlling the flow rate of material in the two systems, the aquatic ecosystem and the terrestrial ecosystem.

In this study, we examined the direct and indirect effects of streamline complexity on the relationship between fish assemblages and urban land use. We selected the Nakdong River as a study site. The river passes through two major cities, Daegu and Busan. To estimate the stream complexity, we used the fractal dimension of a streamline within a 1km-buffer area. We used a 5km-buffer to calculate the proportion of urban land use areas adjacent to the stream and the Index of Biotic Integrity (IBI) data of the National Aquatic Ecological Monitoring Program (NAEMP). We made a full mediation model, verified it, and set two paths. Among the variables, one is from the proportion of urban land use to the stream geometry, and the other is from the stream complexity to the IBI. In the results of full mediation model estimation, the path from the proportion of urban land use to the stream complexity showed $\beta = -0.489 (p<0.001)$ and the path from the stream complexity to the IBI showed $\beta=0.591 (p<0.001)$. In addition, we calculated the absolute fit indexes and the incremental fit indexes of a full mediation model. All of the indexes indicated enough value to suggest that the model is suitable for a full mediation effect model (CFI=1.000, TLI=1.056, RMSEA=0.000).

The results of our study suggested that urban land uses have adverse impacts on fish assemblages in indirect ways through the streamline, but the streamline can mediate the adverse impacts of urban land use on fish assemblages. This study provides insights into the use of streamline in stream restoration as a way to enhance the fish assemblages in streams. For example, it can provide suggestions for streamline shapes to alleviate the flow from urban land use to fish. While we showed the mediation effect on the relationship between fish assemblages and land use, we still need additional studies to explainthe mechanism of the model.

The Range of Opportunities for Public Participation in Shaping the Landscape in Response to Changing External Conditions (Political, Legal, and Financial)

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Keywords: landscape, public participation, changes in law

The impact of years of Communism on the Polish people was such that communities became indifferent to the appearance of the public space around them. Among other things, the postwar violation of property rights (and ultimately the total elimination of private ownership), deprived citizens of the right to decide on the shape of the surrounding landscape. Consequently, the public was reluctant to identify with this landscape as well as surrounding space any voluntary action that aimed to shape it. The elimination of these deeply rooted habits is ongoing process in Poland. It is only recently that citizens have begun to accept amendments in Polish law that regulate societal participation in the modification of the landscape. It is becoming more and more evident that local communities are trying to identify with the surrounding space. This identification is expressed through participation in its shaping.

The last twenty years have not only witnessed significant changes in Polish legal provisions regulating landscape planning and shaping, but also have transformed opportunities for public participation in such processes. This was an era marked by the transformation of how citizens, planners, designers and decision-making bodies regarded the role and value of the landscape. Following the example of other European countries, Poland has begun to take into account more than just the cultural and ecological value of the landscape but also its aesthetics value to its citizens. The desire of citizens to influence the construction of the space around them is expressed through a variety of social initiatives.

This article analyzes how fluctuation in the political, legal and economic environment influence public participation in shaping the landscape. Specifically, it compares how changes in Polish legal provisions between the years 1945-2014 have impacted the potential for citizen participation in shaping the landscape. This is illustrated by a select number of recent cases in which inhabitants of Warsaw have attempted to shape “inviting” landscapes. These cases were selected for analysis based upon the reasons motivating local communities to engage in such actions (e.g., degradation of the landscape, the lack of funding to implement changes). Among others, the action in "Miasteczko Wilanów" demonstrates how the scope and quality of public participation fluctuates at the level of planning, development, and implementation.

The Universal Attractiveness of Universally Accessible Play Environments, A Pilot Study

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Keywords: Playground, Accessible, Children, Outdoors

Background: In 1991, the Americans with Disabilities Act (ADA) brought an increased awareness of designing for people with disabilities giving impetus to design for accessibility and play for children with special needs. Research has shown considerable support for the value of play promoting socialization in children of all abilities. However, there is little quantitative evidence regarding the general popularity of play environments designed with a focus on inclusion.

Purpose: This pilot study was undertaken to test the hypothesis that playgrounds designed to higher universal accessibility standards, going beyond the minimum standards of ADA, are more attractive to children of all abilities and to the general population of users as a whole, than are those designed to barely meet minimum ADA standards.

Methods: This informal systematic observation study, employed user counts of children, teens and adults in the spring of 2012 from seven parks in suburban Dallas, Texas. Of the seven study parks, one had a highly accessible playground, focusing on inclusion with ramps and other amenities to exceed ADA standards. The remaining six playgrounds met minimum ADA standards. With the relative homogeneity of the population and the similar levels of size, amenities, and maintenance of the parks, the setting presents unique opportunities for a study that will hold a number of confounding variables at similar levels. User count data was converted into ratios of children and of all users per play event. Play events included both elevated and ground level events in the playground.

Findings: The highly accessible playground had higher use ratios than the other playgrounds by over three times. This result appeared supportive of the hypothesis that a playground built to a higher standard of accessibility, can attract more use by children and by all users than playgrounds meeting minimum ADA standards. Further research with a more rigorous research design and data collection protocol combining demographic and environmental variables with user attitude surveys and statistical analysis is being proposed to further test the hypothesis.

Conclusion: Despite the pilot nature of this study, it brings attention to the potential and understudied values of highly accessible playgrounds in promoting play activities among all children, which can bring many health, developmental, and social benefits. More empirical studies are needed to facilitate the development of policies and guidelines to encourage the implementation of universally accessible play environments.

Transecting the Region of three Post-Industrial Cities in Massachusetts - A Photo-Based Inquiry into Urban Places and Planners' Perceptions

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Keywords: walking, mental map, geography, urban, planning, landscape, revitalization

Understanding metropolitan and particularly struggling post-industrial regions is a challenging task. New strategic visions for these areas are needed and should include identifying new and traditional assets – one possibility defining assets is a response to real geographical places. This study investigates the sample group of urban planning experts and their knowledge and perceptions of former U.S. manufacturing cities Springfield-Chicopee-Holyoke through photo-driven interviews. How comprehensively do they know and evaluate these areas?

The findings demonstrated that the experts 1) share major areas of concern in their challenged cities such as perception of inactiveness and neglect; poor and unattractive housing conditions; public health problems as a result of poor walking infrastructure; 2) have a decreasing knowledge from the cities' cores to the peripheries while they order the region after a simplistic urban-to-rural transect model. The heterogeneous commercial urban fringe areas and suburban residential areas play a minor role in their perception as they do rarely occur as key themes in the interviews and seem to be underrepresented in their thinking; 3) clearly identify places with either distinct physical features or polarizing character such as rural, high-density urban, or derelict post-industrial; and 4) demonstrate personal and specific knowledge of their main planning territory defined by administrative boundaries. There is indication that their focus does not foster overlapping knowledge between municipalities.

The mixed method of participatory observation along a geographical transect and photo-driven interviews created efficiently comprehensive knowledge about place in a short time. This translates to application of new tools to shape a mutual understanding of urban places between different professions including changes in the education and involvement of planners and other actors.

Urban Landscape Lransitions: Analysing Urban agriculture Initiatives in Four European Cities.

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Keywords: Urban agriculture, food planning, multi-level perspective, transition theory

A transition towards sustainable food production strongly depends upon the field of spatial planning as they constrain, enable and direct spatial developments. This paper aims to discuss the role of spatial planning in the development of urban agriculture. Urban agriculture novelties aim to contribute to a sustainable transition of the urban food system. Transition theory, and more specifically the Multi Level Perspective (MLP), formed the theoretical lens to analyze the development of urban agriculture.

This paper presents an explorative analysis of a wide range of urban agriculture projects in four selected cities in Northwest Europe: London (UK), Helsinki (Finland), Malmö (Sweden) and Almere (the Netherlands). The empirical data covers interviews with 35 individuals including initiators and policy makers involved in 16 urban agriculture projects.

The results indicate that innovative urban agriculture initiatives are dealing with market and regulatory obstacles. Therefore, protection of these novelties by means of grants, volunteers and institutional support is key to the nurturing of urban agriculture. Urban agriculture initiatives are being developed by small networks of pioneers. These pioneers are willing to invest in new concepts and technologies. Learning processes and knowledge exchange play a key role in the further development of the urban agriculture niche. Interviewees underline the importance of a facilitative attitude from planning authorities (e.g. zoning plan) to support development of these initiatives.

The study contributes to the discussion on the sustainability of urban agriculture as an upcoming phenomenon in the urban landscape. In addition, the research tested the theoretical lens of transition theory in an exploration of the development of urban agriculture.

Walkability in Suburbia- A Feasibility Study for Multi-Use Trail Systems in Kansas City

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Keywords: Walkability, Utilitarian Trail Networks, Suburban Sprawl, Pedestrian Amenities

Background and Significance: Enhancing walkability is a challenge for most sprawled suburban metropolitan areas. Specifically, the suburban Kansas City cities of Overland Park, Olathe, Leawood, and South KCMO, have sprawled and disconnected urban patterns, thus limiting pedestrian friendly connections. With a low average walkability score of 37 out of 100 (Walk Score, 2013), the south Kansas City suburbs are labeled as car dependant and most errands require a car.

The Indian Creek Trail, an existing recreational trail that extends throughout the southern Kansas City neighborhoods, has the potential to improve walkability in this area. It connects major destinations including residential communities, businesses, and commercial districts throughout the suburban neighborhoods. Many studies have analyzed suburban sprawl and walkability, but few studies have identified the possibility of enhancing existing trail systems to provide for greater mobility, connectivity, and activity.

Purpose: This study will examine the feasibility of re-utilizing an existing trail system to support multi-modal transportation and promote walkability in the Kansas City suburbs. By examining the behavioral use of the trail, potential uses for a new trail system will be revealed.

Methodology: This study will conduct observations, interviews, and surveys among trail users, to identify the trail's current and potential uses. Data will be collected in 13 major destination areas along the Indian Creek Trail and descriptive statistics will be used to report the survey results. An evidence-based design framework for the multiuse trail system will then be established based on the findings from the community and inventory data.

Results and Goals: The findings will determine the major components needed for design of the Indian Creek Trail. The results will identify primary locations of needed intervention and reveal major opportunities for connection.

Preliminary results show that 13.7% of trail users utilize the trail for utilitarian transport purposes and 17.2% would utilize the trail for transport purposes if certain constraints were amended (N=29). 37.9% however, say they would not use the trail for transport even if primary constraints were fixed. Understanding these important social aspects of the trail will help identify what the community wants, the limitations of utilitarian trail use, and the dynamics of the trails users.

Future study would revolve around implementing designs and analyzing the effectiveness to create a model that can be applied to enhance walkability for other suburban areas.

Wildness and Vacant Land in the Postindustrial City

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Keywords: urban forestry, crime, urban planning

Vacant and underused land is a hallmark of the shrinking postindustrial city. Such areas provide ideal opportunities for successional and invasive exotic vegetation, creating “wild” sites. Despite considerable scholarship (Troy, Grove, and O'Neil-Dunne 2012; Kuo and Sullivan 2001), the implications of this increase in vegetation on crime remains somewhat mysterious – what is the impact of different kinds of vegetation on crime? Such “wild” vegetation may create a perception of abandonment (Nassauer 1995), promoting an area as unregulated, or socially “wild,” and perhaps encouraging nonviolent crimes such as vandalism. Syracuse, New York, exemplifies such “wildness,” with an overall increase in tree canopy in the years 2003-2009, including Eurasian buckthorn (Rhamnus cathartica) (Nowak and Greenfield 2012), which contributes to tree canopy yet creates a dense screen at eye level. This paper hypothesizes that two measures of wildness – tree canopy and incidents of non-violent crime – will be associated in vacant parcels in a postindustrial city.

This paper uses LiDAR-derived vegetation data for 2010 to determine the percentage of tree canopy cover for vacant land within the city of Syracuse. I used local police data for all incidents of non-violent crime for 2010 and geocoded those incidents, using ArcMap GIS software to reveal spatial patterning and overlap for these two variables. Results show varying degrees of tree canopy cover in vacant parcels within the city and clusters of nonviolent crimes. The associations between vegetation and crime are revealed via a series of maps and percentage comparisons.

These findings carry implications for security and crime rates within urban neighborhoods and maintenance policies for vacant parcels. While wild vacant sites may be unusually prevalent in Syracuse, the conditions creating these sites are far from unique, making these findings valuable for the many other postindustrial cities within the Eastern United States.

RESEARCH AND METHODS

A Case Study for Quantitive Urban Ecosystem Design and Planning: The 2013 USACE Los Angeles River Ecosystem Restoration Study

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Keywords: planning, metrics, USACE, river, ecosystem, restoration, design

As the culminating effort of decades of advocacy and design, the United States Army Corps of Engineers recently released the Integrated Ecosystem Restoration Feasibility Study for the Los Angeles River. The product of seven years of study, the report maps pathways to an almost unthinkable transformation of the Los Angeles River from a degraded concrete embankment to a viable and complex urban ecosystem. The project is a landmark precedent for the restoration of urban rivers and represents a significantly changed role for the Army Corps within urban environments. However, in terms of design practices the study also is an interesting and possibly alarming case study for metric-based design and its agency within large scale performance-based planning projects. The preceding Los Angeles River Revitalization Master Plan and the long accumulation of design visioning were not so much ignored as numerically insignificant in the quantitative assembly of design options by the Army Corps. While their plan included a set of baseline stakeholder contributed qualitative goals, the final four “Best Buy” designs options generated by the Army Corps (from over 200 initially), were assembled through an incremental analysis software that exhaustively evaluated options based on “Annual Habitat Units” and cost. The results of this methodology were at once radically ambitious and significantly contrary to local wisdom and design studies and resulted in a recommended option by the Army Corps that a near consensus of community stakeholders finds plainly deficient. Using this study and the previous master plan as reference points, this presentation investigates and constructively critiques the strengths and weaknesses of this methodology as an metric optimization technique for design and planning – one that, to the surprise of many design professionals, may largely determine the overall form of one of the most important urban ecosystem restorations in the coming decades. It is critically important that landscape architects understand the role of design within these methodologies and whether they ultimately serve stakeholder needs and values. Does it represent a prescient, though flawed, direction for effective performance-based planning or is it a technological evolution of the methodologies that produced the existing inadequately single purpose form and function of the river. Within this context of large scale infrastructural design the paper questions what constitutes design and speculates on the role of landscape performance metrics, qualitative assessments and practices, and the mission and role of the Army Corp’s and other engineering design entities.

A Combined Methodology for Investigating Urban Comfort in a City Undergoing Post Disaster Transitions

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Keywords: Microclimate design, Christchurch New Zealand, qualitative methods

The aim of this paper is to demonstrate how an interpretive research strategy (Deming and Swaffield 2011) that combines qualitative social science methods with biophysical measures can reveal new empirical and theoretical insights into microclimate design. Innovative approaches to urban microclimate design (Brown 2010) will become more important as the world's population becomes ever more urban, and climate change generates more variability extremes in urban conditions (Brown 2011).

However, established methods of investigation based upon conventions drawn from building services research and framed by physiological concepts of thermal comfort (Nikolopoulou and Steemers 2003) may fail to capture the social dynamics of urban activity and their interrelationship with microclimate, and thus overlook opportunities for new types of design response (Castello 2010). This paper reports and critically reflects upon the methodology of an innovative field investigation into urban comfort, in the city of Christchurch, New Zealand. Urban comfort (Tavares et al 2013) is defined as the socio-cultural (therefore collective) adaptation to microclimate due to satisfaction with the urban environment. It involves consideration of human thermal comfort requirements (Brown and Gillespie 1995), and adaptive comfort circumstances, preferences and strategies (Castello 2010). The specific research challenge was to investigate urban comfort in a city undergoing rapid physical change following a series of major earthquakes (2010-2012), and that also has a strongly seasonal climate which accentuates microclimatic variability. Participant observation and depth interviews (Lofland et al 2006) were combined with microclimate measurements (Brown and Gillespie 1995) in four case study locations to identify ways in which people adjust their cultural and lifestyle values and expectations to the actual microclimatic conditions (Shove 2003). Social activity and perceptions in undamaged precincts were compared with activity in new temporary and transitional spaces within the post disaster city centre. The field investigation had to be suitable for rapidly changing settings as buildings were demolished and rebuilt, and be able to capture data relevant to a cycle of seasons. Critical reflection upon the advantages and limitations of moving beyond conventional microclimate research techniques into the wider realm of qualitative social science suggests that the interpretive and combined methodology was able to effectively adapt to this dynamic context and provide a coherent body of evidence (Brown and Corry 2011) from which important insights regarding the nature of urban microclimate design can be derived.

A Practical Research Tool for Assessing Perceived Environmental Qualities to Use in the Design Process

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Keywords: Landscape preferences, Environmental affordances, Photo grouping

While daily contact with nature is essential in large cities, such opportunities are often limited, thus reducing chances for psychological restoration. Even if available, however, such places will not be used if they fail to meet residents' needs and preferences (Kaplan and Kaplan 1989). This study focuses on the preferred qualities of the nearby nature in terms of both the environmental affordances and the design characteristics of such spaces in urban residential neighborhoods. Environmental affordances refer to what is possible for people to do in a setting (Clark and Uzzell, 2006, Gibson 1979). These topics have received little empirical attention although they have critical design implications. This study also provides a new approach for addressing these issues.

The study was conducted in Logan Square community area in Chicago, IL, and a total of 53 individuals participated. A set of 93 photos arranged in ten columns depicting a variety of commonly used elements of landscape design and urban outdoor scenes was used as the research instrument. Participants were asked to select their preferred scenes from the photo set and group them based on what was meaningful to them. Then they were asked to talk about their groups. The 218 groups provided by the participants fell under 15 categories through dimension reduction. The findings highlight the significance of a) small green spaces that facilitate social and meaningful activities and b) residents' sensitivity to qualities that improve the beauty and functionality of the spaces. Content analysis of interview transcripts offered consistent evidence that small green spaces that provide opportunities to both socialize and grow vegetable and ornamental plants are most appreciated by the participants. This study illuminates the interconnections between environmental affordances and green space design attributes that address basic concerns and expectations.

In addition to supporting and expanding upon many previous research findings, this study uncovers the importance of environmental affordances in green space preference studies, a topic that is largely missing from existing work on landscape preference. It also showcases a novel method – the use of participant-generated photo grouping to better understand the basis of preferences. The method emerged from pragmatic application of a theory in Environmental Psychology (Environmental Affordances Theory) to the landscape planning and design process. Finally, the results were used to create a set of simple but significant recommendations to help urban planners and designers create more livable spaces in dense urban areas through research-based design.

Crowd Sourcing for Empowerment: Enaging Residents in Participatory Evidence Based Planning

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Keywords: crowd sourcing, facilitated VGI, empowerment

Crowd Sourcing for Empowerment. Two great challenges facing small communities is obtaining an accurate picture of existing landscape systems and gaining a working understanding of how those systems work so that local goals and visions for change can be realized. As a foundation for community planning, crowd sourcing visual and spatial information followed by participatory content analysis has proven a viable method for both gathering geo-referenced information and providing a real-time/real-space learning opportunity for residents. This method has been piloted in more than 50 rural communities while planning safe routes to schools, creating better trails and planning for disaster recovery.

This paper compares two approaches building on crowd sourcing techniques during data collection phases. The first approach uses an asset mapping and asset analysis process, in which GIS-enabled smart phones to help communities map the location and condition of sidewalks around elementary schools as part of their Safe Routes to School program. Community volunteers participate in a one-day workshop where they are trained to use a customized mapping application and then go out into the community to map the infrastructure. The second approach engages residents in focus groups followed by data collection to using GPS enabled cameras to locate and comment on features or qualities relevant to the group discussion. After uploading, the data becomes available in real time. Both participatory research approaches help participants understand the variety of needs and preferred qualities of community landscape, how the landscape affects behavior and provides documentation of landscape performance in terms understandable to local audiences.

A key element of a participatory research framework is maintaining quality of the data and analysis, while opening the inquiry to public audiences. In the crowd sourcing projects presented here, facilitated-Volunteered Geographic Information (f-VGI) is critical to maintaining quality. Whereas VGI allows users to provide voluntary, unsolicited information on their own, f-VGI utilizes predefined criteria and prompts users to respond to a set of queries or directives that guides the range, type and spatial extent of the information to be provided. In the first case, the data collection is quite bounded, while in the second, the nature of the landscape is and the qualities to be documented emerge from the focus groups. Both methods provide a mechanism for the nature of landscape systems to be explored prior to the crowd sourcing activity. In this way, rigor and empowering participation are intertwined in local planning.

Ecological Frameworks in Contemporary Greenway Planning: A Critical Review

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Keywords: greenway, landscape, design, ecological, framework, planning, theory, framework

When ecologically inspired and integrated frameworks are being embraced in many design arenas aiming to go green or sustainable, how is the discourse taking shape within contemporary greenway planning, is the central concern of this article. This article identifies and studies ecological frameworks in greenway theory and practice.

The frameworks are analyzed, synthesized and classified through a research method based in inductive-deductive reasoning. The purpose is to understand the essence of the ecological frameworks in terms of the fundamental drivers, empathies and disciplinary influences. The inquiry reveals that: (a) besides drawing from biological conservation theories, current ecological frameworks draw heavily from geographical and mathematical disciplines, (b) most frameworks are evolving and best classified as “generated or emergent”, not analogic, inspired, or generative. The paper sets ground for further iterations and questions on integration of ecological thinking and frameworks in greenway planning, through discussion of key frameworks and an operational classification structure.

Interactive Engagement Tools for Urban Design — A Rapid Measured Visualization Prototype

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Keywords: community engagement, planning support tools

Cities and municipalities increasingly integrate long term goals toward climate change mitigation and adaptation into planning processes that engage diverse stakeholders and decision-makers who must ultimately understand and support the decisions (UN Habitat 2011, Sheppard 2012). Research supports a premise that if provided with understandable and relevant information about why and how actions such as land use changes and increased density can help achieve climate change related goals, people's understanding and acceptance of such change may improve (Moser 2010). Other research suggests that linking urban-scaled policies to on-the-ground neighborhood scaled decisions may facilitate additional public support (Sheppard 2012).

There are now many digital planning support tools in development and use to engage the public with long-range decision-making around climate change planning (Brail 2008, Condon 2009). Many such tools are geared toward linking and visualizing complex information so that non-professional stakeholders can better understand complex long range planning interactions (Brail 2008, Condon 2008, van der Laan 2013). This paper discusses one such tool, centered on a multi-touch table, which was designed explicitly for stakeholders to directly engage and interact with each other to simulate, compare and evaluate long-range urban design scenarios. This tool enables "live" generation of both 2d and 3d urban design visualizations accompanied by simultaneous performance measures such as density, population, travel demand, and dwelling diversity.

This paper asks: Do interactive, highly visual collaborative engagement tools elevate understandings of complex planning information and encourage social learning? It will introduce, compare and discuss three community-based applications in terms of purpose, audience, scenario construction, duration, engagement methods and lessons learned. The three case studies include: 1) a workshop with youth exploring relationships between built form and energy (building and transportation); 2) an exercise with professional planners to test urban design scenarios for a long range sub-area plan; 3) public engagement workshops focused around inserting higher density mixed-use centers into existing neighborhoods. Documentation methods included videotaping, focus groups and surveys, which inform the comparison and critical evaluations. Preliminary findings suggest that the multi-touch table environment is very accessible and quick to learn for a wide range of users; the tool environment encourages engagement and social learning; users were able to make connections between complex factors such as density and emissions reductions. Lessons learned revolve around the design of workshops that employ such tools; appropriately matching audience and exercise; and contextualizing information such that it is meaningful but not overly technical.

Investigating Street Trees in China's Transforming City

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Keywords: Street trees, China, transforming

As well as the fast urbanization process in most of China's cities during the past several years, the overall urban landscape in the city of Nanjing is transforming while losing tree cover in the old district but increasing trees in the new district. In 2011, the “Nanjing Indus Tree Event” was exposed to the mass media, and the focus of public opinion, leading the tree protection movement of the city. The debate is not only about the ecological function that street trees have contributed, but also involving the historic function that street trees can play. In Nanjing, Indus trees (Platanus acerifolia) were planted along main streets to memorize Dr. Sun Yat-sen eighty years ago.

Previous research has established the database of overall backbone tree species of parklands in Nanjing (Wang, 2009). However, lackinge lack of a street tree database made forest managers difficult to select, maintain and protect street tree species in Nanjing. In this study, we investigated the basic information of street trees in both old and new districts of Nanjing. The objectives of this study are three-fold. First, we try to provide basic information such as composition, size and diversity of street trees in Nanjing and evaluate their importance value. Second, we compare the difference of street tree distribution in the old and the new district of the city. Third, we examine the monumental role that street trees play in this transforming city.

A representative approach was used for sampling 112 transects of 400m2 street median or sidewalk distributed across the city. Field assessments were conducted from March 2009 to September 2009 regarding survey location, size, species composition and distribution of street trees. The city history was also examined as a complement to explain distribution of street tress.

The results show that, in total, there were 69 species that belong to 32 families in the city. The results also indicate that overall the old district have more average canopy than the new district, but the density is lower. In the old district, Platanus acerifolia dominated with maximum important value. This species is particular to this city because of various historical reasons. In the new district, Cinnamomum camphora dominated with maximum important value. This evergreen species was heavily applied in the past twenty years in southeast of China, and the species was adopted very well in Nanjing. In conclusion, studying urban street tree is a good approach to explore city history and development.

Measuring Degrees of Life in the Landscape

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Keywords: landscape assessment, degrees of life, living structure, pattern language

This study adapts Nikos Salingaros and Christopher Alexander's degrees of life test to measure living structure in the landscape. Living structure is a construct in generative design theory and is operationalized as degrees of life. Generative theories in landscape architecture, urban design, and architecture are based on step-by-step, adaptive processes that unfold over time. Common examples of this are vernacular settlements in traditional societies that were built in incremental processes and have adapted to contain a high amount of "life". Generative theories for assessment and application in the built environment are in an exciting, expanding stage.

Generative structures and processes are becoming operationalized, such as through the degrees of life test. This test uses an arithmetic function to evaluate five components of harmony and five components of temperature, arriving at a well-balanced assessment of living structure as defined by Alexander. Previous studies have used the degrees of life test with a focus primarily on architecture. It has been found that Salingaros and Alexander's method, while valuable, does not work well outside of the building and its immediate context. For example, the larger landscape is difficult, if not impossible, to validly quantify using this test. This study explores various options for modifying the degrees of life test for application in quantifying the landscape. The results show that the new, adjusted methods must be more complex and multifaceted, including evaluating spaces in three dimensions. Also, the modified degrees of life test must rely on Alexander's initial 15 properties of living structure. That is, it involves continually referring back to gauge if the landscape assessment is truly measuring living structure. Despite this adjusted method being more cumbersome, it is found to be a step toward a valid instrument. This study provides an important new method for anyone interested in systematically evaluating Alexander's living structure in the landscape.

Perspectives on Performance Studies, Indicators, and Methods: The Review of Case Study Approach in Landscape Architecture

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Keywords: Case Study, Landscape Performance, Methods, Evaluation, CSI Program, Perception

Case studies have been frequently utilized in the landscape architecture profession and scholarship within the past two decades to evaluate finished projects and to inform future education and practice (Francis, 1999, 2003; Ahern et.al., 2007). Francis stated that "as the profession develops more of its own theory and knowledge base and communicates this more broadly, the case study method promises to be an effective way to advance the profession" (Francis, 2001, pg.15). The case study methods are specifically found to be suitable in landscape performance studies due to its ease in adapting varying project types and sizes. More structured attempts such as the Case Study Investigation (CSI) Program initiated by Landscape Architecture Foundation in 2011, start giving more prominence to such methods (LAF, 2013). Although it is hard to undermine the knowledge acquired from these case studies, there are enough number of studies to scrutinize their methodological integrity and value for performance related landscape research.

The objective of this research is to document methods and indicators utilized in landscape performance case studies and assess their relevance and value in landscape architecture scholarship and profession. The research specifically focuses on documenting environment related landscape performance indicators and methods from the literature, and assesses their rigor and value through interviews conducted with landscape architecture researchers and professionals. The study reviews CSI Program case studies, as well as the peer-reviewed publications such as *Landscape Journal* within past several years. In depth person-to-person and/or phone interviews are conducted with the researchers and professionals to discuss indicators and methods, and understand their perception (Taylor & Bogdan, 1997). Interviews were later transcribed, analyzed, and common themes are identified to extract findings.

The results illustrate that landscape architecture scholarship has produced numerous case studies and added new environmental landscape performance indicators and methods such as carbon sequestration, stormwater interception by plant canopies (National Tree Benefit Calculator, n.d), stormwater quality and quantity, air quality and vegetation counts to the landscape architecture's knowledge base. The research reveals that certain methods and indicators did not produce reliable measures or results, while some others were effective in understanding landscape performance. The interviews also reveal that researchers and professionals have some varying views about the relevance and value of certain performance indicators and measures. In conclusion, the research suggests the importance of greater understanding of environmental performance indicators and methods to build reliable knowledge base and inform future landscape architecture scholarship and practice.

Professional Development in Landscape Architecture: How Do Practitioners Learn?

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Keywords: landscape architecture research, continuing education, professionalization, professional development

As a profession, landscape architecture has long suffered from an "identity crisis," although evidence for this has been somewhat anecdotal and vague. Landscape architecture has not benefited from widespread public understanding that other professions, such as medicine or engineering (Baird and Szczygiel 2006), seem to receive. This study explores how the perceived importance of professional development in landscape architecture may reflect and/or affect the stature of the profession.

Both descriptive and interpretive research strategies are used in this study. The professionalization of landscape architecture will be viewed through two lenses: 1) theories of the sociology of the professions, and 2) grounded theory based in observed patterns from the field of practice. According to Carr-Saunders in his seminal 1933 book, The Professions, part of what separates practicing professionals from vocational tradesmen is lifelong training and intellectual learning (Carr and Wilson 1933, 285). Besides continuing education credits (e.g. LACES program), professional development can take many forms in landscape architecture, including reading academic or professional literature, entering speculative design competitions, pursuing advanced degrees, teaching, writing, or attending professional conferences (Rogers 2011).

A descriptive online survey has been developed to measure attitudes of practitioners toward professional development. Data points and patterns are interpreted to understand the differences in attitudes between different groups of practitioners—"elite" practitioners who identify themselves as consumers of innovative research practices, and "normative" practitioners who comprise the vast majority of professional practitioners. Patterns that emerge from these preliminary findings are then corroborated and tested through the use of depth interviews.

This study is nested within a larger research project titled Research in Practice, investigating how broadly held attitudes toward creative research held by landscape architecture practitioners may be shaping (both limiting and reframing) research agendas in our field. The significance of this study is potentially important for both academics and professionals in landscape architecture (Benson 1998), affecting both the demand for research skills among entry-level landscape architects as well as obstacles to sharing and disseminating the results of practical research findings. Developing a better understanding of professional development may help identify weaknesses and strengths in the profession.

Scaling Sustainable Development

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Keywords: Sustainable Development, Scale, Environment, Policy, Best Management Practices, United Nations, Environmental Protection Agency, Think Tank

After its popularization by the Brundtland Commission (World Commission on Environment and Development 1987), sustainable development rapidly became an ideal promoted and claimed by a vast majority of governmental and nongovernmental organizations, academics, and planners. Lack of specificity in its definition and its vague and all-encompassing scope have allowed entities around the world to include it in their agendas as a non-specific goal for the future (Clemencon 2012). This has facilitated the implementation of policy and projects claiming to produce sustainable development without any supportable evidence of social, environmental and economic balance in their scope, methods, or approach (Purvis & Granger 2004).

A framework is required to support the creation of projects that are genuinely sustainable. As part of this framework, guidelines for characteristics and requirements for sustainability at various scales are necessary. While many best management practices and approaches have been developed, there remains little consensus as to scale of implementation. While often sustainability can be addressed at the national scale, and at times at the site scale with careful use and re-use of materials, user-oriented processes, location selection, and facility provision, guidance for sustainable development at all scales would enable (for example) translation of systems-oriented problems to the site scale, and materials use to the national scale (among others).

The goal of this study was to evaluate the projects by the five Environmental Think Tanks who have consistently ranked in the Top 10 of the Global Go To Think Tanks Index Report from 2008 to 2012, and the United Nations Environment Projects. Projects completed by these organizations over the five year period spanning 2008 to 2012 were collected from each organization's website listings of projects that were categorized under the term "sustainable development". Next, content analysis was used to analyze each of the projects to categorize them by scale, how sustainable development was applied in each project, and how the projects addressed social, environmental and economic issues. The results of the study show a focus on singular issues without regard for their geographic or economic context, an attempt to address environmental systems within a politically defined area, and decisions oriented to support funding goals rather than provide long-term strategies. A framework for international sustainable development projects in different cultures at the national, regional, local, site and personal scale is provided to guide the efforts of non-profit and other groups to improve conditions in areas around the world.

School Siting Policy: Identifying Environmental Threats to Children in Public Schools

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Keywords: School environments, children, health and safety, school siting policy

Many states have chosen to adopt zoning ordinances that prohibit locating schools within specific distances of entities that may be harmful to children. Examples of Detroit's existing zoning laws include 1,000 foot setbacks of schools from adult use/sexually-oriented businesses, such as liquor stores, pool halls, or adult bookstores (City of Detroit, 2012). Liquor licenses can be denied due to distance from public or private schools for minors (City of Detroit, 2012). Other business establishments and entities, such as arcades, restaurants, and advertisements, cannot be located within 500 feet of a Detroit public school (City of Detroit, 2012). However, many states have failed to establish a minimum distance requirement from highways or potentially hazardous facilities, placing students' health and safety at risk. Of the 50 U.S. states, only 23 have restrictions regarding siting schools near environmental hazards, and of these 23 states, only 5 provide specific distances between school locations and the points of pollution. Few states restrict new industrial facilities from locating near existing schools (Salvesen & Zambito, 2010). Twenty states have enacted laws or regulations concerning school sites that neighbor major roadways or traffic congestion; six of those states note minimum distance requirements. Results from this research indicate that many states' school siting policies lack the following: specific details regarding distances, levels of contamination, etc. for selection guidelines, cooperation between acting government agencies during the selection period, and the public's involvement in the approval process. The presentation will share the information gathered and provide recommendations for successful and thorough school siting criteria so that the physical school environment can be more conducive for a healthy, learning environment.

Subdivisions Multiplied: A GIS Method for Identifying Suburban Landscapes

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Keywords: GIS, suburbs, historic preservation, cultural landscapes, mid-century modern

This study developed a method utilizing GIS to facilitate the understanding of suburban cultural landscapes. These landscapes are reaching 50 years of age and are being evaluated for preservation, but due to their age, these landscapes are also threatened by redevelopment. For effective evaluation and decision-making to occur, these landscapes need to be identified, described, and quantified. Yet, the ubiquity of post-World War II suburban landscapes makes evaluation difficult, and assessing them with traditional survey methods is costly and time-consuming. Scholars and practitioners in cultural resource management and preservation suggest using GIS for surveys; yet, specific methods are largely absent from the literature.

The method developed by this study identifies, classifies, and analyzes the scope, scale and form of suburban neighborhoods. The method consists of four phases. Phase one developed an evaluation criteria based upon a literature review of suburban landscapes. Phase two used the evaluation criteria to develop GIS models that analyze the data and locate post-World War II residential subdivisions. Phase three examined primary and secondary historical resources to assist with the classification and analysis of the neighborhoods. Phase four utilized Google Earth and reconnaissance surveys to examine the character and context of the cultural landscapes identified in the first three phases.

The method was tested in Sarasota County, Florida for 1945-74. Testing found that the maps generated by the GIS models not only showed the scope and scale of the remaining post-World War II suburban landscapes; they also showed the suburban landscape morphology and the county's development patterns. The tables generated by the GIS models provided scalar and contextual data. The historical research and visual surveys checked the validity of the GIS models and added to the understanding of the context and character of the suburban landscapes.

The study's importance is the development of a more efficient method to identify the patterns and characteristics of large suburban landscapes. The future of these landscapes should be carefully considered because they reflect cultural, social, and design history, and this study provides decision-makers and stakeholders with a basis for making future land-use decisions and identifying potential historic districts. Testing occurred at the county level, but the method and GIS models are scalable and adaptable to other locations and time periods. By having a better understanding of this layer of the historical landscape, people can make better decisions about how to integrate these ubiquitous, historic, suburban landscapes into tomorrow's cities.

The Ethics of Authorship: Towards Establishing Disciplinary Standards in Publishing and Research

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Keywords: authorship, co-authorship, author attribution, publishing ethics, research ethics

What constitutes authorship in scholarly work? This seemingly straightforward question has spawned lively debates and critical reflection in many academic disciplines, from the hard sciences and engineering to the humanities. Misattributions of authorship (e.g., failing to acknowledge a legitimate co-author or awarding co-authorship to an undeserving individual) are viewed in many disciplines as unethical and potentially damaging to the professional reputations of individual scholars, their publication venues, and their universities (e.g., Stewart & Feder, 1987). Past abuses have generated a substantive body of published scholarship on the topic, and numerous academic societies (e.g., American Chemical Society) and publishers (e.g., Elsevier Press, International Committee of Medical Journal Editors) have developed written authorship standards.

The academic discipline of landscape architecture, however, has yet to engage in an open and informed debate on ethical authorship. With the growing emphasis on research seen in many landscape architecture programs, the need for clear, disciplinary-wide guidelines has never been greater. This panel session will frame a discussion of this issue around CELA's current policy (instituted for the 2013 conference) requiring that graduate student submissions "must be co-authored with a faculty advisor" or be "withdrawn without notifying the student" (2014 Call for Abstracts, Requirements, p. 2; bold in original). Although intended to improve research quality, this policy effectively defines authorship based on job title and seniority rather than on substantive contributions to the research. It runs counter to standards established across a variety of disciplines and puts CELA in the untenable position of appearing to encourage a practice that many other disciplines consider unethical.

This panel session is intended as a first step in the development of a set of authorship guidelines appropriate for our discipline. The session will begin with an overview of the development of CELA's policy within the context of improving the quality of research in the discipline and consider research findings on the effects of authorship misattribution on research quality and professional development. After this, panelists will present a summary of the authorship guidelines used in other disciplines and engage attendees in a guided discussion aimed at identifying a possible definition of authorship/co-authorship appropriate for landscape architecture. The results of this collaborative effort will be posted on a blog open for additional comments. Panelists Calorusso and Bohannon will then use this material to develop a white paper on ethical guidelines for authorship attribution to be presented to the CELA Board of Directors.

The Restoration Effects of Natural Elements in Public Spaces Using Eye-Tracking Method

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Keywords: Restorative environments, Attention Restoration Theory, Environmental psychology, Eye tracking method

Attention Restoration Theory (ART; Kaplan, 1995) argues that natural objects such as trees and flowers have psychological restoration effects. Based on this theory, several studies (Grahn & Stigsdotter, 2003; Staats et al, 2003; Hartig & Staats, 2006) have been conducted to verify the effect of restoration by natural elements. Yet, the studies are only based on survey methods and few of them suggested guidelines for restoration environments. This study aims to verify the restorative effects of natural objects using eye tracking methods which analyze people's eye movement and to suggest specific design guidelines for restorative environments. Subjects' eye movements were analyzed on images of various natural elements. Studied are fixation duration (ms), saccade duration (ms), scan path length (px), total duration (ms), and heat map analysis. Measurement of restoration developed by Berto (2005) is also carried out right after investigating eye movements to analyze the degree of restoration. This measurement was originally from Perceived Restorativeness Scale (PRS) by Korpela & Hartig (1996), and consists of the things regarding 'being away,' 'fascination,' 'coherence,' 'scope,' and 'compatibility'. Degree of complexity on each of different images is evaluated, as well, in order to suggest specific design guidelines for restorative environments. The results of the analysis suggest that there is a statistically inverse relationship between the degree of attention and restorative effects through Pearson's correlation analysis ($p<0.05$). Like Kaplan's attention restoration, subjects seem to see the images that mostly contain natural elements more effortlessly than images of built environments, which means subjects feel comfortable when they look at the environments with natural elements. On the other hand, the images evaluated with high complexity are relatively low on restoration regardless of natural elements, which suggest reducing the degree of complexity for restoration environments accordingly. The relationship between eye movement and degree of complexity is also significant statistically. In particular, the higher the degree of complexity is on the images, the longer the scan path length is. The main factors that feel complex on each image are 'incompatible colors,' 'lots of facilities,' 'uncleared trees,' and so on by additional open survey about complexity. The authors found that an eye tracking method is a valid and useful tool for investigating the restorative nature of natural elements in the landscape. This study ultimately presents design guidelines to increase restoration in public spaces by not only using natural elements but also having less complexity.

SERVICE-LEARNING AND COMMUNITY ENGAGEMENT

A History of Public Participation Literature

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Keywords: participation, engagement, planning history, regional planning, urban planning

Public participation is one of the foundations of the successful practice of landscape architecture and landscape planning. While a number of reviews of current literature have been completed on the topic of public participation, they have focused on fields other than landscape architecture or planning. The reviews have focused on policy (Carpini, Cook, and Jacobs 2007), biology (Reed 2008), environmental science (Chess and Purcell 1999), forest policy (Buchy and Hoverman 2000) and others, reflecting the wide range of fields in which public participation is relevant.

In order to explore the links between research and practice, it is critical to understand the type of public participation research that has been conducted in landscape architecture and planning practice, and how such research has evolved over time. To address this question, we examined two of the most highly read planning journals (Goldstein and Maier 2010), the *Journal of the American Planning Association* (JAPA) and the *Journal of Planning Education and Research* (JPER). The journals were scanned for participation-focused articles from the date of the journals' inception to 2010. The articles were categorized in order to understand the temporal changes in topical trends and frequency of publication.

Given this analysis of the literature, we found (not surprisingly) that topics have an ebb and flow that mirrors other trends in planning. However, how the topics are addressed does show interesting trends. For example, coverage of specific participatory methods and case studies increases over time and diversifies greatly, particularly in the 1990s. We also find that an important distinction must be made between the coverage of social planning issues (advocacy planning, equity planning, communicative planning) and direct coverage of public participation topics, as they are often melded together. This is true for the purposes of both research and education, since participatory practice is a field with its own substantive theory. While this study focused on planning journals, future research will involve applying similar methods of analysis to journals focused specifically on landscape architecture and landscape planning.

Barriers and Incentives to Stormwater Management: A Comparative Case Study of Two Watersheds

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Keywords: stormwater management; source control; urban watersheds; community-university partnerships

Stormwater runoff from the built environment remains one of the great challenges of modern water pollution control in that this runoff is a key contributor to polluted waterbodies in the U.S. (WSTB, 2009). Water pollution is associated with local and regional decreases in human and ecological health (Shirmohammadi et al., 1997; Tilman et al., 2001; Foley et al., 2005; Leisnham, 2011). With recent regulatory and financial pressures to improve stormwater quality, urbanized neighborhoods are confronted with a particularly difficult set of economic, social, public health, and environmental challenges. These challenges have led to an array of different approaches to stormwater education, stormwater incentives, and watershed stewardship (USDA, 2011; Chanse, 2011; Genskow et. al., 2011) to address the issue of improving residential stormwater implementation.

Despite these various incentives for stormwater best management practices, actual implementation in urbanized areas remains challenging. This research examines community-based approaches to stormwater management in two watersheds that vary in socio-economic contexts, neighborhood contexts, hydrology and stormwater practices. This research assesses the differences in stormwater barriers and incentives for the two watershed areas in the Maryland-Washington, D.C. area. One primary dimension of this research is the transdisciplinary, community-based participatory research approach by working with community partners and Watershed Stewards Academies that train local residents in stormwater assessments and outreach. This outreach includes education and extension activities to foster resident awareness of human-environment links within the greater Patuxent and Anacostia watersheds, impacts of behaviors on water quality, benefits of BMPs, and the application of the DDSS tool in a watershed context.

This research first compares the stormwater context for BMP practices, education and incentives. This project then examines initial findings from interviews, photovoice, and a watershed survey for both case studies in order to examine stormwater attitudes, knowledge, behavior, and perspectives from stakeholders, youth, and residents. This research draws initial conclusions on the differences between stormwater incentives and barriers. Implications from this research suggest the value of a community-based participatory approach to stormwater management in developing stormwater incentives and practices that better align with neighborhood issues and concerns.

Community Engagement and Critical Awareness: Interdisciplinary Efforts to Cultivate Awareness in Students

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Keywords: empowerment, community engagement, community action, service-learning, education, interdisciplinary

The conference theme explores the question of how to regenerate and transform our cities. Specifically, the call questions how communities are engaged in the decision-making process concerning their future? Engagement efforts by universities often aim to empower community decision-making, but also often undermine empowerment by attempting to solve problems for communities rather than with them, or engage citizens in limited participation that does not meaningfully inform a solution. Such practices are commonplace, and have been characterized as extractive (Chambers, 1994; Juarez and Brown, 2008), token (Arnstein, 1969) or even false in their generosity (Freire 1970). Such characterizations conjure images of intentional manipulation aimed at structuring a solution to the given situation that reflect the vales of the community development professional or elite interests of those in power, more than those of the community. While intentional manipulation undoubtedly occurs, the unintentional undermining of community empowerment is also common, due in part to the lack of awareness of those involved in providing service. This lack of awareness is often the product of deeply-engrained preconceptions about the roles and responsibilities of professionals, the primacy of expert knowledge in defining and solving problems, and the perceived limits of local power in shaping the future, particularly in marginalized communities. The result may be a narrowly-defined solution to a community problem, but the larger societal structures that influence the community are not addressed, and the community continues to be powerless in asserting control over resources and systems vital to their sustainable future.

If we accept the notion that empowering communities is key to regenerating and transforming cities, how do we cultivate awareness in students, practitioners and institutional partners to reject preconceptions which undermine this empowerment? This paper examines an ongoing interdisciplinary action-research project at a large public university, aimed at instilling such awareness in students through the development of critical social consciousness and the direct engagement of a community through service. Drawing upon literature in education, international development, community organizing, planning and design, this curriculum prepares facilitators to nurture empowerment through engagement with environmental issues and opportunities. In its second year, assessment of the program has illuminated challenges to both the empowerment of communities, as well as the training of professionals, including the tremendous depth of preconceptions that work against empowerment, the conscious recognition of larger power structures, the value of strategic scenario thinking for practitioners and community members, and the growing of diverse community leadership.

Design by Community

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Keywords: participatory design, community design, qualitative methods, aesthetics, community-built practices

Design by community: aesthetic outcomes and inclusive processes in community-built practices. As the saying, “a camel is a horse designed by committee,” implies, there is a perception that community participation in design results in a disjointed, watered-down project. It implies that there is a trade-off between aesthetic outcomes and inclusive processes.

This tension was observed in writings about community-built practices (defined as professional practices that involve local volunteers in the design and construction of shared spaces). These writings were analyzed as part of a larger research project that aimed to develop a collective description of community-built practices. Existing texts (articles, books, and websites about community-built practices) were used as data in order to cover a breadth of community-built practices while also retaining some of their more-qualitative aspects. Through a grounded theory method based on Auerbach and Silverstein (2003) and Charmaz (2006), the researcher selected and coded relevant text from the eighty-eight selected texts. Through the analysis of those codes, she then constructed categories of common characteristics and shared beliefs found within these descriptions of community-built practices. Within these categories, she observed a tension between the collective belief that everyone has something of value to give and the creation of a unified, professional project, especially in terms of how practitioners negotiate between their personal aesthetic opinions and the contributions of participants.

For some, the tension is resolved by valuing the inclusive process more than the outcome. Others have aesthetic values that complement likely outcomes of a participatory process: for example, seeing irregularities as character and the unexpected as beautiful. Some choose to see the tension as a source of creativity itself.

At the same time, many community-built practitioners emphasize the professionalism of their design work and warn against accepting all suggestions without discernment. Practitioners clearly define their roles in relationship with the community; in many cases, the community is in charge of the vision, and the designer is in charge of the design. As one practitioner explains; he is a chef, mixing diverse ingredients together, creating a delicious meal out of what might appear to be a hodgepodge of ingredients.

This interpretive analysis suggests that, although aesthetic outcomes and inclusive processes can create tensions in design, one does not have to be abandoned for the other. The tensions can be negotiated through how one defines project priorities, desired aesthetics, and roles within the process.

Developing Durable Service Learning Partnerships

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Keywords: Durable Partnerships, Service Learning Typology

This paper proposes a framework for planning and conducting service learning design-build projects by first providing a typology of current and past projects and then outlining one specific 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). Research suggests that students learn more by engaging in community outreach and service learning projects while being encouraged to develop civic virtues such as altruism and empathy.

The author has identified five project types and will describe benefits, limitations, duration and level of impact for each by reviewing the work of several academicians who have conducted service learning and/or design-build projects. This paper will also describe the steps taken to develop and establish the ICIW partnership and reflect upon lessons learned from this experience, in order to inform the work of those who contemplate long-term community partnerships.

The five project types include Community Outreach, Service Learning, Design-Build, Service Learning/Design-Build and Durable Service Learning Partnerships. This typology was generated by surveying outreach projects within design programs at the author's institution and at peer institutions. A critical issue identified here is the significance of the duration of the partnership among the four parties involved: community, students, faculty and university. Many of these projects are necessarily short-term, often complete in just one semester because of the academic calendar; this can prove to be a significant limitation.

Durable Service Learning Partnerships involve creating long-term partnerships promoting a deeper understanding of the site and the needs of the population. As with other service learning design-build projects, this type of partnership creates mutual benefits for each of the four parties, as they are able to accomplish projects together that might be cost-prohibitive or logistically impossible otherwise. The impacts of this partnership are intensified by its longevity. By continuing to collaborate and build on the work of previous students and faculty, information is revealed about the project and the community that would not otherwise be discovered. Trust and cooperation are built with time and commitment from all parties, allowing for more meaningful, appropriate and innovative design solutions.

Engaging the State, Impacting Communities, and Transforming Students

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Keywords: Service-Learning, Design Research

Directly addressing the conference theme, the fertile agrarian landscape of the American Great Plains represents one of the greatest contemporary examples “experiencing pressure related to increase urbanization”, in the form of suburbanization. Mid- and small-size urban developments throughout the plains are recalibrating their boundaries or thresholds based on developer driven economic models that operate formally within the extensive land grid. To understand these continually shifting thresholds, a partnership was formed to teach, research, and develop community awareness surrounding this regionally based topic.

The University of Nebraska and nonprofit research and design collaborative Emerging Terrain partnered to practice service-learning on a relevant and pressing topic facing communities within the Great Plains. The partnership supports the organization’s research project “Shifting Thresholds” and builds upon the first-phase supported by the National Endowment for the Arts - Our Town Initiative and Humanities Nebraska. The partnership builds upon 65+ hours of community interviews, extensive ownership mapping, and professional aerial photography. The partnership also engages professional experts to assist in the community outreach with the ultimate goal to raise awareness of the community to regional issues of suburbanization.

The course introduced students, the community, and professional experts to the service-learning approach by positioning students between professional experts and the University / nonprofit. Student teams researched six scopes (Land Use, Financial, Ecology, Housing, Infrastructure, and Agriculture) effecting suburbanization in the Great Plains with a professional expert, to facilitate a reciprocal learning experience. The students engaged in weekly dialogues with the professional experts and the community.

The service-learning outcomes appear in the following categories: enhanced understanding of course content; linking course content to real life situations; ethical development; civic responsibility; leadership skills; teamwork / collaboration skills; appreciation of diversity; and career preparation. Reflection and student dialogue were used to link service and learning as well as to assess student outcomes. The reflection activities were designed based on the specific learning outcomes identified. Reflection activities included personal journals, directed journals, directed readings, classroom assessments, class discussion, and student work/portfolios. The course also participated in pre-, mid-, and post-assessment journal entries as part of a University-wide service-learning impact and assessment effort. The partnership seeks to inspire and inform communities and young professionals towards a life long awareness and service-learning focus.

This presentation will discuss the pedagogical strategies, course structure, and student journal reflections between university and non-profit community partnership.

Greening Urban Schoolyards

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Keywords: senior studio, community engagement, service learning, greening schoolyards, sustainable urban schoolyards

This presentation describes a senior studio focused on greening inner city schoolyards through service learning and community engagement. Two schools in Philadelphia: Cramp and Girard Elementary were used as case studies. Our students provided designs for transforming these schoolyards from desert-like paved settings into one that reflects healthy, aesthetic, and sustainable environments. The designs incorporated concepts for reduced paving, stormwater-based amenities, and low-maintenance plantings. The process engaged the input and participation of students, parents, teachers, principles, and city officials.

The Philadelphia public school system is comprised of 300+ schools. These properties cover a vast area of impervious pavements. This condition is environmentally unfriendly and deprives children of physical and emotional benefits from access to green space that are strongly reflected in childhood experience (Kellert and Derr, 1998). Greening schoolyards provides excellent opportunities for children to interact with nature which favorably impacts their physical, mental, moral, and emotional development (Dannenmaier, 1998). It supports Philadelphia's Green2015 Plan to make "Philadelphia America's Greenest City" (http://planphilly.com/green2015).

The methodology began with an application and approval from the School District of Philadelphia to conduct the project. Our students were expected to provide final designs for greening schoolyards including solutions that educate the public about green infrastructure and provide children the opportunities to experience "nature based" landscapes, and educational and physical outdoor activities.

Students conducted numerous case studies and literature review on urban schoolyard designs and green infrastructure. They assembled base plans; undertook extensive site inventory/analysis; and developed conceptual/schematic designs, and master plans. Faculty coordinated meetings with the project participants so that students could gather input about the challenges and aspirations through small group facilitation. At each phase of the design process, students presented their drawings and solicited feedback. ASLA members served as jurors and provided professional design input.

Our students presented their master plans and explained the new knowledge they learned about how greening schoolyards is environmentally sustainable, and how it connects children to "nature" as well as provides a place where children can be physically active that is crucial to enhancing their health and development (Moore, 1997). Since children spend +6 hours/day in school, schoolyards are effective places to instill environmental awareness as well as engage children in healthier lifestyles through outdoor activities. This project will serve as an exemplary model that could be leveraged for greening other urban schoolyards in the future. Ways to enhance future community engagement in the studio will be discussed.

Interdisciplinary Design and Service Learning: Strategies for Successful Program Implementation

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Keywords: Interdisciplinary, Participatory Design, Community Engagement

This exploratory study documents and evaluates the process of integrating interdisciplinary learning experiences with participatory design and community engagement. Through a singular case study, challenges, benefits, and strategies for successful program implementation are identified.

In recent years, university programs have realized the value of including civic engagement in students' design education experiences. Benefits of these programs include real-world learning experiences for students, conceptual design services for underserved communities, and the opportunity for instilling empathy in students, which is operationalized as an ability to understand and relate to the experiences, perspectives, and values of others. As universities have integrated design and construction disciplines within cohesive academic units, interdisciplinary civic engagement and service-learning programs have the potential for not only cultivating empathy between academic programs and communities, but also among the various disciplines that shape the built environment. However, research on the intersection between interdisciplinary service-learning programs indicates the persistence of structural, pedagogical, and logistical challenges to implementing truly interdisciplinary collaborative programs that focus on civic engagement. This study identifies these challenges and recommends strategies for achieving participation and collaboration of multiple disciplines in service-learning projects.

This exploratory study employs a singular case study to demonstrate how a recently integrated administrative unit involved landscape architecture, architecture, interior design, and construction management in an interdisciplinary civic engagement project in a rural community in the Northern Rocky Mountain Bioregion. The efficacy and challenges of the pedagogical experience are evaluated through surveys of students prior to and following participation in the project, review of students' generated design products, and analysis of community feedback.

Findings indicate project selection plays a significant role in cross-disciplinary appeal of service-learning experiences. Additionally, while structural support of administrative units is critical to successful interdisciplinary service-learning experiences, this study found the efficacy of such programs is ultimately dependent upon participation of individual faculty members within each discipline who are committed to both interdisciplinary collaboration and service-learning as core pedagogical goals within their respective disciplines.

If successfully implemented, interdisciplinary service-learning projects have the potential to instill empathy, generate new knowledge, advance faculty and graduate student scholarship, and provide tangible benefits for communities. Through documentation and evaluation of the process, this case study offers strategies for identifying and selecting optimal projects, navigating institutional and pedagogical challenges, and achieving participation by multiple disciplines.

Layers of Learning: Engaged Scholarship for Student and Community Education

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Keywords: engaged scholarship, student engagement, public participation, reflection,

Through service-learning studios in which faculty commit their time and expertise while harnessing the talents of design students, "engaged scholarship" can invite creative participation and empower diverse publics to interact and envision their desired futures. While these studios often achieve positive outcomes, they require considerable planning, vision, and leadership in order to achieve stated objectives of satisfying the needs of students, curricula and client communities. Those who engage in service-learning linking academic practice with public service are well aware that the studios may be unwieldy, time-consuming and difficult to fit within a semester schedule. Despite considerable demands, students report deep satisfaction in what they learn and in the skills they develop.

For this panel, four seasoned instructors will articulate issues embedded in service-learning and engaged scholarship and reflect upon the pedagogical advantages and disadvantages of their methods within a framework of common steps and varied approaches and practices. Each panelist will describe what drives their studios and the methods used for finding and defining projects, scoping tasks and developing action plans, selecting techniques for civic engagement, and determining products, outcomes and layers of student and stakeholder learning. Each will also address the unique roles faculty play in managing, directing, and interacting with students, communities and institutions while developing scholarship that is disseminated and recognized in home institutions. A synopsis of the advantages and disadvantages of each will also be offered.

Panelist 1 - Structure and methods focus on providing real-world learning to undergraduate students engaged with local communities. Emphasis is placed on finding a suitable project, engaging in a public process, coordinating academic and client community needs, developing alternative scenarios, and learning through observation and reflection what students learn.

Panelist 2 - Graduate service-learning studios and faculty-led extracurricular projects require similar project processes that may lead to positive community and built-environment outcomes. The presenter will reflect upon the advantages and disadvantages of each approach and identify the layers of learning and scholarship they can engender.

Panelist 3 - The presenter discusses the recent growth, recognition, and acceptance of engaged scholarship (see Carnegie Foundation’s Community Engagement Elective Classification) in promotion decisions, and the implications for developing measures acknowledging and assessing the work of the engaged scholar.

Panelist 4 - Drawing upon experiences teaching Design Activism Studios, the presenter will discuss ‘emergent’ (bottom up) and ‘convergent’ (bottom up/top down) approaches to design education celebrating the incremental nature of informal urban development.

Lessons from the Trenches: Design Charrette Dynamics in Practice

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Keywords: charrette, urban design, participatory design

The charrette has become ubiquitous in urban design practice, ranging in scale and complexity from highly orchestrated and very expensive productions to low-budget workshops with a few key talents and decision-makers (Smith, 2012). All have a common goal: to transform collected goals, opinions, unique project requirements and piles of site data into a compelling, shared vision in a matter of days or even hours (Lennertz, 2012). The academic training and experience of landscape architects across a broad range of scales can make them critical components of interdisciplinary teams in challenging charrette situations.

This study will examine the dynamics of seven urban design charrettes over five years, based on the author's participation as each charrette team's lead landscape architect, concept designer and illustrator. These design challenges included an historic district, an airport's redevelopment venture, a rapidly developing highway corridor, a sculpture park and a new mixed-use town centers. In each case, the landscape architect was charged with synthesizing large amounts of information from varied disciplines and participants into one or more preferred solutions. The study will shed light on key lessons learned that can benefit public, private and academic practice of landscape architecture through addressing the following questions:

• Under what circumstances are charrettes an appropriate strategy in a longer design process?
• What are the most critical components of the charrette team and process that help ensure a successful result?
• What are the technical, professional and interpersonal skills required of landscape architects in charrette leadership roles to successfully impact the charrette's outcome?

Navigating Institutional Territory to Establish a Civic Engagement Initiative

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Keywords: civic engagement, service-learning, institutional change

Universities across the country are emphasizing a more systematic and a comprehensive campus engagement strategy in communities across their regions. This emphasis is a result of: resources made available through federal programs have provided funds to create strategic campus-community programs; experiential and active learning strategies (e.g., service-learning, internships) have placed greater emphasis on providing students with opportunities for hands-on learning experiences; and shifts in faculty work emphasize broader definitions of scholarship, including the scholarship of engagement (Boyer, 1996; Bringle, Games, Ludlum, Osgood, & Osborne, 2000; Bringle, Hatcher, & Games, 1997; Rice !996). As innovators, civic-minded collaborators, and studio-based instructors, design discipline faculty are poised to step into a leadership role on campuses seeking to embrace a renewed commitment to community involvement, civic engagement and service-learning.

The purpose of this presentation is for entry-, mid- and upper-level faculty to position design disciplines within university engagement initiatives. The presenter will describe how establishment of The Rural Futures Institute, and subsequently the initial civic engagement grants program, enabled a service-learning initiative in The College of Architecture (CoA). Capitalizing on the grant program, the CoA established infrastructure for a robust service-learning initiative embedded in curricula. An expert-led learning community engaged ten faculty from architecture, interior design, landscape architecture, and planning programs to transform twelve courses, as well as developing new courses engaging students in service-learning projects across the region. The initiative targeted a full-range of courses including a new freshman learning community, a large campus-wide lecture course, studios and capstone experiences, interdisciplinary and transdisciplinary project teams, and undergraduate and graduate courses. By the end of the grant, more than 500 students will participate in these service-learning experiences.

Projects and partnerships are diverse, touching some of the most pressing social, civic, and ethical problems in the Great Plains region. The 45 partnerships address rural health, sustainability practices and energy conservation, revitalization plans for rural communities, flooding and green infrastructure, recreational resources and tourism, and rural quality of life.

CoA provided matching funds in support of faculty disseminating their scholarly activities. The CoA also played a key role in defining and facilitating the Rural Futures Institutes research agenda at the student, faculty and partner levels across all grants.

This presentation will describe a process for developing a faculty led initiative that navigates the territory across university-college-program levels. Highlighted will be strategies, tools, and mechanisms needed to ensure buy-in at all levels of the institution.

Research as Service Learning: Food on the Front Range

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Keywords: research, service learning, food

While most service learning within Landscape Architecture engages students in design and construction, both of which are valuable, there is another avenue for service which should be given more attention. Research that presents our professional perspective on issues that are relevant to the particular places that we live and study, and positioning that research so that it can influence policy or political will, is also a valuable type of service learning. A review of the research on service learning in design schools shows a typical focus on disadvantaged communities and concrete projects and no references to attempting to use our pedagogical effort to proactively change the social and political framework within which our professions are situated. While typical service-learning models are valuable, if we are to instigate any significant change in our communities we need to do more than respond to injustices and attempt to influence policy makers and the broader social and political context of our work. I propose that bringing research which supports positive changes in the landscape to key decision makers is one way to do this. As landscape architects are hired to take on an ever wider range of issues and challenges, providing the students with opportunities for significant issue-based research and writing experience benefits both them and the profession.

This paper will describe the outcomes of a research seminar titled “Food on the Front Range” in which students were expected to produce publishable papers. Students selected their own topics based on their interests. These ranged from social justice issues such as access to grocery stores in underserved neighborhoods to using SNAP for local food to more concrete issues such as the potential for completely local beer production and a cost-benefit analysis of aquaculture. Students were required to do original research and used a wide variety of methods as appropriate to their individual study. Connections have been made through the county extension office between students and members of Denver’s Sustainable Food Policy Council and it is expected that these papers will directly support the Denver Mayor’s initiative to source 20% of Denver’s food from within Colorado by 2020. As this course has just finished and the papers just distributed, the impact and continuity of connections made has yet to be seen – I expect community reflections to return to me in late January to early February 2014 and will include those reflections in my presentation.

Restoring, Invigorating and Transforming Small Towns through Community-University Partnerships

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Keywords: Service-learning and community Engagement, Extension Service and Outreach

Service-learning pedagogy has been used in a variety of disciplines to bring about the further education of students, and provides faculty with a way to link meaningful community service to academic course objectives. Research indicates that service-learning coursework provides students with a better understanding of teamwork, increased knowledge of working with diverse populations, and heightened levels of self-efficacy. Further, communities are able to engage in the learning process, build partnerships with the university, and have short- and long-term needs met. Yet, service-learning is not without its challenges, so how do faculty members develop these transformative projects? Faculty members from the Department of Landscape Architecture have created several award winning service projects. The University recently established a Center for the Advancement of Service-Learning Excellence (CASLE) under the Extension Services Division, which coordinates university-wide community partnerships reaching beyond campus into 82 counties across Mississippi in order to co-create design concepts with those who live within the communities. Panelists will discuss how they have built coalitions to develop projects that educate students and provide for sustainable community efforts.

Rational for importance of topic:
Panelists will describe successful service-learning projects which have received national awards and NEA grants. These projects have improved student learning and provided people living in rural communities with new ways to govern their living environments while enhancing the larger ecosystem services. We believe that these efforts will be further enhanced with the faculty's future collaboration with CASLE. While service-learning centers are prevalent in US higher education institutions, CASLE is unique in that it partners Academic Affairs with Extension Services to provide direct access to counties, agents, specialists, and faculty across the state. The Center enhances research being conducted in practice-based disciplines across the university but uniquely in landscape architecture. Panel members will illustrate the potential value of this collaboration in education of the next generation of landscape architects, planners, and designers.

Presentation structure:
Panelists will discuss teaching, research, and service-learning from the perspectives of a landscape architecture administrator, the director of the Center for the Advancement of Service-Learning Excellence and two active landscape architecture professors. Each panelist will discuss the complex layers of ecology, economy, technology, culture and politics that are involved in managing a viable service-learning project while balancing the demands of teaching, research, and service to benefit all stakeholders.

Following presentations by each panelist, a structured/facilitated Q&A session will encourage interaction and feedback from the audience.

Rethinking Community Engagement in Oak Park, Sacramento: Toward Alternative, Grassroots Approaches

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Keywords: Grassroots activism, community engagement, citizen participation, urban design

In 2008, the Sacramento Housing and Redevelopment Agency issued a Streetscape and Urban Design Master Plan for the city's Martin Luther King, Jr. Boulevard located in one of the city's most diverse and historically disinvested communities. The report credits the plan as being "created by the community of Oak Park," but as one of the paid consultants on the project, I attest that this is far from the truth. What is worse, the costly planning project, though technically proficient and aesthetically inspiring, has resulted in very little impact for the neighborhood in the five years since its completion. This paper revisits this project with a critical eye and proposes potential alternatives to engagement that local activists, designers and university partners might more successfully employ.

Citizen participation, that Achilles heel of planning (Benevente in D. Day, 1997, p. 421), continues to confuse contemporary practitioners, bureaucrats and citizens alike. The term itself unfortunately brings to mind a certain kind of structured, top-down communication between officials and citizens. Direct participation, however, can also take on other forms that are more collaborative, bottom-up, and sustained. As the failures of so many traditional approaches are realized, it is imperative that all of these forms of participation and engagement be considered within the planning and design fields so that local citizens can help officials and designers foster more sustainable and just communities. Today there is a great deal at stake: there is growing consensus that the challenges of climate adaptation, resource depletion, disease, and economic equity require not only technological solutions but creative social solutions as well (Wheeler, 2012; Hester, 2006; Bookchin, 2005).

In the case of Oak Park, the traditional tools of public participation—workshops, walking tours, walkability presentations, and charrettes—produced a legible plan but without broad participation from the diverse publics who live, work and learn in the community. It also failed to mobilize the political will to execute the project with any respectable timeframe. In the absence of political leadership, grassroots organizations like the nonprofit Ubuntu Green have taken up some of the slack using direct participation. This paper concludes by exploring the existing and potential for partnerships between the community, its grassroots institutions and landscape architecture students. Initiating a service-learning relationship with a community is carefully considered as a way to avoid some of the paternalistic, short-term and ultimately unsuccessful experiences of the MLK Jr. Boulevard project.

Service Learning Partnerships with Private Practice

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Keywords: partnerships, private practice, service learning internships

Service learning as a tool for landscape architecture education is prescriptive in its ability to develop moral as well as professional values (1)(2). Development of these values in the academic realm is important as we prepare future practitioners to enter into the professional world. Upon graduation they will be expected to adhere and advance the tenets of the American Society of Landscape Architects (ASLA) that outline personal and environmental values. Traditional delivery of service learning has been through the university as an academic endeavor that is embedded into a specific course, but alternative models exit that provide an opportunity to engage with private practice in its delivery to enhance overall outcomes and value development. A service learning internship organized and sponsored by a firm in partnership with the university can have positive implications for all the shareholders. The opportunities and constraints of this model are examined in a case study that encompasses three separate service-learning internships that have worked at AIDS orphanages in South Africa to design and construct food gardens and playgrounds.

Discernable benefits are identified for the students, university, sponsoring private firm, and the community for which the work is being done. Each of the internships provided students a chance to experience how the administration of the sponsoring firm works as it undertake the delivery of a project. They are able to see the significance of communication and conflict resolution skills as they influence the success and momentum of a project's completion. It provides a new set of professional role models that can influence their moral and professional development. The sponsoring firm benefits in its ability to observe potential future employees in real world experiences, and provides an opportunity to enhance their own community philanthropy. Their professional development is renewed with an opportunity to prioritize the tenets of ASLA in the work being completed. The university benefits from the student's involvement as it showcases their community outreach and engagement with global issues. The children of the AIDS orphanage benefit from new resources that have been built to enhance and improve their daily lives.

Additional benefits include a streamlining of service learning delivery to the students, and the ability to make difficult sites and marginalized clients more accessible. The partnership between universities and private practice for delivery of service learning should be strengthened with increased outreach to private firms for engagement and involvement.

Skills that Democratic Designers Will Need: the Place of Participation

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Keywords: Community participation, Design skills, Seven essential skills

In recent years participatory design has achieved privileged status within landscape architectural research producing significant advances in theory (Stokols 2011; Hester and Chang 1999) and practice (Angotti, Doble and Horrigan 2011; McNally 2011; Chanse 2011). There is evidence of distinct approaches (Liu 2005; Hester1983; Halprin 1969), nuanced methods (Doble and King 2011; Organization of Urban Re-s 2005) and cultural trends in American society and emerging democracies (Hester 2012; Hou 2010).

Still within academia there remains tension between participation and design excellence (Hester 2005; Halprin 1999). This is partly a quandary over what skills landscape architects will need and which educational priorities should dominate and partly the continuing question about the roles of professionals regarding laypeople in a democratic society (Bowring 2012; Treib 2008; Liu 2005).So what skills will be most needed to do participatory design in the future?

This paper examines the skills landscape architects will need to be effective in democratic design and decision making by reviewing the skills historically considered important for participatory design, the ideas introduced by landscape architects and environmental planners that significantly impacted society in the recent past, identifying the people most responsible for advancing the ideas and their shared skills (Hester 2001; Litton et al 1992; Hester 1990). These skills are compared and contrasted to the skills listed as essential in the 2004 Landscape Architecture Body of Knowledge Study Report and to various educational approaches in the United States and elsewhere that place emphasis on participatory design (ASLA 2004).

The skills shared by those who introduced the ideas that have most impacted society, the 2004 Study Report skills and the Historic skills of community designers were analyzed for overlap and merged. The merged skill sets include the following: 1.Core skills in design/planning, 2. Participatory design theory and group processes and techniques for collaborative design, 3. Political organizing, empowerment and changing power structures, 4.The functions of community as people, place and ecosystem, 5.Environmental justice, need-based programs, micro social patterns and macro trends, 6. Development of a vision for society, courage of convictions and civic ambition and 7.Mastery of multiple disciplines, employing oppositions to maximize outcomes. This paper discusses the seven skill sets in comparison to those called for in the Study Report, by participatory designers and innovators, and the debates about the roles of design versus participation. It suggests ways to learn important skills missing from present curricula.

Temple University Landscape Architecture Studio and the New Kensington Community Development Corporation Develop Strategies to Restore the Kensington Somerset Neighborhood in Philadelphia

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Keywords: community revitalization, vacant buildings and lots, crime and drugs, community development corporation, viaduct

In the strong tradition of service learning and community engagement at Temple University, this presentation will describe an urban, community-based planning and design process undertaken by a graduate landscape architecture studio in the Kensington Somerset neighborhood of Philadelphia. The project was initiated through an inquiry from the New Kensington Community Development Corporation (NKCDC) to the Temple University Department of Landscape Architecture and Horticulture (LA-Hort). NKCDC was aware of prior LA-Hort service learning undergraduate studios in the Francisville neighborhood of Philadelphia and were interested in recommendations for vacant lots. Graduate students in the 2013 Kensington Somerset studio, were asked to propose a neighborhood master plan, including design ideas for multiple vacant lots, within a context of urban decline, environmental injustice, and redevelopment initiatives. The methods, goals and outcomes of the studio will be addressed in this presentation.

The Kensington Somerset neighborhood consists of two nearby SEPTA elevated rail stations, private and rental residences in a matrix of vacant lots, light industrial complexes and scrap yards, abandoned mills, and a defunct rail line viaduct. The neighborhood also contains several small-scale commercial corridors as well as a few facilities for education and community development. The closest city park is northeast of the site. Its official name is McPherson Square, but it is also known as ‘Needle Square,’ a nickname indicative of the amount of drug use that occurs in and near the site.

Students and faculty worked closely with the NKCDC and the Somerset Neighbors for Better Living neighborhood advisory committee to assess comprehensively the complexities of the site and the needs of the community. The students’ analysis of the neighborhood included an inventory of the land use, a review of the relevant property ownership records, as well as the area’s hydrology, ecology, and demographics. This analysis, along with data gathered from neighborhood meetings and interviews, provided a foundation for the students as they designed an active, mixed-use community within the existing urban fabric, using traditional town and neighborhood planning principles. Work developed in studio was further edited and developed into a report for NKCDC and shared with the City of Philadelphia License and Inspections Department.

This community-based design process has inspired many of the residents to begin reclaiming this area as true “community property.” Post studio surveys of students and community partners will evaluate the effectiveness of the studio in terms of which strategies worked, where adjustments are needed, challenges and successes.

The Power of Voice, The Power of Listening: Storytelling as Transformative Practice in Community Engagement

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Keywords: stories, authentic dialogue, community history, community engagement, transformative storytelling

Stories play an important role in the development and survival of cultures. Traditionally, they provide significant information about language, history, and the environment; and they are a vessel through which knowledge of our heritage is constructed and carried forth. John Forrester states, “In telling stories, parties tell who they are, what they care about, and what deeper concerns they may have” (2000). Stories have the power of shaping the way that we view history and the world around us; as such, there is a great transformative potential in storytelling. The crafting of stories that run counter to meta-narratives and dominant ideologies, opens a space for authentic dialogue about knowledge legitimation within the profession of design and planning. This is critical to the field of Landscape Architecture because it allows for a deeper understanding of the make-up of our society, from the individual, local communities, and also with regard to the history and development entire cities. Moreover, it employs a mode of engagement by which landscape architects can more effectively meet the needs of the communities they serve through reflective practice. Within this research the practice of using stories as a platform for transformative practice is based on the work of Paulo Freire’s process of ‘conscientization’ or critical awareness (1974). In this presentation, I will first argue for the importance of stories and dialogue in community engaged research and practice. Second, I will discuss how critical awareness and storytelling can impact knowledge and epistemology in design and planning practice. Third, I will make a case for the acknowledgement of multiple stories in community-engaged projects rooted in collaborative processes. Finally, I will illustrate ways in which the practice of critical awareness can contribute to design education for positive social transformation.

Trusting the Perspective: Beyond Service Learning Trompe-l'oeil

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Keywords: Service Learning, Design Build

As design pedagogy increasingly shifts toward studio partnerships with communities and outreach organizations, it is easy to see how service learning through interdisciplinary design-build studios has become an ideal catalyst for spawning public interest design. However, all community-centric design build projects should not be viewed as equal; a discerning and critical eye must be developed. For those who choose to yield hammers, everything can be perceived as "a nail" creating false perspective, distorted motives, and illusionary products. In an attempt to create a metric that will dilute the "service learning wash" yet simultaneously and enthusiastically advance the agenda of Public Interest Design, this paper focuses on the need for a critical process that builds poignant relationships between the academy and the community. Based on two interdisciplinary service learning design-build studios, a case study approach is used to explore the effectiveness of studio work as a catalyst for recognizing community needs, enabling effective communication and marketing strategies, while also reinforcing the notion of collaborative authorship and collective ownership.

In Service-Learning in Design and Planning 2010, Angotti, Doble and Horrigan's essay suggests that "bringing students and professors into neighborhoods reinforces the power and status of the professionals and dis-empowers residents," thus creating more exploitation than education. Through the investigation of the case study projects, the Greenville Humane Society Bark Park and the Sassafras Mountain Overlook, Vitruvian virtues of firmness, commodity, and delight strategically surface as the fundamental tools from which to both measure and communicate why and how good design matters– especially in communities. Through the processes of collaboration, discussion, and reflection, trust is built between the community and academy resulting in co-beneficiaries and reciprocal partners through the design build process. As a result communities are informed on issues of design and are competently empowered to engage Public Interest Design projects with knowledgeable and clear vision.

Using Theory of Change to Evaluate a Service-Learning Studio

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Keywords: theory of change, service-learning, evaluation, civic engagement, sustainable development

Theory of change (Connell and Kubisch, 1998; Powers, 2004) provides a critical evaluative methodology and lens through which to understand the intentions and outcomes of community initiatives. It is also relevant to evaluating those community initiatives, which are also tied to a civically engaged university education and research project. This paper presents one particular case in which theory of change is being used to evaluate a current Capstone Studio service-learning engagement. In this case, the service-learning Capstone Studio engagement forms an integral part of a larger civic engagement action research project engaged in urban and regional sustainable development in a university's backyard.

This paper will first provide an understanding of the larger action research project's civic engagement and sustainable development objectives. It will then summarize the key intentions and structure of the service-learning course's design to meet its sustainable development and civic engagement goals. Then it will turn to focusing particularly on providing an evaluation of how those goals are being met by the course and particularly how it is impacting its student participants. A principle research question this evaluation asks is: Through the Capstone service-learning experience, what are students learning, practicing, and internalizing of the habits, methods, and approaches of democratic professionalism and responsive, place-based design?

This paper has relevance to design educators involved with community engaged service-learning and research. It has added relevance to those who are seeking examples of contemporary design pedagogy aligning with the theories and practices of sustainability and sustainable community development (Orr 2002; Sterling 2011). Finally, this paper offers pragmatic guidance to any educator seeking a tool for purposefully articulating the underlying theory embedded within a course or initiative, and thereby illuminating avenues for evaluative learning about the achievement of learning or programmatic outcomes. Theory of change is particularly applicable to place-based teaching and research.

Your Town: The Citizens' Institute on Rural Design - A Twenty Year Reflection

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Keywords: rural, community, design, planning, workshop

Your Town: The Citizens' Institute on Rural Design is a leadership initiative funded by the National Endowment for the Arts that responds to the design needs of small towns and rural areas. The Your Town program is rural complement to the NEA's heralded Mayors' Institute on City Design. Your Town has been the flagship program for the NEA's goal to bring design and planning appreciation and expertise to rural communities. The presenter was the founder and co-director of the program from 1991 – 2012 and was responsible for coordinating 70 workshops in 33 states. The goal of the workshops was to teach rural community leaders about the role of design in shaping a community's future. More recent emphasis was placed on creative place making.

Your Town: The Citizens' Institute on Rural Design addresses a range of critical problems that rural communities face. In some cases, the main concerns are heavy out-migration and loss of employment opportunities; in others, rapid growth from suburban sprawl, location of new facilities, or influx of retirees. These problems affect the vitality of the community, its design, and its sense of place. Your Town: The Citizens' Institute on Rural Design addresses these issues of community integrity and character through the process of design in a two-and-a-half-day participatory workshop.

For the purposes of Your Town, "community" is defined broadly: not just the town center or area within the town boundary, but also the area surrounding the town which depends on its goods and services and contributes an economic base, land for expansion, agricultural land or open space, and recreational opportunities.

In 2012 the NEA contracted an independent educational research firm RMC to conduct an evaluation of the first twenty years. RMC designed an evaluation process that included extensive interviews with past participants, community visits and questionnaires. This presentation will summarize the Your Town workshop design, review three case study communities, and conclude with the design of the RMC evaluation process and the conclusions about the program's effectiveness.

SUSTAINABILITY

Critical Pathways: Collaboration = Success

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Keywords: ecodistricts

There is a clear demand for sustainable design that promotes and expands the integration between design professionals, academics, nonprofits and governmental agencies to tackle the mounting problems of climate change and increased pressures of urbanization. In order for our efforts to have significant impact on a sustainable future, we must rethink our strategies and focus on collaboration as the variable that most affects the sustainability of the project. EcoDistricts offer one of the most compelling and comprehensive frameworks for action towards a sustainable future and one that uses collaboration as its main core principle. We would like to share a case study that used a community organized initiative and landscape architecture studio to develop a comprehensive EcoDistrict plan and design; one that that was successful largely due to the collaboration of the many entities involved.

In the fall of 2012, we offered an interdisciplinary collaborative studio for 4th year architecture and landscape architecture students. The studio intent was for students to collaborate with a community 'client' , outside domain experts and liberal arts faculty. The semester work included developing guiding principles that were based on the community's needs, community roundtable discussions to discuss design ideas, 'meet and greets' in the community and forums with domain experts. The process also included workshops for self-discovery by working with student life on team building skills, one on one evaluation of personality types and pre and post surveys of discipline specific responses . The learning outcomes included experience in teamwork and evaluating the experience as the semester progressed, a newly developed respect for other disciplines by working with various domain experts, enhanced communication skills by presenting to many community groups and balancing conflicting opinions from the various entities involved in the design process. This session will explore the relationship between collaboration, sustainable design and communities and lessons learned from the strategies employed.

Dredging Landscapes of the Great Lakes

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Keywords: dredging, constructed wetlands, Great Lakes, hunting ground, waterfowl, sediment

In the Great Lakes region, earth borne by water sheds towards the largest set of surface freshwater bodies in the world. Sedimentation of the lakes and their river tributaries is a continuous process, exacerbated by urbanization and agricultural development. A massive volume of sediment is dredged annually from shipping lanes and navigation channels of Great Lakes federal harbors to facilitate the shipping trade that underpins the economy of the region. Of the 3.5 million cubic yards of sediment dredged each year in the Great Lakes region, half cannot be disposed of in open water or utilized in beach nourishment due to contamination. [1] Since 1970, the Environmental Protection Agency (EPA) has required that sediment freighted with fertilizers, heavy metals, and volatile organic compounds be contained in one of 42 constructed landscapes called Confined Disposal Facilities (CDFs).

While many of the 23 still active Great Lakes CDFs, designed and managed by the US Army Corps of Engineers, are utilitarian at best, a handful of these artificial islands and peninsula are sites where innovative sediment management initiatives have been realized. Pointe Mouillée, an over 4,000-acre State Game Area and CDF in southeast Michigan, is a polyfunctional infrastructural landscape—simultaneously a hunting ground, active waste site, wildlife refuge, and prized birding area. The Erie Pier CDF, an 89-acre landscape in Duluth-Superior Harbor, has recently transformed from dump site to staging ground. The CDF has become a site of material exchange where sediment continuously dredged from the harbor is filtered and matched to a variety of infrastructural projects in the region, including highway projects, landfill capping, public park construction, and mining reclamation projects. Finally, Cleveland's Dike 14 CDF, now closed to dredging deposits, has become a biodiverse birding hotspot and part of a $26 million dollar a year ecotourism network in northern Ohio.

The 42 active and closed CDFs are a studied as a regional landscape typology and classified based on parameters of scale, post-closure use, edge condition, and landform type. Site reconnaissance was also conducted at some sites in order to assess diversity and growth stages of emergent vegetation.

This presentation highlights the potential for Great Lakes CDFs to be adaptive, multi-functional waste landscapes that resonate with recent landfill-to-parks conversions such as Fresh Kills in New York City. Through investigation of the variable economies, ecologies, and constituencies of the CDFs, sediment stockpiles are reframed as resources for the production of public space.

Enhancement of Concretized Streams: Mill Creek

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Keywords: stream restoration, landscape infrastructure, river, ecological engineering, riverine system

A growing awareness of the anthropogenic impacts on waterways has spurred much interest in ecological stream restoration. Billions of dollars are entering this field as municipalities and developers bend to societal and regulatory pressures. But research suggests that stream restoration projects only consider aesthetics and economic growth as key goals and fail to consider how streams function holistically or ecologically. The techniques currently used, which include bank stabilization, erosion control, stormwater management, and re-vegetation (Bernhardt and Palmer 2007), act as a mere cloak over the true function of the restoration project. Additionally, research suggests that stream restoration funds are greatly misused, funding only stream restoration projects where space, politics, and infrastructure allow (Nilsson et al 2003, and Niezgoda and Johnson 2005). Thus, little is being done by way of research and design in the most severely degraded portions of these streams.

The goal of this project is to show how restoration might occur in concretized waterways where a naturalized condition cannot fully accommodate the degree of changes and demands that have been placed on the watershed by urbanization. Objectives within this study focus on improvements to water quality and in-stream habitat, as well as accessibility and connectivity for communities. Through the review of traditional stream restoration techniques, their hybridization, and their deployment in concretized streams, this project shows how a highly-degraded stream condition can be augmented to perform similarly ecological functions to its naturalized counterpart.

A catalog of traditional stream restoration techniques from both the United States Department of Agriculture (USDA) and the United States Army Corp of Engineers (USACE) is compiled to understand the tectonics, positioning, and effectiveness of these techniques. Based on project goals and objectives, the traditional techniques are hybridized to apply broadly to concretized stream conditions. From here, hybrids are further developed within Sections 3 and 4A of the Lower Mill Creek, Cincinnati, Ohio. Sectional and vignette drawings are used to understand the materiality, connections, and interactions of the hybrid types. This method of investigation yields a catalog of 30 hybrid interventions for the enhancement of concretized waterways.

Finally, this project considers what could become of the Mill Creek if thought of as a critical infrastructure—one that has to accommodate industrial and flood control concerns as well as ecological and social concerns. This lens brings about new layers upon which the Lower Mill Creek can be engaged and re-imagined.

Evaluating the Impact of Suburban Development and Low Impact Development Practices on Surface Runoff in Cypress, Texas

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Keywords: low impact development; SWAT; surface runoff; urban sprawl; stormwater management

Beginning from 1950s, when urban sprawl has started to ascend in the United States, a number of environmental and social problems occurred followed by the rapid urbanization process. To be specific, urbanization has been known to alter the hydrologic characteristics of a watershed (Arnold and Gibbons, 1996; Franczyk and Chang, 2009; Yang and Li, 2011). Traditional residential development approaches enlarge imperviousness significantly, which results in an increase on runoff volume and peak flow and reduction of time of concentration in newly developed suburban sites (Schueler, 1994). Among various factors, land cover pattern, which can be classified by the percentage of imperviousness, is used as an important measure for assessing the changes of the watershed runoff (Chang, 2007; Alberti et al., 2007; Sriwongsitanon and Taesombat, 2011). Additionally, traditional development approaches induce a homogeneous hardscape pattern on the natural landscape without reflecting a good drainage design (Booth and Jackson, 1997; Yang et al., 2009). In order to enhance outdated stormwater management techniques and effectively manage surface runoffs in the natural landscape, many local governments have started to adopt low impact development (LID) as a sustainable stormwater practice.

The main objective of the study is to examine the influence of suburban developments on a watershed's runoff volume. This study assessed the quantity of runoff from different land covers (2001 and 2006) in Cypress, Texas by using the Soil and Water Assessment Tool (SWAT), a hydrologic model. The study area focused on where residential communities were clustered and recently developed. Stormwater runoff generated in LID development scenarios were also compared with 2006 land use runoffs in order to determine the effectiveness of LID practices at the watershed level.

The findings show that the total simulated stream flow volume of the 2006 land cover has increased slightly (1.5%) compared to the 2001 land cover. In addition, the LID scenarios were not significantly effective in reducing runoff volume. These results suggest a more thorough understanding is needed on the function of land cover types as well as the effect of LIDs on runoff. The authors anticipate that this study can contribute as a useful guideline for local land use planners and decision makers for understanding the importance of land management tools and LID practices on stormwater management.

Gateway Green Roof: One Year Later

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Keywords: green roof, native plants, intensive, stormwater, ecology

Rooftop environments present challenges due to extreme conditions of heat, insolation, wind, drought, freezing and nutrient stress. Non-native sedums, commonly used for vegetating green roofs, are durable but are of limited ecological value. To enhance ecological value while also meeting sustainability and aesthetic goals, SUNY Environmental Science and Forestry (Syracuse, NY) installed an intensive green roof on the Gateway Center using species native to the eastern Lake Ontario dune and alvar pavement barren communities. These communities are adapted to environments analogous to rooftop settings. Besides meeting functional requirements, designs based on native plant communities enhance ecological and natural heritage value by incorporating rare or protected species.

Most species from these communities are not well known and had not been previously used on green roofs. To verify the feasibility of using these species, an interdepartmental pilot study was completed by the authors in test plots replicating the installation, establishment and maintenance procedures proposed in the project specifications. Of the 44 species tested, 41 met survival, aesthetic, and growth performance criteria. The consultant plans were adjusted based on these results and the green roof installed in fall 2012. Through the first growing season the plants have responded well and are establishing as predicted. Preliminary monitoring along with anecdotal observations suggest these species are well suited to intensive green roofs and offer a potential new plant palette for designers.

This presentation will review the pilot study and design refinement process used to consultant buy-in, as well as the installation and establishment process. Data on plant survival and establishment character as well as on stormwater handling will be presented and discussed. Future expectations, opportunities and challenges will also be reviewed. From this presentation viewers should gain an appreciation for a new group of plants adaptable for green roofs.

Living Roofs in the Cold Prairie Climate – A Modern Idea?

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Keywords: Green roof, Heritage, Cold Prairie Climate, Sustainable Urban Ecology

Long before green roofs or roof gardens became fashionable words, vernacular grass roofs have been known in Scandinavia, parts of Canada and Iceland. In 19th century Manitoba for example, Mennonite immigrants built their first homes with sod, soil, grass and wood. The insulation ability of the thickly-rooted Prairie grass provided protection from the cold, heat and wind, but as the Manitoba Museum informs its visitors: “Rain was another thing.” The existence of the sod house in Manitoba serves as the first piece of evidence that there is a green roof tradition in the province, which goes back many years. It also provides the proof that green roofs can withstand the cold Prairie climate. Following the question of why green roofs or roof gardens are now rare in Manitoba, it is necessary to do research outside the province. Many municipalities around the world have been creating green roof strategies over the last few decades. For example Toronto’s new Green Roof Bylaw and the Supplementary Guidelines will result in a push towards green roofs and roof terraces construction under the North American sky. Due to the lack of green roof standards in Manitoba local projects tend to be custom-made solutions. They are individually developed and their research goal and outcome, if there is any, is not based on commonly accepted definitions, requirements and testing methods (Philippi, undated) therefore they cannot be related to each other. Some websites give project information, but an updated synopsis of green roofs and roof gardens in Manitoba is missing.

The green roof trial at the University of Manitoba’s Alternative Village, can be seen as a prototype for successful research application. An interdisciplinary committee was formed at the University of Manitoba’s Department of Landscape Architecture to support regional thesis investigation of students. There is a need to develop basic, environmental and applied green roof research in the Prairies and there is no question that such research would benefit from interdisciplinary thought exchange.

The age-old knowledge of green roof construction seems to be timeless, fresh and modern, and combined with the latest research results it offers holistic possibilities for many problems of today’s urban environment. One must envision Winnipeg’s millions of square feet thickly-rooted prairie grass on top of the big boxes to understand the immense power of this old yet effective idea fostering sustainable urban ecology.

Measuring Infrastructure Sustainability; Integrating Landscape Ecology and Urbanism in Transportation Corridors Design and Delivery; An Australian Case Study

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Keywords: Infrastructure, Transportation Corridor, Landscape Ecology, Landscape Urbanism, Sustainability

The potential of infrastructure systems for performing the additional function of shaping architectural and urban form and helping ecology of the city is largely unrealized. The planners and designers have most often been charged with hiding, screening and mitigating infrastructure. They are rarely asked to consider infrastructure as an opportunity. The interrelationships between ecological and landscape urbanist approaches and engineering practice in planning, design and delivery of transportation corridors, i.e. urban highways are studied in the current research. The aim of the research is to link theories of landscape ecology and urbanism to infrastructure projects to find out how and to what degree these can be integrated in planning, design, construction, and operation process and help the project sustainability and multiple functions. Approaches such as landscape ecological/urbanist approach to road infrastructure development indicate a shift in values from a traditional engineering approach and instead adopting an urban design and landscape approach to the development of road and related transport infrastructure. This approach helps the sustainability of these projects in the urban context.

In order to determine the values of urban built infrastructure, specifically movement corridors, at the scale of an urban project, and measure the sustainability criteria for that, a case study is conducted on EastLink, a large scale infrastructural transportation project in Melbourne, Australia, to present a framework for observing and mapping actual design and delivery process. The case study is done using Infrastructure Sustainability (IS) rating scheme developed by the Australian Green Infrastructure Council (AGIC), recently renamed to Infrastructure Sustainability Council of Australia (ISCA). As a result, the research presents an approach for urban infrastructural projects based on the sustainable development principles and provides a framework for assisting planner, designers, and builders of urban infrastructure to enhance them from an ecological and urban perspective in interaction with other urban land uses for multiple functions at regional and local scales. In investigating the influence of large scale infrastructural projects on the ecology of cities, and their interrelationships, ecological concepts and methods can be used by built environment professions to present new planning and design frameworks.

New Green Layers: Three Design-Build-Research Cases

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Keywords: Research, Ecological Design, Demonstration Projects, Sustainability, Green Infrastructure, Education

Rapid urbanization and densification calls for creativity in integrating ecological performance features into our compact cities, communities and landscapes. Adding layers of biological, technological and aesthetic greening to underutilized surfaces may maximize landscape performance and create vibrant public spaces that restore, invigorate and transform our urban fabric.

This session will describe and outline initial evaluations of three design case study projects initiated by a university research and design lab that explore how to create new layers of 'green' in urban and urbanizing areas. In the Biodiversity Green Wall, Edible Green Screen and Water Harvesting Demonstration Project, an innovative kinetic design has been installed on an existing university building to evaluate two types of green walls and a roof-water collection system for their ability to regulate temperature, sound, runoff, and climate and to provide aesthetic and urban habitat benefits. In a second project, biodegradable floating wetlands have been designed, constructed and installed to test how they might increase the aquatic ecological function of urbanized waterways. The floating wetlands take differing design approaches to achieve specific objectives in their contexts of wetland, lake and river, each utilizing distinct design criteria such as light penetration, temperature control, habitat value, durability, and plant survival, with test panels installed in an urban industrial lake and in a suburban constructed wetland. In a third project, underground and surface performance layers will be installed in a subsurface wetland and integrated with public park amenities in a Waterfront Wetland Heritage Park. The project will test the efficacy and wetland size needed to clean polluted stormwater from the upstream basin before discharging into the bay, while adding waterside habitat and creating a social and cultural amenity for the coastal town.

Each of the case studies in the university research and design lab partners interdisciplinary students, faculty and staff with public, private and NGO entities to layer in sustainability education across the region and to expand the reach of research dissemination. Through the design, construction, and research processes, these projects become hands-on learning labs for students, academics and design professionals looking to push the edge of ecological design practices and to learn about the performance of these new features and systems. This session will outline the integrated design and construction approaches, challenges and processes; funding mechanisms; preliminary research findings; documentation; and education and outreach methods for each of the projects.

Park Farms Revitalize Body and Soul

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Keywords: urban agriculture, parks systems, food deserts, food networks

PURPOSE: The purpose of this study is to examine how the City of Indianapolis Parks Department and other city park farms can impact the city food network. BACKGROUND: The study considers food deserts and health issues as national concerns scrutinizing the situation in Indianapolis. In response, cities like Indianapolis, Toronto, Chicago, Milwaukee and others are reconsidering their park programming and design, integrating old ideas of allotment gardening with new ideas of urban agriculture and guerrilla farming resulting in robust growth of urban agriculture food networks. Those trends are stimulating community, building capacity and improving individual health as well as improving safety and economy at the grass roots level.

METHODS: The study begins with the end, tracking and designing the development of Indianapolis's first organic farm installed on a parcel of park land in the middle of one of the city's food deserts. From there the farm's community role, food production and growing regional impact are monitored. As the farm becomes part of the urban food network, the study team begins analyzing how other cities are addressing health and food-related community disparities with urban agriculture. Case studies of comparable cities are identified and the food networks are dissected in terms of functional contribution to the health needs of the community. The organizational frameworks of the urban food networks in the case studies are analyzed to identify how city parks are integrated/not integrated into the food network of the cities. A scrutiny of Indianapolis is conducted in light of the case studies and a series of opportunities and challenges are identified for the first farm and consideration of any future farms.

4.FINDINGS: The main finding is that the use of GIS, site assessment and case study methods can secure a range of roles for the Indianapolis Parks system in the local food network in Indianapolis Parks in terms of potential health impacts. The capacity of the parks to contribute to the food network and health condition of the city is shaped by the socio-cultural network of the neighborhood, the political economic structure of the parks department, and the integration of community grass roots and non-profits in the broader scheme of the food network.

5. IMPORTANCE: The study recommends an organizational framework and a series of next steps for the Indy Parks department to help park farms and community urban agriculture initiatives grow towards a robust and sustainable food network in Indianapolis.

Perception and Management of Risk in the Sustainable Reclamation of Waste Landscapes

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Keywords: sustainability, landscape remediation, risk perception, waste landscape

Abandoned after the collapse of mass production, previously thriving industrial manufacturing sites in North America have been reduced to obsolete post-industrial waste landscapes. This emerging urban phenomenon dramatically alters the cultural, social, ecological, and economic fabric of communities once centered on now-vacated manufacturing hubs. Complex waste sites linger, marked by fragmented industrial buildings, altered topography, and environmental contamination created complicated quandaries.

Hazards, vulnerability, and uncertainty envelop the risk context and perception of sustainable develop in the emerging urban practice for remediation of regional waste geographies and topical waste landscapes. Wastescapes are characteristically identified by scarred physical landscapes contaminated with volatile and semi-volatile organic compounds, heavy metals, and impurities. As such, they receive a high frequency of negative risk perception even before innovative programming and design strategies can be conceived.

This paper will outline the critical challenges for risk assessment and perception surrounding the sustainable reclamation of waste landscapes, as they have the potential to dramatically alter cultural, social, ecological, and economic systems. Additionally, the paper will analyze:

• Identification, characterization, and assessment of risks occurring as a result of landscape hazards on national, regional, and local scales;
• Risk communication, lack of public and official awareness of environmental degradation risk and vulnerability; and
• Difficulties in evaluating remediation options using traditional cost benefit analysis.

Piani Del Verde, Green Space Plans in Italy

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Keywords: green space plans, green space system, landscape based planning

The paper discusses the concept of “Piani del Verde” in Italy, or Green Space Plans and why green space has to be regarded as a systemic plan. There is a significant shift from the concept of “endowment” of a certain quantity of green space to the concept of Green Space Plan. Land use planning has been mostly planning to coordinate development and built areas. Comprehensive and zoning plans mostly designate solid spaces from which the voids will result from difference. By omitting open spaces as a system, this kind of planning is not able to translate into positive solutions ecological and environmental studies. According to the concept of green space endowment quantitative standard were assigned with no relation to the quality, typology and above all the siting of that green space, a generic space to place where possible, not linked to a specific site with unique characteristics. The Green Space Plan is instead a design tool with a spatial specificity, which defines the whole of the natural elements within the urban and suburban environments and in the city-countryside fringes at the different scales, from ecological networks to parks, vegetable gardens, roads and railroads green buffers, river banks, wild spaces. The Green Space Plans reverse urban centered planning frames that conceive green space as empty space available for the next urban development. The Green Space Plans express the demand for a turning of perspective in designing the city, from the built part to its opposite, from solid to void, and the necessity to integrate urban planning, environmental protection and renewal of open spaces within a unitary planning process within which the whole territory is reorganized, starting from the requirements of self reproduction of environmental systems. The design of the voids, (as the design of the forest and agricultural lands, the design of ecological corridors, of hydrological systems, river banks, periurban agriculture, greenways, parks, etc., reinterpreted as system of ecosystems), orders and reestablishes form and proportions to the design of the solid (the built space, the city parts, the infrastructure, etc.). The paper will discuss case studies of Green Space Plans in Italy arguing for the necessity of these Plans to be integrated with the PRG, the Italian comprehensive plan, and to be mandatory as other plans are. The paper proposes landscape as the first layer above which the community shapes the city within the framework of the Green Space Plan.

Reduce, Harvest, and Infiltrate: Demonstrating Green Infrastructure Solutions

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Keywords: Sustainability, Green Infrastructure, Stormwater Management, Naturalized Prairie

By utilizing water infiltration and harvesting techniques, along with selecting plant material suited for low moisture conditions, the urban landscape can address sustainable solutions for water conservation and quality issues. In considering reduced needs to irrigate, Williams (2013) noted that prairie xeriscapes are most likely to survive drought and water restrictions and require less control strategies. In examination of harvesting, Waterfall (2006) stated that rainwater harvesting, as a simple technique, clearly provides conservation benefits in residential and commercial landscapes. With respect to water infiltration, urban stormwater runoff can collect pollutants and transport them to natural water systems and thoughtful landscape design practices can address these issues (Davis, Shokouhian, Sharma, & Minami, 2001). Davis et al. (2001) further asserted that bioretention features are sound practices to allow water to infiltrate from small developed areas and prevent pollution runoff.

In combination these reduction, harvesting, and infiltration techniques are presented using a submission for the United States Environmental Protection Agency's (EPA) 2013 Rainworks Challenge. Entrants were invited to create a green infrastructure design for an outdoor site on their campus. The solutions presented demonstrate how managing stormwater at its source can benefit the campus landscape.

The competition proposal is meant to expose the campus community to sustainable landscape solutions focused on efficient rain water management and naturalized plantings. The proposal takes problems found on the site and flips them into solutions that demonstrate the campus as a living laboratory. Design ideas include converting a parking lot into a drought tolerant prairie, harvesting rainwater, creating featured bio basins, and integrating permeable pavers. In total, the proposed design reduces impervious surfaces in the space by 60%, or roughly half an acre.

The chosen space is surrounded by greenhouses supporting horticulture research. This vernacular is an appropriate location for a design with raw ideas and materials. The solutions include stone, wood, steel, and native plant textures in masses. Included in this plant palette is a naturalized prairie that includes ribbons of native grasses and wildflowers in two distinct categories, Upland Prairie (shortgrass, mixedgrass, and tallgrass) and a Wetland Meadow.

The proposed landscape plan is an outdoor space that features green infrastructure solutions but is also a place to work, gather, learn, and inspire. The importance of this presentation is to model urban landscape design solutions that can be used to address water conservation and quality issues while meeting the functional needs of a campus outdoor space.

Regional Planning Initiative for the Province of Puerto Plata in the Dominican Republic

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Keywords: Regional Planning, Tourism Planning, Sustainability, Case Study, Puerto Plata, Dominican Republic

The Dominican Republic has locations rich in cultural, historical, and ecological assets. One of these places is the province of Puerto Plata. Located in the northern region of the country, Puerto Plata was one of the first territories of America in which Christopher Columbus arrived in 1492. The country has an economy largely based in the service sector. According to the U.S. Department of State, in the Dominican Republic, services contributed to a 64.7% of the real Gross Domestic Product (GDP) (2011 est.).

Puerto Plata is a vital provider of the tourism-based economy of the country. However, this economic model still needs to develop a better integration of the recreational and historical resources of the province thus there is still much untapped potential to be developed in Puerto Plata's tourism industry. At the same time, the existing condition of the province is so unkempt, that secluded and isolated projects won't be able to make the sizeable change that is needed to revitalize the province, which is why a regional planning initiative is necessary to help change, both the social and economic aspects of the province.

Previous planning initiatives have been carried out in the province however on a relatively small scale. This thesis found that in order to fulfill the economic demands of the region, and to better integrate the existing resources of the province, a large-scale planning approach needs to be developed in both San Felipe de Puerto Plata and Sosúa because the majority of the natural and historical resources of Puerto Plata are found within these towns, and also because these municipalities are considered key contributors to the overall economy of the province.

This paper examines the potential for a regional planning initiative to help the tourism development of Puerto Plata. As a result, and based in best management practices of tourism planning initiatives from similar cultural and spatial backgrounds, a regional tourism planning framework together with a set of recommendations are proposed for the future development of the towns of San Felipe de Puerto Plata and Sosúa.

Salvaging the Three Legged Stool: Reuse Value(s) in Sustainability Contexts

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Keywords: reuse, materials, design, sustainability, economic, social

This paper serves as introduction and in-depth outline for a series of articles investigating how a reuse focused research and design system can become a tool for restoring usefulness to the principles of economic, environmental and social sustainability. Growing environmental problems resulting from virgin materials use, new land development and socio-cultural challenges of a renewed urbanization coalesce as an opportunity for reuse thinking. As reuse of materials and sites entails a complex analysis of interconnected variables it adequately serves as perceptual lens to determine overarching strategies for deeper integration of sustainable practices into Landscape Architectural research, scholarship, design and practice. The scholarly methods for this study include a schematic review of history, theory, and project/product examples resulting in a proposition for design and systems strategies that further integrate material and site reuses into the design, demolition/deconstruction and (re)construction sequence.

While it is generally agreed that reuse is a leading strategy for sustainable design (Calkins, 2009), economic comparisons at the project level between reused and new materials often do not favor reuse. If due to unpaid externalities in virgin materials extraction and/or modern efficiencies of manufacturing, distribution and construction including a move away from certain onsite work, the costs of new and standardized materials have dropped in relation to a necessarily onsite, hand-labor or craft construction with reused materials. Even if no virgin materials pricing reform can favorably reposition the economy of reused materials there remain positive arguments in favor of reuse in the areas of physical sustainability and social significance. As reuse is fundamentally a redefinition of material/site from waste to resource, the economic reuse value may be increased through design narration of this environmental/cultural shift in meaning.

This strategy to create an adjusted economic valuation of reused/sustainable materials is bound to a visual legibility of a material as environmentally or culturally significant. While wary of the tides of greenwashing, the visual characteristics (or narrative) of the sustainable material remain largely unexplored. What, for example, are the key visual indicators that a product is sustainable (and within the social principle of sustainability may nest visual indicators of cultural significance). With the reused material as example, this paper concludes with a discussion of physical attributes of materials in communicative schemes that identify materials as uniquely valuable. Key visual indicators from cited historical, project and product examples will be discussed and analyzed for both environmental and culturally demonstrative design.

Structured Landscape Corridor: A Methodology for Integrating Species Richness and Development Potential

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Keywords: Integrated land use potential, Habitat corridor, Geographic Information Systems

The expansion of transportation infrastructure in the 19th century led to population migration in the United States and abundant development. Horizontal urbanization became a hallmark of 20th century urbanism. The Houston-Galveston–Brazoria Consolidated Metropolitan Statistical Area (Houston CMSA) is one of the most rapidly urbanizing areas in America. From 1990 to 2000, the population of the Houston CMSA more than doubled (from 2,000,000 to 4,600,000) and is estimated to increase by 2,800,000 by 2030. Negative impacts of this substantial population growth include continual conversion of land cover typologies such as farmlands, wetlands, and forests to residential and commercial areas. The urban area of the Houston CMSA expanded approximately 400% from 941 km2 in 1974 to 3724 km2 in 2002. This has caused many spaces which provide ecological services to be lost to development or fragmented due to disconnections created by new structures, resulting in a decrease in bio-diversity and species richness. Current urbanization patterns are not effectively integrating biotic and abiotic processes but these issues are not typically considered in the decision making process for land use planning.

This research utilizes Geographic Information Systems (GIS) modeling techniques to generate a regional ecological framework for the Houston CMSA. Existing parks, wildlife refuges, protected areas, wetlands, and habitat distributions of 16 species are considered to create a habitat suitability analysis: 4 umbrella species (Mammals), 8 endangered (Birds and Reptiles), and 4 amphibians. Land cover, land use, population, property value, soil type, existing amenities, flood plains, and hurricane risk zones were overlaid to create a development potential map. Once the habitat suitability analysis and development potential analysis parameterized, results were overlaid again create an integrated land use output showing parcels with high development potential and high ecological services. The Linkage Mapper Tool was then used to develop a network of structurally connected core habitat areas. Low development potential vacant land was used as the primary land cover type to connect existing habitat patches. Based on the integrated land use potential, Linkage Mapper was used to evaluate the least cost-weighted distances and least-cost paths between core habitat areas and a potential hierarchical network of wildlife corridors for the region is proposed. Results show that this methodology will afford the Houston CMSA with a regional ecological framework which provides ample development opportunities while also increasing species richness.

The Cost of Three Lovers: One Park - Three Diverging Design Solutions Compared Through a Life-Cycle Cost Lens.

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Keywords: Sustainability, Maintenance-Informed design, Landscape Design, Sustainable Sites Initiative, Life-Cycle Cost, Maintenance, Parks, Public Spaces

The true cost of a landscape project is not the construction budget but rather the resources that are consumed in maintaining the project over it's lifespan.

Using a quantitative approach, this paper highlights an existing 15-acre, pre-LEED park compares it with two other re-designs the author has made of the same park: one designed to the Sustainable Sites Initiative criterion and another based on maintenance-informed design research. From a life-cycle cost perspective, this exploration of the three schemes demonstrates how different design solutions consume resources over time. The scheme based on maintenance-informed design research demonstrates how maintenance practices should be brought into the design process and shows how certain design changes affect the total maintenance investment. Each park's major design elements are then analyzed with a cost estimation for maintenance over the lifespan of the park exposing the true cost of park.

Upon beginning a design process, landscape architects traditionally design toward the total construction budget. This initial construction price, a one-time cost, determines the design choices such as types of surfaces, quantity of plant material and quality of materials used. Usually a one-time source of revenue funds the construction budget. The problem with this model is that once the project is installed and turned over to management, the true (and ongoing) costs starts to emerge, extending over the life of the project. Designing toward the one-time budget cost seldom accounts for the cost it takes to maintain the design.

Maintenance-informed design theory acknowledges expected maintenance needs at the beginning of the design process and uses them to influence design decisions based on resources consumed over the long term. This idea requires the designer to have an understanding of what a full costs of a project (not just the construction budget) and how long the designed landscape will be viable. Developing an understanding of how something is going to be maintained will help landscape architects make truly sustainable, long-term design decisions. These park design comparisons made in this paper offer a step toward modeling how resource expenditures over time help us create healthier design solutions from the outset.

The Effectiveness of LID applications in Condensed Residential Areas

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Keywords: development density, stormwater management, LID, impervious area

Rapid urbanization leads to serious water problems in China, much worse than those in the US. Currently, LID strategies are mainly examined in US villa communities. To testify the effectiveness of LID in condensed areas with high population pressure in China, 75 residential communities in Chongqing were selected according to different development types (high rise, multi-story, and villa) to analyze their impervious area and runoff volume. Three residential communities were selected to model LID application scenarios using ArcGIS and SWMM. The results of this study show that impervious area in selected residential communities all contributes to watershed degradation. However, with LID application to modify impervious area, the impact of watershed degradation and chemical water pollution could be avoided. To develop the same area of buildings, residential communities with high-rise buildings have lower hydrological effects than the one with villas and multi-story buildings.

Communities with villas turn out to be the most challenging places for adopting LID approaches. The popular development style of individual houses in the US seems to be least suitable in condensed Chinese residential development. In practical design, impervious area percentage/plot ratio could be used as an indicator to evaluate residential planning. However, once LID approaches are strategically adopted, total runoff volume and peak flow volume of all communities can be adjusted to near-natural state. The study concludes by suggesting that reasonable design could reduce impervious area and runoff volume even under condensed development condition. Different LID approaches should be innovatively proposed according to different development density.

Trail or eTrail: Electronic Trails as Sustainable Management Alternative for Recreation Trails on Public Lands

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Keywords: eTrails, Electronic Trails, GPS-based recreation, Scotts Bluff National Monument, National Park Service

A park derived and controlled system of electronic trails (eTrails) provides a sustainable management alternative for recreation trails on public lands. eTrails are virtual trails that relate to a GPS-based route through the landscape rather than an actual physical trail, as with typical GPS-based recreation trails. The popularity and availability of GPS-based recreational activities has increased on public lands throughout the United States. The National Park Service (NPS) has recognized this through continuous review of these new technologies and their effect upon the mission of the Park Service. Their transportation policy has emphasized the full exploration of non-construction alternatives prior to any decisions to construct transportation infrastructure, including trails.

The eTrails concept is being piloted at Scotts Bluff National Monument (SBNM) in western Nebraska. The Monument was established by presidential proclamation as a site for the preservation and interpretation of the old Oregon Trail route and the geologic history of the area. The Monument has a unique feature in the preserved wagon ruts dating from the Emigrant Trails era that run through the short grass prairie. The eTrails pilot was developed in a partnership between the National Park Service and the University of Nebraska-Lincoln Landscape Architecture Program. Through this partnership, a service-learning studio developed a series of trail master plan alternatives that dealt specifically with the conditions at the Monument.

Building upon the monument's own GIS data coupled with community input, analysis mapping was developed to address the key features of SBNM including: Erodibility, Vegetation, Recreation Opportunity Spectrum (ROS), and a GPS based recreation typology inventory and analysis. On-site observation was critical to ascertain the existence and condition of many difficult-to-map features. A modified ROS analysis tool located areas that could be considered 'primitive' or 'semi-primitive'. These areas were severely limited on site, yet the public expressed a particular desire to access the more remote parts of the Monument.

In order to balance these competing forces, eTrails were suggested and further studied to determine their applicability to these conditions. They are capable of meeting the needs of the NPS and the public since they can 'allow' access to potential hiking areas and be controlled by Monument staff. Although the eTrails concept was developed for the unique situation found at Scotts Bluff National Monument, it is conceivable to think that they could be applied in other location where similar conditions exist.

Urban Vertical Micro-Farming: Integrating Social, Environmental, and Economical Systems

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Keywords: soft systems, hard systems, vertical urban micro-farming, social system, urban ecology, sustainability

Horticulture, a long-silent companion of architecture, requires revisiting beyond aesthetics or ornate urban greenery. Instead, the integral incorporation of living systems into the built environment should be viewed as a critical route toward reimagining architecture and urban environments in a cohesive sustainable manner.

With new horticultural methods such as hydroponics and aeroponics, emerging materials, and advances in fabrication methods, urban environments have unprecedented opportunities to employ creative solutions towards achieving more sustainable living environments. These advances call for a systematic incorporation of “soft systems” into the built-environment, thus placing flora (and even fauna) as “micro-ecologies” into contemporary design discourse. Question arise: can the plant components of a soft system actually fabricate buildings and/or be fabricated architecturally? This paper will be discussing these issues and emerging prospects in urban ecologies, and then examines a vertical farming as means to systematically achieve higher levels of sustainability in urban environments.

This paper will then discuss the notion of “Soft-Tectonics,” a research-design work by the author, representing a hybrid of concept and practice. As a concept, it argues for an expansion of design thinking in architecture and landscape architecture to the field of horticulture and farming. At the practice level, it refers to the systematic and innovative integration of “soft” (natural systems) and “hard” (tectonic systems).

This paper will specifically be discussing the design of a “vertical farming” system, as an outcome of Soft-Tectonics. The vertical farming system, namely “Garden Curtain,” is a two sided growing system utilizing hydroponics to grow herbs and vegetables, and can be implemented at a variety scales and spatial consequences. Garden Curtain advocates a notion of “urban micro-farming” in areas where land is rare and, instead, underutilized walls are abundant. The paper will discuss the initial design process (conceived in Fall 2012) and the prototyped, which was made in Spring 2013 at the University of Maryland.

Garden Curtain calls for reimagining buildings spaces as integration of soft and hard systems and improved urban ecologies. This project will be discussed at three levels of initial ideas and intentions, design thinking process, and potential impacts. The use and impact will be discussed in terms of intersection of environmental (urban ecology), social (public health, food system), and economical systems in urban environments, and argues for an emerging sustainable model in built environments.

Why Are There No Great Parking Lots?

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Keywords: parking, codes and zoning, stormwater, best practices

This essay considers that most ubiquitous and banal urban space – the parking lot – as a site of latent potential, and proposes design strategies for parking lots to function as urban places rather than wasted land. Through parking code analysis, precedent studies, and design work, the authors propose parking lot design strategies for social, ecological, and economical function.

Linda Nochlin, in her seminal 1971 essay “Why have there been no great women artists?” used political philosopher John Stuart Mill as a foundation for a field-transforming critique. She wrote, “we tend to accept whatever is as natural…"natural" assumptions must be questioned and the mythic basis of much so-called fact brought to light.” This essay proposes a parallel inquiry, questioning the “natural” assumption that it is appropriate and ethical to consider up to 40% of our urban land as valuable only for temporary storage of machinery, or that parking lots are unsuited to landscape architectural inquiry.

When we consider parking lot data, it is clear that our profession should be concerned with this land use. But imagine a parking lot. Do you envision a place of beauty and delight, ecological integrity and civic pride? Chances are, you do not. Data vary, but most sources find parking lots cover 35%-40% of urban centers, and on any given day, parking is oversupplied by a factor of two. These lots impact ecological and cultural health. Laying asphalt over a one-acre meadow increases runoff 1600%, and warms and pollutes that rainwater. Social costs include lost opportunities for open space, opportunities for crime, and feelings of placelessness. Yet, these negative impacts are accepted as natural.

This essay combines two parallel inquiries to propose design strategies for great parking lots. An analysis of existing codes and standards illuminates the “natural assumptions” that lead to the social and environmental flaws common in surface lot design. And precedent analysis reveals the potential for parking lots to function as social and ecological places. The essay weaves the two inquiries to propose strategies for artful parking lot designs that function ecologically, environmentally, and socially.

The potential impact of transforming the thousands of square miles of parking lots across the United States is huge. What if our 500 million US surface lots were contributing to their local ecosystem and urban environment, rather than depleting them? Our profession has the ability and the responsibility to design better parking.

URBAN DESIGN

Agricultural Urbanism + the Las Vegas Food District: Shaping an Arid City with Food Systems

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Keywords: agricultural urbanism, urban agriculture, food systems, arid

The purpose of this research is to test the design approach of agricultural urbanism in a traditionally non-agricultural arid environment. There has been a steady interest in urban agriculture (Gorgolewski, Komisar & Nasr 2011, Ladner 2011, Philips 2013, Viljoen 2005), with a diversity of projects being built on a variety of sites and budgets. However, shaping the city through agricultural urbanism goes beyond growing vegetables in an empty city lot, and confronts the current industrial food-system that separates people from their food security.

A review of the literature on the definition of agricultural urbanism does reveal an inconsistency. One model asserts that where agriculture is utilized to shape the urban environment, farming is strictly related to the local economy with no physical or social incorporation (Duany 2011), while the other emphasizes that the integration of food-systems with daily city life will contribute to the development of sustainable communities (de la Salle & Holland 2010). Nonetheless, a common theme among the definitions of agricultural urbanism is that food provides the opportunity to inform how we can make better communities.

Using a case study approach, five examples, of varying scale and context, are examined in order to understand how food-systems — production, processing, distribution, retail, consumption and celebration, waste recovery, and education — are integrated with the built environment. Next, the preliminary lessons gained are tested and applied at the neighborhood scale in Las Vegas, Nevada, on the redevelopment of a 100-acre urban site. The result is the proposed Las Vegas Food District — a high-density, pedestrian oriented, regenerative community that has a clear identity with food-systems at its core.

Findings indicate that applying agricultural urbanism to the design of a neighborhood will provide opportunities in the community for positive social engagement and urban regeneration, as well as contributing to a local economy. Also, designing at the neighborhood scale allows for regenerative infrastructure and agricultural practices to be employed and support food-systems in an arid urban environment. As the world's population increases, more cities become arid, and the amount of farmland shrinks, there must be a shift in how we shape our urban environments.

Assessing the Value of Urban Landscape: Learning from Katy and Santa Fe Trails in Dallas, Texas

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Keywords: Urban design, economics, value of landscape

This research evaluates economic indicators to assess the value added by linear landscapes to their urban context. The research's relevance stems from the study of performance benefits of designed landscapes (LAF, 2013). Of higher importance is the evolved role of the landscape architect in the urban design practice. Beyond the role of designer of horizontal spaces between buildings (Lang, 2005), the landscape architect is informed by environmental, social and economic value to solve problems common in urban settings (Ozdil, 2008; Jerke et al., 2008; Carmona et al., 2001; Crompton, 2001; and Ozdil et al., 2013). The discussion of value is typically reported on parks, plazas, etc. (Crompton, 2001). The linear landscape redefines the edge condition around a designed landscape. The study of the direct and indirect economic value is enhanced by the differing socio-economic factors that the linear landscape engages.

To evaluate economic value indicators, a literature driven research organizes economic value indicators from primary and secondary sources. Specifically, examples include case studies performed as part of LAF's CSI Program (LAF, 2013), the case studies documented by the Urban Land Institute (ULI, 2013) and other scholarly literature to identify economic value indicators (such as Ozdil, 2008; Crompton, 2001, Carmona et al., 2002 and others). The economic value indicators range from value added directly by the landscape, to adjacent properties and to the urban context at a district and city level.

The research follows a quantitative approach and employs the indicators identified earlier to assess the value added by the linear landscapes of the Katy Trail and Santa Fe Trail. The study sites retain available pre and post conditions data for comparison, contrasting adjacent urban contexts for analysis and a dynamic linearity for observation. The empirical data analysis documents the economic value added directly, and to the adjacent property indirectly throughout the urban context. Tools like Geographic Information Systems (GIS) are utilized to study and visualize the direct and indirect economic value added to the urban context.

The results illustrate the economic value indicators for the two linear landscapes informs the knowledge-based design a landscape architect provides to complex urban situations.The research signifies the landscape architect's evolved role in urban design to understand economic performance (LAF, 2013). Additionally, the data provides an empirical measure that can be applied to present and future urban landscapes.The study of economic value indicators provides a new form of communication in the urban design practice.

Building Community: Street, Block, and Lot Morphological Considerations

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Keywords: Urban morphology, community design, residential block, community space

The presence of public, semi-public, and semi-private spaces in residential settings can encourage casual and planned social interactions that contribute to residents' sense of community. Informal socializing between neighbors is likely to occur most frequently in the areas surrounding the home, within and around the residential block. The ability to provide effective social space in these site scale settings depends in part on the physical configuration and dimensional characteristics of lots, blocks, and streets at progressively larger scales of urban form. Urban morphological theory offers a framework to study the constraints and opportunities presented by street, block, and lot patterns for the development of public, semi-public, and semi-private spaces at the site scale. This paper examines formal, dimensional and spatial characteristics of streets, blocks, and lots that can be manipulated to provide settings for social interaction on the residential block.

City as Start Up - Learning from Las Vegas, Again

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Keywords: urban design, landscape architecture, start-up city, urban planning, las vegas, downtown project

The purpose of this study is to explain the theory and implementation of a nascent reclamation of downtown Las Vegas by the Downtown Project. This corporation is related directly to Zappos.com; representing a model of corporate urbanism based upon the principles of a start up business. The theories and implementations will be discussed to provoke questions about the validity of this approach based upon the ideas and their early manifestation.

The background for this approach stems from a long history of corporate planning from the French Monarchy, to Levittown, New York, to postwar suburbanism and the growth of the creative campuses around the turn of the latest century. The Downtown Project's ideas leap forward in evolution in how corporations think about creating community.

The method for this study will include a quick historical analysis of corporate urbanism to establish and understanding of how corporations shaped towns and cities. The author will relate principles of the Downtown Project from interviews and on site studies. The author will evaluate the theories by using analytical diagrams, data sets and comparative studies.

Findings will include an analysis of the first year of the Downtown Project's provocative project to remake a downtown into a contemporary corporate hub. Which of their principles of creating community and economic development have worked and which haven't? With the rise of public/private partnerships, the increasing presence of capital in shaping cities and the reclamation of downtowns, how is this latest theory of urbanism, with worldwide acclaim for its innovation, working?

Cleveland and Baltimore: A Tale of Two Cities—and Strategies for Future Urban Landscapes

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Keywords: Cleveland; Baltimore; vacant land; landscape infrastructure

Cleveland and Baltimore have seen dramatic declines in their manufacture-based economies since the mid-20th century, leading to unemployment and outmigration. Traditional urban design strategies have relied heavily on potential future growth as a means of addressing social and economic problems. These policies have proven ineffective, causing further damage to their viability and stability. This paper will assess their significant decay of residential buildings, the decimation of local commerce, and the reconfiguration of contextual references. Their shrinking populations, eroding infrastructure, and declining tax bases demand a reassessment of civic responsibility, social and operational services, and the value and character of their basic infrastructure. This paper introduces concepts for landscape-focused urbanism, the re-creation of healthy, sustainable environments, and tailored strategies for repurposing vacant land.

Cleveland and Baltimore share similar de-densification stories but their futures are likely to hold very different outcomes. Serving as important port cities since the 18th century, they became centers for steel production, metal fabrication, and other heavy manufacturing in the 19th century. They grew substantially until the mid-1900s, as European immigrants filled the urban core with lively, culturally rich urban villages. By the 1950s, highways and suburban development drew the middle class away from the city centers, leaving urban housing stock to the under-served, under-represented and under-educated working poor. By the 1970s manufacturing met stiff competition from developing countries due to escalating inflation rates, rising wages, and government policies. In the 1990's global trade agreements encouraged further outsourcing, exacerbating the "rust belt" in the Midwest and the loss of manufacturing industries on the East Coast. Inner city neighborhoods experienced significant erosion in the quality of housing and municipal services and the downward spiral continued until entire districts crumbled from neglect. Between 1950 and 2010, the population of Baltimore decreased by 36%; in Cleveland, it dropped by 57%.

This paper explores alternative planning approaches that outline these historic circumstances, identify recent causes for urban decimation, assess proposed strategies, and introduce new ideas about what these shrinking cities can become. Cleveland might fair best with a plan that calls for a sea of productive green belts and an archipelago of sustainable neighborhood islands. Baltimore could redirect resources to create a more expansive urban landscape that encourages responsible redevelopment and includes a diverse and just re-densification process. Both cities have the potential to become ecologically, economically, and socially sustainable—and highly desirable places in which to live, work, and play.

Critical Regional Perspectives in Middle Eastern Urban Landscapes

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Keywords: Critical Regionalism, urban landscape, Middle East, globalization

The conference theme seeks answers to the question "{w}hat are the emerging discourses, movements, practices and technologies around the idea of park, plaza, greenway, urban agriculture, vacant-to-values, national park, and other aspects of urban, rural, suburban, exurban, and in-between landscapes." The paper addresses this question, suggesting that the iconic value of historic gardens have diverted attention from contemporary Middle Eastern urban landscape, which has begun to serve as the focus of new relationships between the landscape and the city. The paper reviews the extraordinary change in form and function of Meddle Eastern cities in response to rapid urbanization and the effects of globalization, such as: loss of cultural identity, multinational corporate urbanism, transnational migration, and social exclusion (Castells, 2012). More specifically, the paper examines these issues through the lens of six comparative case studies of Middle Eastern urban landscapes representing a diverse range of contexts and histories: the Grand Egyptian Museum and Al Azhar Park in Cairo, Burj Kalhifa and the neighborhood parks of Dubai; the Sulatan Qaboos Grand Mosque, and the Oman Botanic Garden in Muscat.

Criteria for comparative analysis of the six landscapes derive from the literature of "critical regionalism," suggesting a range of redemptive and mediating landscape responses to the effects of globalization, addressing regionalist traditions (Olvig, 2011). Specific criteria assess direct and reflective experience, sense of place and region, tactility, eco-revelatory tectonics, and focus on occupation rather than aesthetics (Swaffield, 2010; Bowring, 2006). Findings suggest that urban landscape response to rapid urbanization and the effects of globalization within these Middle Eastern cities occur within mixed contexts incorporating universal aesthetics, technological prominence, multi-national corporate imagery, and enhanced cultural identity, social inclusion, sense of place and region. These mixed landscape responses offer worthwhile precedent for rapidly urbanizing cities subject to the effects of globalization for small to mid- scale neighborhood, public and corporate sites. They reflect new iconic values that have replaced the historic garden and serve as the examples of amalgamated relationships between the landscape, the city, its people and the "world city" (Sassen, 1991).

Design Principles and Applications for Creating Healthy Schools

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Keywords: active living, school design, evidence-based design

Well-designed school environments can support students' learning and health, by fostering diverse social and physical activities. However, due to increased safety concerns and budgetary constraints, these important benefits of school environments, especially its outdoor settings, have often been overlooked. Further, translation of existing scientific evidence into the actual design and development practices remains an important challenge.

This study provides visual illustrated vision for healthy school designs. The two specific objectives of this design project are: 1) to propose evidence-based design principles for creating healthy school campuses that promote children's physical activity and outdoor learning; and 2) to apply the design principles to demonstrate how the scientific evidence can be translated to design applications.

First, evidence-based school design principles were developed based on both "research-based" evidence from the previous literature, and "practice-based" evidence from case studies and field assessments. The design principles were then applied to propose design improvements with for an elementary school in Austin, TX. Among a large number of candidate schools, to carefully select the most appropriate site to maximize the benefits of healthy school design based upon evidence-based design principles from evidence found by previous research and field assessments , four main criteria were established; 1) having many students living within a walkable distance from school; 2) being a school with high percentage of low income and minority students; 3) having a park adjacent to the school with potential wider community; 4) having a typical school design commonly found in Texas. Based on the design principles along with field assessments, concept diagrams, the site plan, design details, and perspective sketches were developed to organize overall design strategies, considering accessibility, joint use, sports field orientation, vegetation and habitats, microclimate mitigation, and spatial relationships between diverse activity spaces.

This design project will demonstrate how scientific evidence from the existing body of literature can be translated to healthy school design applications. The proposed evidence-based design principles can serve as frameworks for improving physical conditions of elementary schools in the US to better support physical activities among children and community members. The design solutions will illustrate a site design with perspective sketches to provide visions and alternatives of future school design projects. Further, this design project will suggest how design professionals can help propose and reveal unique solutions to public health problems by merging evidence-based and creative problem-solving approaches.

Discovering Spatial Relationships of Fountains in Roman Piazzas

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Keywords: Spatial dimensions, Height relationships, Free-standing fountains, Piazzas

Fountains are intrinsic elements of Italian piazzas. They add a sense of scale to piazzas and are popular magnets among both residents and tourists. Edmund N. Bacon in *Design of Cities* articulates that relationships between fountain and building points create dynamic spatial effects for users. This study documents the spatial relationships between twelve free-standing fountains in piazzas in Rome with their surrounding buildings and human scale. These fountains are surrounded by structures on at least three sides, represent a range of scales, and are 16th, 17th, and 19th century fountains.

This study is important to understand the height relationships designed or existing free-standing fountains have with buildings and humans in piazzas. Many Roman fountains were designed specifically for sites chosen prior to the design, as Katherine Wentworth Rinne explains in *The Waters of Rome: Aqueducts, Fountains, and the Birth of the Baroque City*. However, designs and locations for these fountains were often modified later to respond to other non-site specific requirements. For example, Giacomo della Porta designed fountains for Piazzas Colonna, Rotonda, and Popolo to be site-specific, however, popes Pius V and Sixtus V made changes to the fountains' designs, locations, and obelisk placements.

Research was conducted through site visits. Height relationships were documented through sections while areas of the piazzas were calculated through plans. The fountain and surrounding building heights were determined through Google Earth models and from direct observations while human height is set at 1.8 meters. The average building height was determined by averaging the height of all the structures directly surrounding the fountain that define the piazza.

The finding of this study is that the majority of fountain to building height ratios are less than or equal to 1 to 4.0. Further, the majority of human to fountain height ratios are less than or equal to 1 to 3.4. The minority of the human to fountain height ratio group contains the four tallest fountains studied which all have obelisks. Five fountains studied still maintain their original locations and designs. They are a part of the majority for both ratios, except for one which contains an obelisk.

In conclusion, while the height ratios are within a specific range for the majority of the fountains, there is no causal relationship between fountain heights, building heights, and piazza areas. Also, there is no difference in trends between fountains that retain their original design and those that were modified.

From Public to Civic Open Space: An Examination of Public Space Use in Downtown Portland During the Occupy Portland Movement

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Keywords: public civic space, occupy movement, protest in public space, urban design

Downtown public open spaces have historically played important roles in the public life of American communities. Today, cash-strapped municipalities are increasingly relying on private capital to build their public realm. This has important socio-physical consequences as such privatized public realm is designed to keep undesirables and socially unacceptable activities out rather than inviting users in. The fact that the majority of our social interactions now occur in cyberspace has further contributed to the changing identity of downtown open space and its civic value. With their occupation of downtown plazas, the 2011 Occupy Movement brought attention to issues of ownership, design and use of our center cities' public realm.

This paper examines two downtown public squares in Portland, Oregon: Pioneer Courthouse Square—the initial venue for the Occupy Portland movement—and Jamison Square, where it relocated until 2012. The goal is to highlight similarities and differences in their designs and to identify design elements, contextual characteristics and symbolic meanings that may have favored their selection as the ideal sites for their protests. This is particularly interesting in the case of Jamison plaza, which went from being a quiet, semi-private square in the Pearl District to a very visible locus of Portland's civic life.

The methodology consisted of a traditional urban design investigation of form, materiality, topography, connectivity, surrounding land uses, visual permeability and landscape infrastructure. Behavior maps were also employed to explore potential connections between urban design features and the behavior of users before, during, and after the Occupy Portland movement. Interviews of Occupy Portland organizers, neighbors, and governmental officials were used to shed light on the design-related factors that led protesters to move from one square to another, while local media reports and police logs were analyzed to find further evidence of idiosyncrasies in the use of the two spaces by the protesters.

The findings confirm the importance of traditional urban design qualities such as accessibility and imageability in the production of civic spaces during the Occupy movement. They also reveal idiosyncrasies related to the prolonged timeframe and semi-permanent nature of its protests, which led protesters to choose spaces that were neither fully private nor public. Another important difference was the maintenance and stewardship provided by the protesters and their sense of "ownership" resulting from their extended, quasi-residential use. The paper ends with recommendations for the future transformation of downtown public spaces into the civic spaces of the future.

Introducing a Praxis Framework for Resilient Urbanism

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Keywords: resilience theory, urban design, ULI Gerald D Hines Urban Design Competition, Praxis framework

The most significant product from a May 2013 landscape architecture master's thesis was a praxis framework that bridges the academic discourse of resilience theory (as developed by C.S. Holling) and the practice of landscape architecture and urban design. Efforts to strengthen the relationship between theory and practice (e.g. landscape urbanism and ecological urbanism) do not directly apply concepts of resilience in practice.

The purpose of this paper, co-authored by the recent graduate and his major professor, is to present the Resilience Framework and the research methods used to develop it. The framework operates at a variety of scales and considers social, ecological, economic, and spatial factors. It uses key concepts from resilience theory including thresholds, diversity, redundancy, connectivity, and planning. Findings include ways in which the framework successfully advances the dialogue on resilient urbanism and ways in which the framework may be improved.

The framework merges theoretical concepts from relevant sources on resilience theory along with concrete strategies extracted from case study analyses. Notable sources include Holling (1971, 1973, 2001), Ahern (2011), Walker and Salt (2006), Lister (2007), and Alberti et al (2003, 2004) and notable case studies include "Resilience in the Willamette River Floodplain" (Hulse and Gregory 2004) and "A Resilient Social-Ecological Urbanity: A Case Study of Henna, Finland" (Bonometti et al 2010). The framework was initially used to evaluate characteristics of resilience in eight design case studies. Upon completion of the case study analyses, the framework was applied as a methodology for programmatic development and strategic design visioning for an entry in the 2013 ULI/Gerald D. Hines Student Urban Design Competition. The team won the competition from a field of 149 entries, providing a certain measure of validity to operationalizing the Resilience Framework.

The research identifies three significant findings: the Resilience Framework provides landscape architects and urban designers with (1) a means to apply resilience thinking in concrete ways to urban design practice; (2) a means to organize and document specific design strategies that support goals of resilient urbanism; and (3) a means for documenting characteristics of resilience in case study analyses. Shortcomings of the framework include: inadequate consideration of temporal characteristics of urban resilience; rudimentary graphic indexing of the strategies requires explanation; and although planning policy is considered, the framework lacks adequate consideration for governance in a broad sense.

Landscape, City and Community: Global Institutions and Deglobalizing Landscape

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Keywords: Middle East, Globalization, Egypt

The conference theme recognizes the context of extraordinary change in the form and function of cities in response to rapid urbanization and inferentially the effects of globalization, such as: loss of cultural identity, multinational corporate urbanism, significant transnational immigration and social disenfranchisement. Clearly important to a discussion of a these conditions is a continent recognition that the subject, urban landscape, exhibits both enormous diversity among world cities and inherent flexibility as an urban design concept (Yesheshy, Hester, 2007)

The paper addresses issues of urban diversity, landscape flexibility and contemporary landscape response to the effects of globalization through an examination of significant landscapes in two cities illustrating a broad range of contexts and histories: Alexandria, Egypt and Muscat, Oman. The paper suggests that urban diversity and landscape flexibility is embodied in the landscapes and surrounding context of paired typologies representing “glocal” landscape response to significant goals of global institutions, such as UNESCO, and the Aga Khan Foundation.

Specifically, the paper examines the Great Library of Alexandria in Egypt, and the Grand Mosque of Muscat as case studies in support of the concept of “deglobalizing landscape.” The term “deglobalizing landscape” refers to reactive landscape responses to globalization processes, which include the reversal of negative aspects of globalization as a means of developing more inclusive and sustainable societies (Bello, 2002). The deglobalizing effects of the two case study landscapes are assessed in terms of:

1) Sassen’s criteria for “global cities” related to counter-gobalization social space, global networks, and social inequality (Sassen, 2001), and
2) Ulrich Beck’s criteria for “reflexive modernization” related to technological change and social organizations, political repression and social participation, and the diffusion of cosmopolitan society (Beck, 1997).

Results of the case study assessment suggest significant flexibility and diversity of landscape response in the two landscapes, supporting deglobalizing 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.

Legacy of the Garden City: A Comparative Study of Open Spaces and Walkability Between American and Chinese Mid-20th Century Neighborhoods

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Keywords: Garden City，Open Spaces, Walkability, Neighborhood, Radburn, Shanghai

After a century, when discussing New Urbanism or Intelligent Urbanism, we can still find reflections of the Garden City theory. A walkable neighborhood with pleasing environment is still the main topic in new theories. This paper looks back on the early practices of Garden City advocates both in America and China, in light of urban growth and issues of livability and sustainability today, to explore aspects of the legacy that we should integrate again into the landscape, city and community.

The first step of our research method is literature review and historical research on the residential development and planning theories both in USA and China, especially the influence and evolution of Garden City theory. In the USA, Clarence Perry (1872-1944) developed Neighborhood Unit theory; it was realized in practices by Clarence Stein (1882-1975), who established a self-contained model called “super blocks”. The Sunnyside Gardens, Radburn and Greenbelt communities are his representative works. Jin Jingchang (1910-2001), one of significant founders of urban planning education in China, studied in Europe and was also influenced by the thoughts of Ebenezer Howard and Clarence Perry. In 1951, he joined in the planning of Cao Yang Xin Cun and Tong Ji Xin Cun, which were the earliest workers’ residential areas in Shanghai after the establishment of the People’s Republic of China. Then through on-site survey and qualitative analysis of these cases, we will show that the open spaces and road system of these cases are very similar, although there is no evidence that Clarence Stein and Jin Jingchang had any direct contact. Finally the paper focuses on comparative morphological study of the open spaces pattern and walkability in these cases. We developed metrics to analysis these cases and to get not only similarities but also differences of the planning and design techniques in detail.

The paper compares the influences of two pioneers’ practices as well as the function and feedback of the selected cases today. The superblock was not widely adopted elsewhere in the USA after Stein, both because of the Great Depression at that time, and the market success of the Levittown model of development. In China, although it has been a tortuous course, most neighborhoods continue to be planned and built following Jin Jingchang’s path. We anticipate that this paper will draw attention to the ideal and achievement of pioneers, as well as the importance of landscape stewardship in our communities and cities.

LexConNEXT: The Interface of Community and Culture

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Keywords: transportation, community design, urban design, participatory design

This paper highlights a community based transportation project promoting a balanced, comprehensive, and multi-modal transportation system. For the past year a team of professional designers, landscape architecture students and local business leaders have been working on an idea that fits the mission “How can we, as ordinary citizens, transform our community?” This project is all about transforming community and does it through multiple ways: increasing connectivity, helping provide transportation to underserved areas, creating a vibrant public transportation system attractive to residents and visitors alike, and rethinking how we think about transit.

The project, LexconNEXT focuses on exploring macro connectivity issues throughout Lexington, Kentucky and offers solutions and concepts for how to begin to reverse those trends through improvement of the Lexington Colt Trolley System. One of the key components of this project is creating a vibrant trolley stop system throughout downtown Lexington. These stops need not be expensive, but do need to be created in a way that they are instantly understood as related to transportation, include pertinent system information and be attractive/unique. Through strong partnerships with the city transit authority, neighborhood associations, the University of Kentucky, and local creative professionals this project has served to activate local culture. Collaborative projects such as these make a community interesting and are uniquely positioned to make a community better. This team was able to use our skills to improve the quality of life of our neighbors with BOLD creative solutions utilizing cost effective materials and volunteerism.

The project engaged students in a participatory design process, employing community leaders as design team members. Utilizing an independent study format with vertical studio integration the student representatives worked as community activist promoting design as a catalyst for change. In addition to examining urban systems students worked through a process of submitting design ideas for funding. The project was awarded grant funding based on an initial analysis and concept document that served as the foundation for ongoing planning and implementation. This funding will help support a trial stop design and provide seed money to take to businesses and other organizations for fund matching to further explore these opportunities through planning and implementation processes. Future plans include using the funding to raise awareness of underserved transit areas, create an investment opportunity package to attract new private investment and build a strong network of neighborhood level partners who understand the value of these systems and garner their support.

Mainstreaming Water Urbanism: In Search of Public Acceptance for Urban Design Interventions as Climate Change Adaptation and Sea Level Rise Mitigation Strategies

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Keywords: Water Urbanism, Water-Sensitive Urban Design, Climate Change Adaptation, Sea Level Rise Mitigation

Water-sensitive urban design has been considered effective interventions for mitigating and adapting to climate change and sea level rise. However, this water urbanism dialogue has been dominated by technocratic considerations. This study intends to investigate how these urban design interventions could be introduced to the mainstream with public acceptance. Using archival research and semi-structured interviews in eight water cities, including Berlin, Hamburg, Ghent, Bruges, Rotterdam, Amsterdam, Almere, and Giethoorn, this study uncovers the perceptual differences between experts and non-experts with regards to specific water-sensitive urban design interventions. In addition, for each urban design intervention, it reveals potential motivation and inhibition factors, as well as site-specific conditions that could impact its public acceptance level, effectiveness, and suitability. Finally, this study identifies possible transferrable lessons for the reconstruction of New Orleans.

Specifically, it concludes the introduction of water urbanism into upstream cities along the Mississippi River is indispensable in addressing New Orleans' unique challenge of being a delta city for one of the largest, and most urbanized watershed. Specific urban design guidelines for climate change mitigation and sea level rise adaptation vary according to a city's size, morphology, and watershed location.

Mapping Human Motion in the Urbanscape: A Chattanooga Case Study

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Keywords: urban motion, kinesiology, health, digital media

MAPPING HUMAN MOTION IN THE URBANSCAPE: A Chattanooga Case Study Creating environments for health is recognized as a key goal in urban design. With rising health concerns and an aging population, developing engaging movement systems to encourage active lifestyles is a key aspect of environmental wellness. Movement systems offer connectivity and celebratory multi-sensory experiences. Detailing and analyzing landscape architectural patterns that encourage physical motion can offer a design language to promote wellness and exercise in everyday life.

Distilling designs that promote movement into the most basic components of scale, rhythm, intensity of movement, and speed of motion can begin the process of articulating a pattern language of movement. Discerning how these patterns offer diverse muscular engagement deepens an understanding of how landscape architecture can offer choreographic spatial imprints to guide a wide range of human motion, thus promoting kinesthetic engagement with site.

The Chattanooga waterfront offers a prime site for study. As a delightful urban playground, this Tennessee River waterfront has been designed for movement. Mapping the movement experiences offers a typology to enrich a discussion poised at the intersection of landscape architecture and kinesiology.

This research includes identifying sites of movement that offer multiple experiences of motion. The varied typologies of movement events are investigated using 3D visualization tools and photography. Both the human motion and the spatial design forms are then analyzed to correlate landscape architectural design work and its impact on promoting exciting pedestrian movement.

Specifically, the analysis will include:
- Creating a 3D digital model to understand the specific quality of movement including the verticality, the intensity of motion required to navigate the space, and the spatial quality of the space
- Photography and filming human movement patterns on the specific areas along the Chattanooga waterfront
- Analyzing each section of the waterfront walk based on which specific muscles are used to navigate the space, and how that informs the wellness.

In order to understand the range of motion and variety of experiences embedded in this urban environment, this study examines the variety of movement systems inscribed in the Chattanooga urban fabric. Using both theories and tools developed in the 1960’s and ‘70’s from designers and writers such as Lynch, Thiel, Cullen and Halprin as well as contemporary tools of digital recording and animation, patterns of motion and movement can be visualized and refined.

Marginalized Center - Exploring the Landscape Methods in Urban Historic Communities Renewal

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Keywords: Urban renewal; Marginalized communities; Environment improvment; Landscape revival

Urban fringe areas always leave us the impression that, as Environment declines, chaos, unsupervised public security. From the 80' of last century, Under the influence of rapid urban development of China, most parts of fringe areas are included, whereas in urban centers, it is located in the center of city. However, the economy, the environment and the living standard has lagged far behind. From the edge to the center, the land's properties has changed, there are struggles among the city, the residents and the environment. These are among the urban problems caused by China's rapid development, and the current situation for marginalized communities causes a serious bottleneck.

In the northwest of Nanjing city, Jiangsu Province, between Hu Ju Road and Hanzhongmen there is a narrow place created the ancient Nanjing's urban culture. The place experienced the process as a shanty town - industrial land - workers dormitory area - residential areas. Due to a built new town, the place became a vacuum zone. Meanwhile, residential buildings fell into disrepair, environmental degradation, a large number of young people move out, the increasing aging population caused the place to lose its former vigor; their situation getting worse and worse.

In this paper, with the combination of observation and statistical methods, its surrounding three communities living situation and environmental analysis, environmental and community for residents living cultural heritage and protection of the phenomenon''s difficulities, from the perspective of landscape design and landscape to explore the modes in revival marginal areas: the landscape as a medium through gradual transformation of the city to make up for the vacuum zone left by leaps and bounds areas, can improve the cultural heritage sites effectively, retention of land resources, the ability to adapt to the needs of residents and to ensure the continuity of the environment, real-time adjustments. Conform to the urban fabric base, for lack of security entrance across the street, the lack of communication space, the venue no vitality, etc., in order to transform landscape as the media, gradual departure from the partial reconstruction, replacement of broken elements of decay, it revitalized. For a similar plot to provide reference renovation ideas.

Maximization of Utility: Reframing the Purpose and Form of the City Street

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Keywords: eco-district, sustainable urbanism, infrastructure, ecology

Eco-districts have been organized in multiple municipalities throughout the country as a means to better implement ecological design. This conversation tends to be dominated by local leaders, planners, ecologists, and policy makers. A ubiquitous obstacle these organizations (and those with similar purpose) face is the limited amount of available land.

In many US cities, the right-of-way occupies approximately 35 - 45% of the city's area (Gardner). This land represents an enormous potential value to the city, and indeed performs a valuable service. The street has fitfully yet continuously evolved, paralleling technological advancement and cultural progress, to arrive at its current purpose and form. This present-day manifestation provides the city with a system of conveyance-based infrastructure which provides little (or possibly negative) ecological value and fosters a desire for more human-oriented space. This form of right-of-way is therefore a sub-optimal use of valuable, publicly-owned land.

This case study will examine Denver, Colorado. The city's infrastructure and utility systems will be evaluated and mapped to find opportunities where a reduction in the surface area dedicated to vehicular traffic and parking would be both practical and in alignment with infrastructure needs and sustainable urban values. Proposed roadway reduction will be based on traffic counts, quantity of paved surface, and a roadway's lack of connection to the greater road network. Underground infrastructure and utility information will be obtained through the Department of Public Works and the Department of City Planning. Eco-district assessment categories (energy, water, habitat & ecosystem, air quality, human comfort, and access & mobility) will be evaluated for their potential to be affected by the land area of the right-of-way.

Findings will focus on a site-level intervention where opportunity exists to realize a new vision for the right-of-way. This approach may prove to act as a framework for eco-districts to follow as they pursue sustainable development goals.

The city street is a category of urban landscape deserving of more critical attention from our profession. The landscape architect has at their disposal the required tools to re-define the 21st Century urban street in both its purpose to society and formal aesthetic qualities. This project utilizes landscape architectural methods while branching into the allied fields of planning and civil engineering.

Place and Placemaking at the Mesoscale: A Study of Downtown Raleigh, North Carolina

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Keywords: place, sense of place, placemaking, urban design, mesoscale, user-employed photography

During the 2000s, Raleigh, North Carolina, launched a revitalization of its 110-block downtown. Although many desirable economic and cultural goals were set for this undertaking, there was little mention of preserving or enhancing the placeness of Raleigh in the Downtown landscape.

The concept of place is central to the practice of landscape architecture. A landscape-altering revitalization without a formal and/or comprehensive consideration of place could potentially create a suboptimal product. A study to determine the landscape components of downtown Raleigh's place was completed in order to develop a successful placemaking strategy for the district to support its revitalization.

A review of design and social science literatures revealed that place is a complex phenomenon of environment, people, and time. In addition, place can occur from the human (micro-) scale to the region (macro-) scale. However, because place literature focuses primarily on the human scale, information about district (meso-) scale places was inferred from literature analyses of successful mesoscale places.

Because place is a human experience, it is best studied through an objective and subjective exploration of its users' senses of place. To capture a broad spectrum of perspectives, both expert and lay citizens (4 and 12, respectively) were surveyed about downtown Raleigh, the former via interviews and the latter via user-employed photography, journals, and semi-structured interviews.

Citizen surveys indicated that downtown Raleigh was partially-appreciable as a mesoscale place. Sense of place was strongest in frequent walkers and bikers of the district. The citizens' Downtown use patterns with respect to landscape elements also suggested a new metatheory of place spatial geometry: places can, in fact, be one-, two-, or three-dimensional landscape elements. In addition, each geometry appeared to prompt a different pedestrian movement behavior. Assuming that people who walk or bike around mesoscale places have a greater sense of place, these spatial geometry effects could prove invaluable to mesoscale area design and placemaking.

The downtown Raleigh landscape components that were strong contributors to users' sense of place were identified and compared to the characteristics of successful mesoscale places identified in the literature. Similarly, successful mesoscale placemaking characteristics from the literature that did not appear in the citizens' surveys were also identified as opportunities for enhancing Downtown's placeness. These assets and opportunities were synthesized with the metatheory on place spatial geometry and pedestrian movement response to create a pattern-based, downtown Raleigh-specific strategy for placemaking in the district through the revitalization and beyond.

Pooling / Flowing: Rust Belt Resources

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Keywords: capital, Rust Belt, sustainability, scarcity, asset-based design

In better times, New York's Rust Belt cities exploited strategic locations on regional waterways and rail systems to accrete social and financial capital. This period of growth bestowed the Rust Belt with significant architecture, infrastructure and civic structures to rival much larger cities. Post climax, Rust Belt cities saw a period of rapid deindustrialization and associated decline. In the wake of this "release" phase, NY's Rust Belt communities may find their way to sustainability through a common need for sustenance and survival. Several converging trends support the regeneration of NY's post-industrial cities, including economist David Hess's call for "alternative pathways to prosperity", our pending low-carbon future, and ecologist C.S. Holling's call "to experiment and act inventively and exuberantly via diverse adventures in living" given this upcoming age of uncertainty.

This NYS Council of the Arts funded project identifies, quantifies and represents the resource "pools" of 2 NY cities to counter the narrative of scarcity, and reveals and celebrates the raw materials for revival that are plentiful when we consider social, ecological and infrastructural assets in addition to economic. Defining an expanded resource pool is the first necessary step in Rust Belt reorganization (per Holling's resilience model for ecosystems). "Pooling" resources are present, but not always readily recognizable or available. We define strategies to connect city-specific resources in ways that allow capital to intensify and flow to those in need. Prototypes for renewal may involve identifying regional strengths and available niches for inventing new low-carbon cluster economies, performative urban landscapes and experimental modes of urban living!

Public Spaces in Transition: Transforming Kennedy Plaza in Providence, RI

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Keywords: public spaces, urban form, city center, design guidelines, Providence

Background and Objectives: Public spaces serve an important role in the daily life of every city. In the past, some of these outdoor public spaces have seen significant changes in their identity, ownership and user groups. The need to enhance the use of these public spaces is highly important. A successful plaza or square can be defined as one that functions as a destination and encourages people to remain in it but would not exclude the passers through as users.

This paper addresses the public spaces in transition using the case study of Kennedy Plaza in Providence, Rhode Island. Specifically, the paper has three objectives. First, it discusses the evolution of the plaza over time. Second, it discusses the current conditions of the plaza and the new efforts to transform the plaza. Third, the paper ends with a list of recommendations to enhance the performance of outdoor public spaces in transition.

Methodology: This paper is based on a review of the literature and uses a case study approach to investigate the changing characteristics of public spaces in the United States. Specifically, the paper draws from studies by August Heckscher (1977); Kevin Lynch (1981) and Jan Gehl (1987) to develop the methodology for the analysis of Kennedy Plaza in Providence. The proposed recommendations draw from studies by Clare Cooper Marcus (1990), Cy Paumier (2004) and Union Studio (2013).

Findings: Kennedy Plaza is the major outdoor public space in the center of downtown Providence, Rhode Island. The plaza is surrounded by major landmarks such as City Hall and the Federal Building/U.S. Courthouse. Kennedy Plaza has been reshaped several times in the past. Therefore, the identity and the function of the plaza have evolved significantly over time. Currently, the plaza includes three different and partly fragmented functional areas: the bus passenger terminal, the skating center and green space (Burnside Park). These functional areas are divided by roads, making the plaza less appealing to pedestrians. Recently, the Greater Kennedy Plaza coalition has proposed a new concept to transform the plaza into a lively public square rich with different activities.

Importance: Landscape architects play an important role in shaping the future of the public spaces. The public spaces impact the quality of life and have to balance the needs of different user groups. Learning from the past challenges of public spaces in transition, communities can better identify new opportunities to reinvent their existing public spaces.

Reconnected Riverfront in Downtown Manhattan, KS: Human and Ecological Perspectives

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Keywords: Pedestrian Connectivity, Ecological Riverfront Design, Walkability, Anthropocentric vs. Ecocentric Design

The fast-growing city of Manhattan, Kansas, has recently undergone much downtown development within walking distance of the nearby Kansas River, yet there is no pedestrian movement from the downtown to the riverfront. The cause of this is a lack of pedestrian attractions on the riverfront and an abundance of barriers to pedestrian movement between it and the downtown. The goal of this study is to develop a design for the successful development of a pedestrian connection between the downtown and the riverfront that balances anthropocentric and ecocentric perspectives. A better understanding is needed of user perceptions and preferences about the types of attractions that the riverfront could have and the perceived barriers between the downtown and it.

The objectives of this study are to 1)understand user preferences between different types of riverfront attractions for the Manhattan riverfront and 2)to identify what users perceive as the barriers to pedestrian movement from the downtown to the riverfront.

This study will use a survey method among community members of Manhattan who are current/future users of the Kansas riverfront. This survey will capture user's: 1) preferences between different types of riverfront attractions, 2) willingness to visit different types of riverfront attractions, 3) perceived barriers between the downtown and the riverfront, and 4) preferences of different design solutions for overcoming known pedestrian barriers. Different types of riverfront attractions and different solutions to known pedestrian barriers will come from precedents, and known pedestrian barriers have been determined through field visits. Based on evidence-based design approaches, the findings of this study will be translated into design strategies for developing a successful attraction on the riverfront and a pedestrian connection between the Manhattan downtown and its riverfront with a harmony of anthropocentric and ecocentric views.

Retrofitting Historic City Centers and the Potential Effects on Their Walkability: A Comparison of San Luis Obispo, CA and Bath, England

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Keywords: historic city center, street

Aging city centers are often retrofitted to accommodate more up-to-date requirements for associated land uses, including restaurants, shops, and housing. While these “facelifts” may be necessary for supporting current building codes and needs, they can impact other desirable noted qualities of these areas such as walkability. This research focuses on two questions: 1) Does retrofitting historic city centers appear to decrease or increase walkability? 2) What walkability qualities appear to be the most and least impacted by the changes associated with retrofitting? Two cities noted for their walkable city centers with retrofitted structures were compared using a scoring instrument that measures urban design qualities related to walkability (Ewing and Handy 2009). San Luis Obispo, CA, founded in 1772, is a city of approximately 45,000 located in the central coast region of California (United States Census Bureau, 2010). The city of Bath, England, which really became more established as a noted town in the 1800’s, is located on the River Avon and has a population of approximately 80,000 (Bath and North East Somerset Council, 2001). Both cities are considered tourist destinations because of the effort they have made in preserving characteristics from their historic origins. Three street segments from each city were assessed and scored for design qualities that contribute to walkability. Comparisons were made between the extent of retrofit for each street and their walkability rankings. Each segment represented a typical street typology (main street, a secondary street and a tertiary street) for each location.Overall, results indicated Bath city center street segments scored higher than San Luis Obispo streets, suggesting that a lower level of intervention and retrofitting within these historic districts may provide a more walkable environment. Specifically, Bath, when compared to San Luis Obispo, shows a greater retention of historic buildings, and changes to these buildings occur primarily at the ground floor level to accommodate current uses including shops, restaurants and other commercial ventures. San Luis Obispo has maintained some of its historic buildings with similar ground floor retrofits, however, there has been a higher degree of wholesale building replacement of historic buildings with those that represent post World War II construction and style. Discussion of specific variable results between the two sites, and the possible application to other city center assessments will be presented.

Revisualizing the City Streetscape from the Child's Perspective

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Keywords: Urban Design, Streetscape Design, Children's Design, Play, Children's Education/Development

By combining an analysis of childhood development as it occurs through acts of play and an analysis of how the outdoor, designed environment can provide for children's developmental needs and incorporate children's perspectives, this thesis project attempts to assess and make recommendations for improving the play-value of urban, public streetscapes.

This project developed to address questions that arose during public meetings for a Main Street redevelopment studio project in which members of the public noted a lack of engaging design elements for children. In the redesign that followed, it became evident that there is a knowledge gap regarding what it means to make a public space engaging for children outside of the inclusion of standardized play structures.

To establish what provides for the needs of children, from the adult perspective, this project explores the concept of "play" in relationship to childhood development, including physical, cognitive, social and psychological development. It further explores how existing designs for children such as playgrounds, schoolyards and children's gardens do or don't successfully address these needs. To further establish what makes a place engaging for children, from the child's perspective, this project looks at research collected by three authors directly working with children ages 5-12 in both the United States and Great Britain. These authors helped children to produce cognitive maps and drawings and collected interviews and narratives from them about places. The combined analyses from both the adult's and child's perspective are used to establish criteria for evaluating existing conditions and making recommendations for improved play-value in urban, public spaces.

The criteria are then applied in a hypothetical case study of a two-block section of Central Avenue, in the Nob Hill Neighborhood of Albuquerque, New Mexico. The existing conditions are assessed and evaluated by the author using the criteria derived from the previous analyses, and then new design interventions are proposed to improve the play-value of the streetscape.

The research indicates that making public spaces more engaging for children provides an opportunity to involve them in the public environment, bring families to these places, and create a broader sense of community and public engagement. By understanding the relationship between play and development and also the relationship between the physical environment and development, not only can designers create more engaging, playful spaces, but they can also understand how these spaces shape the identity of individuals and communities.

Faculty Adviser: Alf Simon

Systems-Oriented Design Approach for Creating a Walkable and Sustainable community

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Keywords: Systems-oriented design, community development, walkability, LID

With growing demands for sustainable development and healthy living, a systems-oriented community design approach can be used to integrate complex ecosystem needs with aspects of human livability. The main purpose of this study is to present an approach to using systems-oriented design for Cross Creek Ranch (CCR), a 3,200-acre master planned residential community at the western side of Houston, Texas. As a phase of CCR, the 420-acre site was designed to promote walkability and to provide low impact development (LID) techniques using four major systems: connectivity, walkability, water resource management, and community attachment. To assess the efficacy of each system, Castlegate, the 406-acre conventionally planned community in College Station, Texas, was selected to experimentally compare with CCR.

For the system of connectivity, the proposed plan establishes a hierarchical road network to reduce traffic delays on major streets and to enhance safety on streets by offering gradual speed limit changes. Looped street patterns are designed to minimize dead-ends and to provide alternative route choices. Consequently, CCR reveals higher connectivity than Castlegate by 22% of increase in the number of intersections per road segment.

To promote better walkability conditions than the conventionally developed community, the plan proposes more diverse attractions, safety for walking and biking, and a pleasant streetscape by locating eight major destinations within 5 to 10 minutes walking distance from one other.

To encourage community attachment, with diverse destinations across the site, the plan provides a decentralized green space network, while a large 30-acre central park located at the heart of the site. This results in 157% of increase in the share of community parkland per capita in CCR compared to the conventionally developed community.

Integrated with the built environment based systems, three major water resource management mechanisms are proposed; rainwater harvesting, grey water recycling, and on-site stormwater treatment. The plan is designed to annually capture 51.03 million gallons of water from roofs of residential and commercial areas, and reuse it for irrigation purposes and interior use. This approach produces a projected $110,000.00 annually through city water supply cost reduction. Grey water collected from 755 residential lots is treated at a constructed wetland, which then flows into the 17.89 acre detention lake located in the central park. Runoff during storm events is managed through 13 LID facilities applied across the site. Accordingly, the plan reduces 38.7 million gallons of runoff and saves $3,600 in annual water treatment costs.

The Impact of Green Walls and Roofs to Urban Microclimate in Downtown Dallas

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Keywords: Living Walls, Living Roofs, Microclimate, Urban Design, Urban Morphology, Architecture, Green Roofs, Green Walls, Dallas

Microclimate refers to a localized zone where the climate is different than the surrounding area. Urban heat island effect is a microclimatic occurrence where materials such as brick, asphalt, and concrete absorb the sun's energy, and then heat-up, and re-radiate that heat into the ambient air in urban areas.Urban heat island effect can be partially mitigated by modifying the physical surface and mass properties of existing and/or new buildings. Specifically using landscape elements such as vegetation and soil, treating façade and roof conditions, and/or influencing urban form with site planningin the greater scale such effects can be amelioratedin urbanized areas.

Green walls and roofs help reduced urban heat island effects, improve air quality, and storm-water runoff (Greenscreen, 2012; Cantor, 2008). Dallas, Texas has an average high winter temperature of sixty-one degrees Fahrenheit and, an average high summer temperature of ninety-six degrees Fahrenheit (NOAA, 2012; Winguth and Kelp, 2013). Studies indicate that the urban heat island effect can increase the temperature six to eight degrees Fahrenheit (HARC and EPA, 2009) and generate a warmer microclimate in downtown areas. The Leadership in Energy and Environmental Design (LEED) encourages the use of green walls and roof systems to reduce microclimates generated by infrastructures and buildings (USBG, 2013). Although there are a few buildings in the Downtown Dallas area that have employed green façades and roofs, little is known about their impact on microclimate and more specifically urban heath island effect.

The purpose of this research was to understand the effects of green walls and roofs by simulated experiments in a section of the central business district of Dallas. Specifically, two physical models of were made to studythe effects, and sun and air movement studies were conducted on the modelswith the before and after scenarios. Water Tank, Shallow Water Table, and Heliodon experimental techniques were used to study and visualize a range of scenarios (McDermott et al., 2013). Outcomes are documented by comparing and analyzing before and after photographs of changing conditions.

Wind and sun studies in simulated environments show that, when placing green walls and roofs, buildings are protected and the effects of the wind and sun radiation are lessened. Simulations also suggest that the application and appropriate placement of features like green walls and roofs can influence microclimate and help reduce the urban heat island effects in the case of Dallas, Texas.

The Lamination of Moss in the Italian City of Orvieto

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Keywords: moss, Italy, design, database

This study analyzes the palette of streetscapes that exhibit notable laminations, or visible instances, of moss on areas with exposure to water. In Orvieto, Italy, where moss is prevalent, the factors that determine its undesigned temporal appearance can be isolated. The study was conducted in order to understand an urban detail that plays an intrinsic role in the visual character of the city.

Research was implemented through observation and classification of all notable laminations of moss on vertical surfaces directly perpendicular to the street within a portion of the southwest quadrant of Orvieto; Quartiere della Stella, into eight primary categories; dominant color (white, green, yellow), orientation, exposure to sun (high, medium high, medium low, low), type of surface (free-standing wall, building façade), materiality of surface (cut tufa stone, natural tufa stone, concrete, plaster), exposure to water (uncovered, plumbing, unknown), density (dense, moderate, sparse), and area ($<1^2$ m, $<2^2$ m, $>2^2$ m). The data was then transferred by category to individual maps and charts for visual comparison. In order to classify exposure to sun, each of the 62 laminations in the studied quadrant were visited at four specified times throughout a cloudless sunny day. The number of times the lamination was exposed to sunlight determined the exposure level.

The results produced from this study form a database of information that can be analyzed with the intention of using moss as a design element. For example, if a small area of moss is the preferred effect, through comparison of the maps, charts, and numerical data, the conditions found to be conducive for a desired quality of moss can be extracted. Comparing the category “Area of Moss” as the independent variable to each of the other seven primary categories, one could conclude the following statistics about small areas of moss; 93% is green, 58% is exposed to low sun, 71% grows on building facades, and 74% grows on cut tufa stone (results from percentages exceeding 50%).

To further reinforce the statistics, the addition of other cities across different regions would increase the number of laminations to produce stronger results. This study is significant because moss, an undesigned natural element of urban environments, could potentially be designed. The lamination of moss in this quarter of Orvieto is only the beginning of an expansive study of an urban detail that plays an intrinsic role in the visual character of many Italian cities.

Informal Networks: The Value and Potential of Spatial Patterns, Relations, and Character for Landscape Architectural Design Approaches to Homelessness

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Keywords:

Informal networks represent the day-to-day spaces and connections of informal populations, including the homeless. Often utilizing infrastructure corridors, natural systems, vacant lands, and edge spaces, these networks provide perceptual and physical home places in desirable central urban locations, points of access to formal urban settings that are rapidly being recolonized by revanchist policies, and potential spaces for homeless opportunity and engagement.

Landscape architecture's broad focus on relationships, inclusivity, and synthesis offers unique perspective and means with which to propose field-based and landscape-specific design approaches to homeless living, education, employment, and well-being. Yet, beyond an extensive literature on homelessness in sociology and geography, and a limited literature on landscape relationships and potentials, design writing and projects portray landscapes as trivial, inadequate, and even hostile to homeless. This devalued nature fails to recognize the intrinsic value of informal networks, the multiple benefits they afford, and design potentials originating from poetics and preferences related to spatial relationships, dimensions, flows, basic needs, and activities.

This paper examines an extensive literature review on homeless typologies, needs, and preferences, recent design approaches to homelessness, and design precedents. This research is used to anticipate the location, composition, and character of local informal networks, inform mappings and documentation of spatial relationships intersections, and character of informal networks, and propose key services and service hubs for area homeless.

Methods used include extensive literature review, network mapping, including field observations and GIS mapping of informal networks, encampments, and existing services, comparison of hypothetical versus observed networks, and analysis of potential networks based on researched homeless preferences. Findings include network spatial characteristics and formal network intersections, comparisons of informal networks, cultural, and natural systems, expanded homeless services based on network potentials, and potential central spaces for engagement with homeless.

Lessons suggest leveraging informal networks' strategic locations and unique character to expand and complement existing services with landscape-based services at key intersections between informal and formal. Through this, informal networks may be recast as critical systems to harness, not only to provide opportunities to homeless, but also to create places of engagement for informal and formal populations and provide critical services for urban and natural systems.

The Urban Agro Park Competition and the Rise of the Urban Farm Park Typology

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Keywords: urbanization, agriculture, competition, park typology

In 2013, the Canton of Geneva, Switzerland together with local stakeholders selected a winning project for a competition to design a nine hectare “urban farm park”, slated to be constructed in 2016 in the urbanized band of Geneva, west of its city center. The purpose of this paper is to present the results of a spatio-functional analysis of the competition, propose the consequences of the introduction of this new park typology into the urban landscape, as well as present possibilities for further development of this typology.

The competition held in 2012 – 2013 to design an urban farm park in Bernex, Switzerland is the first of its kind. It specifically hopes the winning project will implement “test beds for interaction between the urban population and the farming industry” and views the project as having the “capacity…to provide a new, exemplary vision of the relationship between towns and fields” [1]. Forty-nine submissions were sent for judging in March of 2013, with Verzone Woods Architectes winning the top prize and commission to construct the park.

To perform this research, planometric diagrams were constructed and overlaid to extract the values of the top seven teams as exemplified by the spatial organization of elements in their design. Key diagrams include circulation maps, canopy cover, water management strategies, access points, visual porosity, access points, and division of public and agricultural space, which were overlaid to examine their relationships. The jury’s report was also analyzed for its written assessments of the top five projects.

The prime question asked by this research was: What are the necessary public space linkages in a viable, operating farm required to create a successful urban farm park? These results demonstrate the potentials of an emerging park typology and its ability to integrate viable farming systems in urban centers as essential resources and city infrastructure. Successful proposals favored viability and production over consolidated public park programming, but allowed for intermingling of the public to provide experiences that assist visitors in the understanding and valuing of agricultural production. While clear delineation of public and agricultural space was favored, their juxtaposition firmly roots the identity of the park in its agricultural base. The submissions demonstrate unique points of overlap between park and agricultural infrastructure, providing prototypes that demand further attention and investigation through the development of this typology.

The Venetian Canal System – Typologies of Edge Conditions

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Keywords: Venice, Canals, Typologies

Venice, Italy, comprised of 117 islands connected by 409 bridges is an ideal city to investigate the impact of how water and land interact within an urban fabric. The study draws from the work of Bosselmann; where various drawing methods together generate a visual language. In this study, drawings and maps aid in building a vocabulary for the varied canal-side experiences of the pedestrian.

The study objectives are tripart. First, sets of canals are categorized based on the physical condition on either side of the canal, immediately adjacent to its edges. For example, Building_Canal_Building. It is also possible to determine walkability, as defined by whether a pedestrian may walk parallel to the canal edge on a city defined “street,” henceforth, overall non-walkable (may walk on neither side of canal) or overall walkable (may walk on one side or both). The study selects 5 inland canal sets that together form one navigable waterway, each representing a geographical distribution and connecting some combination of the Grand Canal and surrounding Lagoon. Secondly, field sketches were created to delineate each different typological instance along canal sets. Thirdly, aerial imagery was utilized to determine and present maps of the walkability of canals throughout the entire city and the physical characteristics of the canal sets.

As a result, 8 typologies have been identified across the canal sets and their frequencies averaged: Type 1[building_canal_walkway] – 12.6%, Type 2[building_canal_pvt. Ctyd.] – 3.8%, Type 3[building_canal_piazza] – 4.8%. Type 4[building_canal_building] – 38%, Type 5[piazza_canal_piazza] – 2.4%, Type 6[walkway_canal_walkway] – 34.2%, Type 7[walkway_canal_piazza] – 3.6%, Type 8[pvt. ctyd_canal_pvt. ctyd] - 0.6%. Of the canal sets, 42% are overall non-walkable while 58% are overall walkable. Additionally, the wider or longer the canal, the greater it’s overall walkability. Also, the lesser the canal width, the more number of typologies it is has. City-wide, 49% of canal edges are overall non-walkable while 51% are overall walkable.

In conclusion, from the canal sets there exist only 8 typologies of edge conditions, of which, [building_canal_building], [walkway_canal_walkway], [building_canal_walkway] are most frequent. Also, considering the canal sets and the entire city, the percentage of overall non-walkable to overall walkable edges is nearly even. Additionally, sketches illustrate that although typologies may be classified similarly, spatially the instances vary. Further sub-classification and refinement of this particular visual language has the potential to inform design solutions in similar scenarios where the interaction of people and environment is the characteristic feature.

Urban Agriculture: The Nexus of Culture and Design

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Keywords: Urban agriculture, land use, urban design

There is an increasing awareness and demand for locally grown food in rural and urban contexts. For numerous reasons, the role of agriculture in urban settings is expanding at a rapid pace. This change has implications for human health and well-being, that likewise affects the urban environment. This paper presents an overview of North American urban agriculture projects in order to understand their role in the physical and cultural urban fabric. The case study method for landscape architecture provided the framework to document and analyze the urban agriculture projects. The urban context for these projects include Seattle, Washington; Portland, Oregon; New York City, New York; Atlanta, Georgia; Birmingham, Alabama; Kansas City, Missouri; and Toronto, Canada. These case studies represent urban agriculture holistically. In other words, these projects offer a diverse spectrum of urban agriculture, from farmers to markets, with the production of food being the central common trait. Beyond food production, five categories or patterns of urban agriculture began to emerge: Commercial Farm, Community Farm/Garden, Hybrid Commercial/Community, Private Farm/Garden, and Markets. If landscape architecture is to embrace and promote urban agriculture, it is imperative that we further our understanding of these project types.

Witnessing History at the Corner: Square 575 of the U.S. Capitol Grounds

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Keywords: Washington D.C., Capitol Grounds, history

Square 575 of the U.S. Capitol Grounds is an approximately 6-acre, trapezoidal block of land in Washington, D.C. bounded by Pennsylvania Ave. NW, Third St. NW, Constitution Ave. NW, and First St. NW. It is owned by the U.S. Government and is a part of the U.S. Capitol Grounds under jurisdiction of the Architect of the Capitol. Today, the block is essentially an open, urban, green space that provides recreational and aesthetic opportunities for citizens and tourists. Square 575 is generally flat, though slopes slightly upwards toward the east, with several berms placed on the property to provide contours. An inventory for this block documents a much less imposing record of use and events than its noteworthy neighbors. It is a place to observe Capitol Hill and the Monuments; it is a place to contain overflows of visitors; it is a place with a seemingly humble present and little evidence of its past.

Early colonial documents indicate that Square 575 probably contained vegetation, and associated wildlife, consistent with alluvial and upland deciduous forests and both freshwater and tidally influenced wetlands typical of the mid-Atlantic region. During the Colonial and early Federal periods, agricultural use developed and then Maryland ceded the entire area for development of the District of Columbia. It is after this period that the history of Square 575 becomes a part of the history of Capitol Hill. Much of the history of the site is summarized by a vertical survey of remnants of use. For example, at the lowest depths, (1) evidence of coastal land formation with some modifications related to colonial agricultural practices (2) debris of the Washington City Canal (3) a length of belowground sewer (30' diameter), (4) debris from all structures on Square 575 razed and then approximately 6,000 cubic yards of fill brought from excavations for foundation construction at the Library of Congress.

Square 575 has served many purposes, how will it serve the future of the Capitol Grounds and National Mall? Early and recent plans often ignore the importance of its role as a passageway, storage area, overflow basin, or node of pedestrian flow. The historical narrative will finish with the site’s current status as a potential part of the U.S. Botanic Garden and local open space and the relationship to the buried history and the potential futures.

EXHIBIT

In peeling the layers
I *found* myself.

To celebrate the creative work within Landscape architecture realm, CELA 2014 called for exhibits: paintings, sketches, poetry, textiles, prints, outdoor sculptures, digital art, collage, photomontage, that have *found* the truth of their being, in addressing the conference theme.

The call was open to all students, faculty, practitioners, land artists and creative professionals who are interested in understanding, revealing, questioning, challenging, contributing to landscape architecture.

The exhibition opens with the welcome reception until the eve of closing day of the conference.

Hosts
School of Architecture and Planning, Morgan State University, Baltimore
College of Agriculture and Natural Resources, University of Maryland, College Park

Curators | Exhibit Section Editors
Archana Sharma, Jack Sullivan

Exhibit Co-ordinator
Brian Stansbury

Exhibition Jury
Terry Clements. FASLA. Landscpe Architect. Educator. USA
Annaliese Bischoff. Landscape Architect. Artist. USA
Jeffrey Menzies. Author. Poet. USA
Asit Poddar. Photographer. Artist - Guernica peace mural project with blind kids. India
Setiadi Sopandi. Architect. Curtor- 2014 Venice Architecture Biennale. Indonesia Pavilion.Indonesia

A Children's Guide to Turners Falls

Annaliese Bischoff, University of Massachusetts, Amherst, United States,
Sagegreen33@gmail.com

Exhibit Type: illustrated book and Poster
Medium: Mixed media
Dimensions: 5.5" x8.5" book, 8.75" x 11.25" book and 18" x 24" color poster
Date completed: March 2013

The purpose of this project was to promote pride in people and place. This landscape architect worked in an economically struggling community to create, oversee, and distribute the publication of a small book, A Children's Guide to Turners Falls, showcasing places in the town as seen through the eyes of its children. Located along the Connecticut River and serving as the center of five townships making the Town of Montague in western Massachusetts, Turners Falls was once a thriving mill town. Despite the current economic hard times, Turners Falls offers a vibrant rich history and a compelling character, both a natural source of inspiration to designers. Because the children of Turners Falls have often been neglected by programs- favoring larger cities, they have not enjoyed generous support in the design arts. The schools in Turners Falls, as they struggle amidst budget cuts, currently feel the need to concentrate on preparing their students for standardized state tests. Because the children have not performed well on these tests, there is strong pressure upon the schools to show improvement there. With this kind of pressure attention for the arts has suffered. For instance, one art teacher serves over 500 area elementary school children. The landscape architect volunteered to work with the art teacher to develop ideas for creative and affordable projects inspired by places in town. The children created many spirited watercolors, a selection of which is featured in A Children's Guide. Through their work children expressed their affectionate connections to the local places they deem special. Although produced on a shoestring budget, the publication made community residents feel enormous pride not only in their children, but also in their town. The children in turn felt a closer connection to their town and their sense of place within it. By instilling these feelings in children and adults, the project has provided a foundation for the future stewardship of the environment. Project received merit award from the BSLA in Spring 2013.

Baltimore

Archana Sharma, Morgan State University, United States, India, archana.sharma@morgan.edu
Fletcher Mackay, Maryland Institute and College of Arts, United States, fletchermackey@gmail.com

Exhibit Type: Interactive Painting
Medium: Mixed-media on canvas, images attached.
Dimensions: 1 canvas painting of 44” x 58”
Date completed: Fall 2013

“Baltimore” is a collaborative project of two artists, painted in the style of call and response and attempts to capture the angst and the subcutaneous struggles that breathe side by side in Baltimore every day. The “Baltimore” canvas scratches the layers of disparity and reveals the tensions between race, color, gender, class, education, and age, while using color, form, and texture. The painting acts as a provocative reminder of the tearing social fabric in public life, beseeching an action every day in every role.

Barn Again

Phoebe Lickwar, University of Arkansas, United States, plickwar@uark.edu
Frank Jacobus, University of Arkansas, United States, fjacobus@uark.edu
Marc Manack, University of Arkansas, United States, mmanack@uark.edu

Exhibit Type: Photography, Spatial Installation, Sculptural Totems
Medium: Archival Ink Jet Prints, Wood, Plexiglas, plastic cable ties
Dimensions: Photographs: 18" x 24"; Architectural Installation: 8' x 8' x 8'.; Sculptures: 11" x 11" x 47".
Date completed: September 2013, recreated for 2014 CELA Exhibit on 25th March 2014

The wind-blown, weather etched falling barn is frozen time in Arkansas's landscape. Over the next twenty to thirty years Americans will watch as most of the falling barns that populate their landscape fall further into disrepair or are removed from the landscape entirely. Falling barns register the transformation of the vernacular landscape resulting from urbanization and changes in agricultural production. This exhibition seeks to promote awareness of traditional barns in the Ozark region of Arkansas before they disappear forever.

BARN AGAIN is a visual and experiential record of falling Ozark barns in three parts. A photographic exhibit documents a series of barns from the region in various states of degradation, giving visitors context for comparison and contemplation. A spatial installation simulates the dissolution of a traditional barn, using material salvaged from a local example. Four sculptural totems reveal the forces underpinning the barns' demise. While the photographs comment on the current condition, the spatial and sculptural work prolongs the duration of transformation to explore translations of the falling barns' physical and metaphysical "materials." Together these works explore the ways in which the barns are deeply connected with the landscape, both historically and in their current state. It captures the disappearance of a particular way of life, while reflecting on the push and pull of rapid urbanization in the region. It represents in two and three dimensions the symbiotic relationship between building and landscape, transformed and reimagined, speculating on a possible future for falling barns and the landscapes they inhabit.

Cartooning the Landscape

Chip Sullivan, University Of California, Berkeley, United States, Csully4@yahoo.com

Exhibit Type: drawings, and optical devices
Medium: print matter
Dimensions: print matter: 12”x18” framed
objects: vary; none larger than 12”x12”x12”
Date completed: 2006-2014

For the last ten years I’ve been exploring sequential drawing, or comics, as a teaching tool. As a professor who teaches design and drawing, I constantly see students struggle to unlock their creative potential. In a culture dominated by visual media, I’ve found that the integration of word and image is a powerful tool to communicate the transformative powers of observation. I am currently under contract with the University of Virginia Press to write and illustrate a 200-page graphic narrative titled

Cartooning the Landscape: Drawing a Green Future. The plot is inspired by actual events and real people who have influenced my search for environmental awareness. Exhibited here is this work-in-progress, represented by original pen and ink drawings with watercolor wash. Cartooning the Landscape evolved from my ‘Creative Thinking’ comic series which ran in Landscape Architecture magazine from 2006-2011. Even before producing my first visual narrative for Landscape Architecture magazine I had always dreamed of creating the first landscape comic. Formatted as a graphic novel, this environmental parable is a fictionalized account of a sustained mentor-protégé relationship, where weekly lessons on drawing, seeing and consciousness fulfill the protagonist’s long search for a wise teacher.

This exhibit illuminates an important methodology that elevates the visual awareness of the viewer by improving his or her perception of the landscape, ultimately leading to personal knowledge and growth. People today are becoming more and more distanced from the natural environment; our powers of observation are dulled by our retreat from the tactile and our increasing addiction to the virtual. The ecological narrative of Cartooning the Landscape provides a map to help one find his or her way back to a world of wonder, imagination and mystery.

“The artist draws not only what he sees,
but what he must make others see.”
Edgar Degas

Contrary Remediation: The Design-Build-Destroy Project

Asa Eslocker, University of Virginia, United States, Are4gk@virginia.edu

Exhibit Type: Recreation of a creek Installation
Medium: blue piedmont limestone
Dimensions: 5-6' recreation of installation
Date completed: August 24, 2012 – limestone sculpture constructed, recreated for 2014 CELA Exhibit on 25th March 2014

Contrary Creek is a heavily polluted, acidic stream that flows through a post-industrial mining wasteland in central Virginia. With local volunteers and community partnerships, 15 tons of limestone were used to construct a 10'tall sculpture and pathway in the acidic water. The sculpture was intentionally demolished in a public art exhibition that encouraged a dialog via a visceral encounter with this forgotten landscape. Filmed in 3D with dozens in attendance, the demolition-dedication event aimed to reveal environmental and cultural narratives, and provide an ecological service with the acid-neutralizing limestone. This project proposes a unique strategy and theoretical framework for remediating and reimagining contaminated landscapes through contemporary aesthetic theory.

Limestone, with high pH, is often used to help neutralize acidic water near mining sites. However, the limestone's ecologic function at Contrary Creek was also meant to compliment its aesthetic function—the spiraling tower and pathway paid reverence to Robert Smithson's Spiral Jetty, and other land artists who have grappled with how human visions of beauty relate to artistic making and visions of landscape.

As quickly as it was built it was celebrated through destruction. The demolition-dedication event was a public sculpture exhibition on Saturday August 25, 2012 with 35 people in attendance. Local barbeque food and a banjo player added to the poly-sensorial experience. Small limestone blocks were painted with VOC free, highly alkaline blue pit lime paint, and tossed into the water like a wishing well to begin the revival of the landscape. Finally, Mayor Harlowe released the 50-pound wrecking stone to commemorate the event, similar to a christening of a sea-faring vessel. Thus, one dramatic performance was over to allow the more subtle ecological performance to begin. Contrary Remediation demonstrates that landscape architecture is a cultural practice with many methods of revealing many forgotten, but essential, social and ecological values.

Design Code In Haiku

Archana Sharma, Morgan State University, United States, archana.sharma@morgan.edu

Exhibit Type: Interactive table exhibit
Medium: printed set of cards with a unique “design code in haiku” for each card
Dimensions: 41/2”x7” or 8 ½” x 11” a set of cards
Date completed: Haikus Spring 2013, Card backing Spring 2014

The sensibilities of architects and other designers have been refined to decode, communicate and resolve the social, ecological and economic issues through graphic communication. Prose is only a secondary language they speak and understand. Drawings, reduced to the heart of content are the primary language of architects and designers, resonating with the iconic architect Mies Van Der Rohe's paradigm of "less is more".. The format of Haiku, although textual, is in essence very much in tune with the sensibilities of "less is more", thus appealing to architects and other city designers.

The card format, with a monthly date style and tarot card style presentations, is intended to serve as a fun design inspiration tool, accessible to designers who may not think in poetry but appreciate it.

Field Observations I [Rome] and II [Dublin]

Elizabeth Boults, University of California, Davis, United States, Eliz_bo@yahoo.com

Exhibit Type: collage
Medium: Paper and print
Dimensions: two display boxes approx. 16” x 20” x 2” each (8 small collages in each frame)
Date completed: 1999, 2009

Each of these collages documents a day of a sabbatical year, ten years apart. Composed from printed material such as maps, stamps, labels, tickets, receipts, and found objects such as playing cards, each composition exists as its own Victorian cabinet of curiosities, and tells its own story of place. When paired, the visual field is unified by new spatial relationships, and different narratives emerge.

Creativity involves finding meaningful connections between seemingly unrelated phenomena. Reassembling the ordinary can be a powerful conduit to creativity. Through processes of judgment and juxtaposition, collage forms a new narrative of place based on the ephemera of the everyday.
A century before cut-paper compositions became a creative outlet for women in Victorian England, and long before the French Cubists experimented with assemblage, the naturalist Mary Delany (1700-1788) was inspired to create stunningly beautiful and botanically accurate floral ‘mosaiks’ from paper and leaves, noticing by chance the similarities in color and texture of the two different materials. The imposition of an order and coherency on random elements is what intrigues me, and what I find compelling in the work of artists like Joseph Cornell and Robert Rauschenberg, from whom I derive inspiration. Collage combines the immediacy of observation and materiality with the time-consuming process of decision-making and craftsmanship.

This selection of collages documents sojourns to Italy and Ireland, and spill out of a single well-worn 3”x5” Moleskine notebook. The process of creation is ongoing.

Island in the Sky: Meditations on Scale and Complexity in the Canyonlands Landscape

Caroline Lavoie, Utah State University, United States, caroline.lavoie@usu.edu

Exhibition type: sketches
Medium: Prints of pen and ink drawings on canvas, wood frames
Dimensions: 3 large prints 2' by 4' (archival quality)
Date completed: June 2013, prints March 2014

This exhibit represents a process involved in drawing on site: seeing, interpreting and internalizing the qualities and variations of the landscape to facilitate a form of interaction with the viewer. The pieces submitted submitted are a continuation of my pursuit in drawing practice and seek to capture large-scale landscapes. As a landscape architect and artist my drawings have been exhibited in venues such as UC Berkeley, University of Ljubljana, Slovenia, and galleries in Argentina, Minnesota and Utah. These pieces were drawn in the summer of 2013.

My sketches are drawn directly on site in order to capture the relationship between the artist/designer and the landscape. In its representation, a drawing can describe the landscape in all four dimensions as a moment in space and time. Thus, drawing is not only a mode of representation but also one of perception, interpretation and reflection. As a form of analysis, a sketch can convey the sense and essence of place. Drawing in the landscape creates an awareness of place that is a distinct form of information gathering and a means of understanding the landscape. The act of awareness in drawing involves our imaginative perception of space: an active visual, physical and cultural relationship to the land.

This drawing series is a subsequent step, and exploration on scale and meditation in the landscape, on how to use drawing to get to a deeper understanding of place. Meditation is part of this awareness and allows me to understand the scale and complexity of the landscape from distant views. Each drawing focuses on different aspects of the landscape. They explore the layers that form the visual landscape (the foreground, middle ground and background) sometimes blurring their boundaries. As I draw an impression of that landscape, meditation—becoming one with the landscape, in silence, light, wind and time—helps me to comprehend scale and complexity.

Titles of the three pieces of artwork:Meditation: Variations on a landscape no. 1;Meditation: Variations on a landscape no. 2; Meditation: Variations on a landscape no. 3

Landscape Icon

Matthew R. James, South Dakota State University, United States, Matthew.james@sdstate.edu

Exhibit Type: Photography exhibit
Medium: Graphic Design
Dimensions: 11”x17”
Date Completed: September 2013

This piece shows three visual examples of a series that will be produced and called Flashcard History of Garden Design. This visual communication and learning tool will create images of distinct iconography that represent elements in the history of landscape architecture.

Categories which organize these iconographic examples include: Design Features, Sites, People, and Cultures. The intent is to create graphic flashcards that use image iconography on one side, and a written description or definition on the other. This could be presented in hardcopy or also formatted for a digital phone application.

With respect to graphic design, emergent topics, elements, and people in the history of landscape architecture are portrayed in their simplest iconographic essence. The color palette is meant to use simple gray scales with few accent colors. The challenge is to have the images stand on their own as bold, simple statements that draw on memory. These graphic statements can also simply define a vocabulary of design for garden design.

The examples shown depict images in the “Design Feature” category and represent the French allee, the English ha-ha, and for a touch of whimsy… the American folk art, lawn anchored pink flamingo.

LANDscape in the BOX

Raffaella Sini, National University of Singapore, Singapore, akirs@nus.edu.sg

Exhibit Type: Installation
Medium: Cardboard
Dimensions: 40 x 40 x 40 cm
Date completed: 2013

LANDscape in the BOX is an art work exhibited at Singapore Art Museum during its Art Garden exhibition 2013. It was designed and built by 135 National University of Singapore architecture students with the guidance of Raffaella Sini and based on a concept by Roberto Capecci of the design collective Land-I archicolture.

Conceived as a collective work, it is an assembly of 135 boxes, each one designed to capture and convey a Singaporean landscape and its environmental or cultural value.The boxes uncover the significance of familiar places, identify meaning to the everyday homeland, and communicate a narrative that allows the viewer to relate these landscapes to other places. Ultimately these fragments build a vision of the Singapore Landscape, as perceived by its young inhabitants, and share this vision with community by means of interactive devices. Each box is designed to be interactive: time, and subsequently motion and metaphor become design tools to turn the landscape processes, forms, and narratives embedded in the modification of the land and investigated by students, into a new designed story. Narrative as knowledge acquired through action is literally the translation of designer`s motion/perception in/of landscape into user`s hands-on experience of the box.

The interactive process is amplified by a QR Code that links each box to the website landscapeinthebox.blogspot.com providing direct communication between the designer and the user. Storage of site-information and inhabitant`s/conceiver`s perceptions, medium of expression, educational tool which develops critical awareness to interpret landscape as relationship, strategy towards social engagement, LANDscape in the BOX proposes a narrative as a design process that is open to change, participation and eventually reinterpretation by the users.

Landscapes in Motion: Birmingham Intersections

Daniel Neil, Troy University, Rosa Parks Museum, United States, neildaniel070@gmail.com
Jocelyn Zanzot, Auburn University, United States, Jez0002@auburn.edu

Exhibit Type: Installation
Medium: 3 laptops, 3 projectors, 3 screens projected one after the next framing an inner walkway within a fabric- enclosed moving theater space inside the gallery.
Dimensions: As projected: 6' x 4' or a 30" x 46" space
Date completed: ?

Birmingham is a city born of fire, forged of iron. Ignited by characters that dared bring tradition and revolution over seas to the Wild Southwest. The largest cast iron sculpture in the world, guards this city. It is Vulcan, reaching across the land and through time. Myth tells that the industrial might of this Roman God was tempered to make art through love and companionship. Fueled by the passions and tensions of the times, Birmingham grew overnight: the Magic City. A century later it exploded.

Recovering and reconciling life in the aftermath of the Civil Rights movement, the bombed out city still pulses with the determination and confidence that has given rise in its next era to the likes of Fred Shuttlesworth, Angela Davis and Sun Ra. Built into enduring institutions, seasoned into fine filaments, shaped into new nanotechnologies for the sister arts of architecture and medicine, Birmingham Alabama is a next generation laboratory of rebel urbanism and creative innovation.

The film explores the layers through which the City is stitched to its underlying landscape conditions, the roots and shoots of the industrial arts that are now vital to its resilient future. This installation investigates the ground that gives rise, the hands that sculpt, the discourse and design that guides Birmingham at various speeds.

Creative industries comprise a rising 5% of Alabama's economy, with film and media at the top; and landscape, architecture, graphic and industrial design in the mix. When broadcast through social media networks, digital video enables community-based designers to reach a diverse international audience. Landscape movies or shorts become a critical means of understanding the built environment, envisioning future transformations and engaging a diverse constituency.

Layers in Our Landscape

Evelien de Olde, Wageningen University, The Netherlands, eveliendeolde@gmail.com

Exhibit Type: Collage print on metal
Medium: Print on Aluminum
Dimensions: 75 cm X 50 cm
Date completed: October 2013

Layers in our landscape.
Landscapes of people,
Landscapes of nature,
Landscapes where both worlds meet.

Changes in landscapes,
Changes in pictures,
Changes that new questions seed.

By fading two pictures into each other a new image appears. The new image requires a pause, some time to observe, and to develop your own feeling and interpretation of the image. Making these pictures inspires me to explore new questions on the interaction of communities and cities, and its influence on the landscape. I present here three blended images printed on aluminum.

Mined Landscape

Kelly Curl, Colorado State University, United States, kelly.curl@colostate.edu

Exhibit Type: Photography exhibit
Medium: Triptych canvas prints of my photography
Dimensions: 24” X 36”
Date completed: October 2012

Our landscape is never static. It is ever changing and is seen throughout time in its geological formations, evolutionary characteristics, and its climatic features. Over time, natural change within our landscape is slow, but landscape change caused by human impact can be measured and seen at a faster rate. We have drastically shaped and changed the landscape we live in, but man has also shaped his own definition of landscape and has determined how he treats it. The geological history of our landscape, in combination with how people treat and utilize our landscape will provide a definitive understanding of the historic landscape, how it was created, how we may plan for future developments, and how we manage and process landscape change.

Extracting energy from our earth has positive and negative effects. Anthracite coal was historically mined by tunneling. Strip mining, also called surface mining, is a safer technique but it scars a larger surface area of the landscape. Strip mining for coal results in a “wasted” landscape of culm, which, over time, contaminates our soils and watersheds. This research, using a series of photographs taken in the Anthracite Coal Region of Schuylkill County, PA, analyzes these contaminated sites and looks at the potential for reclaiming, reusing, and restoring our landscapes for positive future change.

Reclaiming abandoned mines is an important task that we must perform to prevent further destruction and contamination of potential living and developed landscapes. What can landscape architects do to reshape, redevelop, and plan the future of our “wasted” and abandoned landscapes?

Nest Study

Kevin Lenhart, University of California, Berkeley, United States, kevinlenhart@gmail.com

Exhibit Type: Installation
Medium: Wood, nails.
Dimensions: 3’ x 2.5’ x 8”
Date completed: September 2013

Nest Study uses the exercise of magnifying and reproducing a small section of a bird’s nest to demonstrate not only the structural composition of a nest but, more generally, a particular approach to the landscape design process.

This approach involves passage between the physical and digital realms, and calls attention to the subjectivity and abstraction that must characterize any simplification of complex natural forms and processes.

A photograph of a nest was magnified to view a single square inch of overlapping sticks. This image was then hand-sketched as a series of straight rays, re-traced as a two-dimensional AutoCAD image, digitally projected back into a new three-dimensional form approximating the original photograph, and finally reproduced as a series of redwood poles affixed to each other with nails.

The resulting structure straddles the line between two- and three-dimensionality. Notches cut in the poles direct them at subtle angles, yet the piece as a whole reads as a flat sculptural work. In its genesis, it walks a line between analog and digital creative processes, drawing equally from the flexibility of modeling software and the tactile response and physical limitations of natural materials. This multi-media approach engages different parts of the designer’s psyche to cultivate an understanding of the subject that is not only thought but felt. Such an understanding yields design that benefits from both the rigor of conscious choice and the spirit of spontaneous gesture.tion that must characterize any simplification of complex natural forms and processes. Consciously or not, each stage in the representation process becomes an opportunity to imbue the project with the designer’s own ideas, emotions, and meanings.

SAKURA ORIHON

Ron Henderson, The Pennsylvania State University, United States, Reh29@psu.edu

Exhibit Type: Installation Space And Time:
Medium: Various Media In Folding Sketchbooks
Dimensions: Dimensions: 5”x7” and 3.5”x5” sketchbooks , various lengths when unfolded
Date Completed: February - June, 2012

This Project is a result of 2012 US-Japan Friendship Commission Creative Artist Grant awarded to the Artist to study sakura, or cherry trees, in Japan. Peripatetic investigations across Japan in the Spring 2012 included rigorous temporal, spatial, and cultural investigations of performative landscape events (the blossoming of the trees and the descent of the blossom to the ground); the cultural practices that surround this landscape event (o'hanami, the cherry blossom viewing celebrations); and recording of indigenous horticultural practices of Japan (pruning, branch crutches, rope tenting). The fellowship, in 2012, coincided with the one-hundredth anniversary of Japan's gift of cherry trees to Washington, D.C.

The investigation was recorded in orihon (ori, folding; hon, book) folding sketchbooks, photographs, and small site-specific projects. Among the specific sites mapped and drawn were specimen cherry trees over a thousand years old, groves of wild mountain cherry trees, and urban promenades lined with hybrid cherry trees. No flower falls to the earth as beautifully as the petals of the sakura.

SHORE L-I-N-E

Paula Horrigan, Cornell University, United States, phh3@cornell.edu

Exhibit Type: 3-D books Installed on linear surface
Medium: Plexiglas, wood and stone detritus, paper, bookboard, wire, photographs.
Dimensions: Six individual unfolding books, 14"high x 10" wide x 4" deep, opening to 8' length.
Date completed: 2006 (recreated for 2014 CELA Exhibit)

Landscapes are like unfolding books with complex ecological and cultural stories to tell. They teem with interanimating layers and complexity and are bound by time, change, materials, phenomena, activities and meanings. Through and within their pages we venture, experience and encounter. And through our many acts of lifting, lowering, moving, pausing, touching and retracting we inhabit them and they inhabit us.

My work translates and records landscape experiences into landscape books of my own making. Each individual book or ensemble offers a personal reading and representation of how a particular landscape or place discloses itself, becomes known and more fully revealed or seen by me. Through its intentionally interactive form, each book also becomes a site or place of discovery for those interacting and experiencing it. Its form and structure aims to overcome the barriers and biases inherent in single and fixed image viewing as well as more closely mirror the experiential and narrative qualities of places and landscapes. Finally, the books aim to convey varied environmental messages and provoke dialogue concerning human-nature interconnectivity and complexity.

The landscape book presented here at CELA 2014 unfolds and discloses six places that individually and collectively translate the larger landscape of Cayuga Lake's encircling ninety-mile shoreline. Each site was first located, found, and experienced. Then on a repeat visit, specific rules of encounter were employed to systematically record and collect discoveries using a camera, and tools for collecting beach particles and detritus at measured transect intervals. The created landscape books reassemble each encounter using an unfolding narrative structure that parallels an experience but also creates an altogether new one wherein temporal and spatial distances and differences collapse and register. In SHORE L-I-N-E, one finds evidence of being inside a local, touchable, tangible place and also being outside a larger, less tangible, all-encompassing landscape scene where boundary making and dissolving unendingly occurs and recurs. In its pages stories of culture, ecology, experience, perception, materiality and phenomena comingle and conjoin.

Strata

Jon Hunt, (drawing), Kansas State University, United States, Jdhunt@ksu.edu,
Tim Keane, (poem), Kansas State University, United States, whisker@ksu.edu

Exhibit Type: Print and Paper
Medium: Charcoal on paper
Dimensions: 40 in. x 54 in.
Date completed: 2012

A landscape of layers some seen and
some only sensed
There are rock, soil, the grass,
the four-legged, the winged, sky

But there are also the memories
remembrances of the land
Such history lies thick on the flats
is carved deep in the draws

Fissures of memory
inscribed by water and wind
Details etched in the bank walls
but dulled by years of drought

Roots and stones
recall the passing of bison
The bugle of October elk
the soft steps of the grizzly

Cottonwood and coyote
are the storytellers of this land's tribe
One relays the wind's poems
the other sings of the prairie soil

Surface Layers

Katya Crawford, University of New Mexico, United States, katyac@unm.edu

Exhibit Type: Photography
Medium: Printed Photographs
Dimensions: Three Panels of 24”X72” (overall size: 6’2” X 6’)
Date completed: October 2013

In a world defined by speed, walking becomes an act of defiance, and a commitment to re-engage with the physical world and its processes. From Henry David Thoreau, to The Situationists, to artist Richard Long, the simple act of walking has been used as a method to understand (and change) our relationship to the physical and psychological worlds we live in. This series of photographs joins and contributes to the conversation started by artists, writers and political activists.

In the fall of 2012 I started taking photographs of the ground with my cell phone. The process initiated after my mother had a bad fall triggered by a raised lip in a concrete sidewalk. I began to look more closely at ground plane surfaces and a whole new world of materiality, composition, color, texture, light, time and human/natural processes opened up to me. What started as a cautionary tale turned into a method for seeing the mundane through a new lens. This series draws attention to the animate and inanimate layers covering the ground plane--the primary plane of interest and concern in understanding and designing landscape.

(Up)Rooted: A Pocket Prairie Garden

Jessica Canfield, Kansas State University, United States, jesscan@ksu.edu
Tim Keane (poem), Kansas State University, United States, whisker@ksu.edu

Exhibit Type: 3 panel Installation
Medium: digital print on watercolor paper
Dimensions: 3 panels 12” X18”
Date completed: 2012

Hyphae
Two thirds of the prairie, they say, lies underground
within the soil, unable to be seen
In rare moments of quiet contemplation
I wonder if, the same is true of me
A seemingly simple surface conceals
a complex network of webs and ties
A conscious effort to keep most reserved
visible to, only certain eyes
The grasses, they say, grow roots first
to weather the harsh prairie climes
Fibers reaching into rich mellow earth
where water, and nutrients wait to be mined
As I live within this land
my roots grow deep and true

This garden design proposal seeks to celebrate the wild beauty of a prairie ecosystem, while highlighting the simple elegance of its underground root structure. Growing concerns over energy and water are inspiring designers to reimagine the traditional garden palette. When planted with species well suited to contextual conditions, pocket gardens can produce spontaneous visual effects with minimal inputs. Hardy and adaptable plantings, including prairie grasses and perennial forbs, offer an alternative to traditional, resource consumptive ornamental plantings. Resilient during drought, fire, and harsh winters, prairie species survive because of their astonishingly robust root systems, which extend two to three times deeper than the plants are tall. At the heart of the pocket prairie garden are a series of corten steel interpretive panels (root-plates), each revealing the root structure of the garden’s species, turned upright and to-scale; thus offering visitors an abstracted, unusual view of what lies underground, hidden from view.

Water Table

Donna Webb, University of Akron, United States, dwebb@akron.edu
Jean Marie Hartman, Rutgers University, United States, jhartman@rci.rutgers.edu

Exhibit Type: Four mosaic panels
Medium: Ceramic tiles on corrugated cardboard surface
Dimension: Each of four panels at 18” by 33” on 3’ by 6’ table
Date completed: October 2011

Four ceramic panels explore the relationships between ground, water, and vegetation, one of several pieces produced by Webb and Hartman during 2011 while they explored clay as a media for examining land-water interactions. The work combines the eye of an ecologist with the sensibilities and knowledge of a ceramic artist. Webb, a ceramic artist, has exhibited a variety of mosaics in public spaces, whereas Hartman was learning about the form for the first time. Their work explores landscape representation in order to emphasize the variability and continuity of the landscape.

All four pieces began with the same model form. Starting with “I Geology”, each panel shows a different state of the transforming landscape - altered to show the landscape as it changes from its geologic form to an optimum biotic state to a highly developed state to a post-industrial recovery. In composing the four pieces, all began with the topography of I Geology. The second piece (II Potential Vegetation) includes subtle changes of topography created by soil development. The third piece (III Peak Industrialization) shows stream incisions and water pollution. IV Post-Industrial Recovery indicates expanding vegetation, cleaner water, and a brighter landscape.

The mosaic pieces are not mortared, making the landscapes more porous than a typical mosaic representing, more overtly, the connections between the land surface and ground below. Water is represented in various shades and textures, indicating levels of clarity and pollution. Forms were generally cut in triangles and then glazed. The triangular form allowed for multiple arrangements of pieces, yet retained some coherence of form. Various types of glazes and application methods were used to explore the patterns and textures that would appear. The variability caused in the glazing and firing processes assured us of greater variability in the final mosaic pieces.

Watershed Event

Donna Webb, University of Akron, United States, dwebb@akron.edu
Jean Marie Hartman, Rutgers University, United States, jhartman@rci.rutgers.edu

Exhibit Type: 9 photos and a video
Medium: Parking lot, water, paper cups and strings
Dimensions: open area
Date completed: Fall 2011

In the fall of 2011, we turned the parking lot of the Myers School of Art at the University of Akron into a watershed map. Environmental processes, like runoff and erosion, are very difficult for most people to picture. By marking 6" contours in orange and watershed boundaries in green, on the parking lot surface, the sub-watersheds associated with specific storm drains became apparent. Simple activities, such as emptying a bucket of water, clearly emphasized the flow patterns related to the contour lines and the pathways to the storm drains.

An additional lesson in this Watershed Event was the shedding of water in one sub-watershed. A blue mark was made at one foot intervals of the sub-watershed area. On each mark, we placed a used 12oz recycled soda can that had been filled with water (equivalent to 1/6" of precipitation). Three volunteers swept the cans down the slope, causing the water to be shed. In the end, the pile of cans served as a remainder of the volume of water that was shed (see video display). The audience at the site and YouTube viewers watched the shedding and marveled at the amount of water that 1/6" rainfall releases.

This project can be perceived as a teaching module or an environmental art project. As the latter, it gained a larger and receptive audience. The paint lasted for nearly two weeks in the parking lot and, therefore, could continue to generate discussion after the event was over. It serves as an example of the spatial thinking that must be applied to landscape problems as well as a small step towards making this kind of thinking more accessible to the general population.

Wrap

Katya Crawford, University of New Mexico, United Stated, katyac@unm.edu
Susan Frye, University of New Mexico, United Stated, sfrye@unm.edu

Exhibit Type: 2-D + 3-D Installation
Medium: Paper, wire
Dimensions: 18”h X 72”w X 12” d
Date completed: 2013

This conceptual work re-envisions our relationship to constructed nature. It wraps the human figure in plans of iconic landscapes, making visible cultural paradigms on nature, form and beauty. The transformation from landscape plan to apparel also speaks to the process of openly borrowing from history, and reworking to create a new design language. Each piece represents a period of history, and highlights the aesthetic quality in the representation of the landscape. The iconic landscapes transformed into apparel begin with the Renaissance, touch down in key periods, and continue through to the present. As we consider the layers of landscape, we must consider the layers of history in the field, and how we have evolved as a discipline. In academia an emphasis is placed on science-based methods, but let us also remember the importance of aesthetics, beauty, and joy inherent in the complex layers of landscape history and design.

AUTHOR INDEX

Acker, Aidan 143
Alexander, Danielle 160, 319
Alomar, Richard 15, 104, 218
Anderson, Jonathon 39
Andrews, Leann 277
Angelopoulos, Angelike 174
Appold, Melinda 285
Artunç, Sadık 260
Atash, Farhad 311
Badenhope, Julia 181, 233
Báez, Ana 282
Baker, Scott 308
Baran, Perver 91
Bardenhagen, Eric 161, 213, 315
Bargmann, Julie 319
Barsoum, Magued 196
Barth, David 142
Bartlett, M'Lis 52, 191
Bass, Beverly 313
Bassuk, Nina 141
Baumgarten, Matt 315
Beamish, Anne 83
Beck, Jody 115, 259
Beidler, Kyle 214
Belanger, Blake 32, 301
Bennett, Katherine 117, 123, 183
Bernard, Eric 192
Betnar, Bret 287
Billig, Noah 211, 238
Binder, Chris 129, 131
Bischoff, Annaliese 324
Bittan, Nadav 320
Blackmore, Pamela 129
Bohannon, C.L. 244, 265
Bolton, Susan 54
Booher, Rachel 241
Borisova, Tatiana 205
Bork, Dean 177
Boswell, Jacob 89, 149, 272
Boults, Elizabeth 330
Brabec, Elizabeth 92, 248
Brady, Emily 113
Briggs, Molly 101
Brittenum, Judy Byrd 61
Brown, Kyle 250
Brown, Sydney 65
Bryant, Margaret 216
Burger, Don 209
Burgess, Katharine 139, 143
Burrows, Steven 119
Burtch, Erin 314
Busa, Matthew 296
Butler, Peter 13
Cahn, Elizabeth 27
Cain, Lee 249
Calabria, Jon 205
Calorusso, Christine 244
Canfield, Jessica 138, 342
Canzonieri, Carmela 280
Carr, Margaret 142
Carrasco, Vicky 11
Ceci, Jonathan 48
Cerra, Joshua 128
Cesanek, Adam 134

Chang, Hyejung 34, 84
Chanse, Victoria..... 11, 202, 249
Chen, Chen..... 190
Cheng, Chingwen 169
Cheng, Szu-Hung 151
Chou, Wen-Wen 151
Christensen, Keith..... 20, 221
Clarke, Steven 292
Clay, Gary R. 176
Clements, Terry 45, 88
Collett, Brad 16
Cook, Kelly..... 202
Crawford, Carter 46
Crawford, Katya 32, 341, 345
Crawford, Pat..... 64
Cui, Ya-nan..... 152, 164
Cunningham, Kevin..... 301
Curl, Kelly 170, 336
Dai, Daixin 303
Dalton, Robert..... 64
Daniels, Thomas 206
Davids, Peter 197, 226
Davis, Brian 81, 111, 308
de la Peña, David..... 175, 261
de Olde, Evelien..... 197, 226, 335
Deming, M. Elen 101, 119, 139, 240
DeVries, Arianna..... 10
Dieterlen, Susan 34, 228
Dinep, Claudia 76
Domanowska, Monika..... 223
Dong, Ludi 208
Dooling, Sarah 44
Douglas, Kim 270
Doyle, Tiernan..... 156
Dubois, Nina 72
Dvorak, Bruce 126, 137, 188
Eason, Miriam 210
Eischeid, Mark R. 113
Eisenman, Theodore 206
Ellis, Christopher D..... 12
English, Ann 140
Erdman, Kimball..... 211
Eslocker, Asa 9, 130, 187, 328
Eubanks Owens, Patsy 256
Evans, Alexandra E. 185
Evans, Jason..... 205
Ezban, Michael..... 271
Fang, Cheng 203
Feld, Shara 54
Fernandez, Isabel 62
Fischer, Dominic 90
Fox, Andrew..... 19
Fraga, Shelby..... 289
Frantz, George 303
Friedmann, Valerie 16
Frye, Susan..... 345
Fu, Jingyuan 59
Fulford, Taze 260
Gabrielian, Aroussiak 195
Gallagher, Frank 166
Gallagher, Sean 166
Gallo, Cory 260
Gallo, Kasia Z..... 33
George, Benjamin H. 28, 47
Gillem, Mark 305
Girling, Cynthia..... 236
Gleason, Kathryn 110
Godfrey, Anne C. 79

Gorrell, Casey 189
Gotthardt, Nicholas 121
Gravenstein, Gretchen 299
Green, Christie 192
Green, William 30, 256
Gross, Alina 248
Hadavi, Sara 199, 232
Haenraets, Jan 78
Haley, Eric 156
Hamin, Mark 27
Han, Yi 194
Hanna, Karen 70
Harding, Daniel 266
Hargrove, Ryan 304
Harris, Catherine 72
Hartman, Jean Marie .. 4, 134, 322, 343, 344
Hawks, Richard 124, 268
Heiselt, April 260
Hester, Randy 263
Hewitt, Robert 297, 302
Hill, David 19
Hill, Kristina 143
Hines, Maria 106
Hines, Patty 42
Hirsch, Alison 122, 195
Hobbs, Elizabeth 8
Hoefer, Wolfram 51
Holmes, Rob 98, 111
Hong, Zaneta 130
Horrigan, Paula 267, 339
Horton, Tobiah 218, 283
Hou, Jeffrey 219
Hoversten, Mark 43
Hu, Jie 152, 164, 194
Hunt, Jon 340
Hunter, MaryCarol 191, 199, 232
Hurley-Kurtz, Pauline 264
Hurst, Kenneth 224
Im, Joowon 177
Jacobson, Wendy R 294
Jacobus, Frank 326
James, Matthew R. 47, 66, 281, 332
Jameson, Harriett 9, 187
Jedraszko-Macukow, Magdalena 223
Ji, Wenqi 190
Jiang, Qianzi 150, 286
John-Alder, Kathleen 10, 97
Johnson, Louis 304
Jordan, Nicholas 154
Jost, Daniel 71, 207
Kamel, Lois 196
Kang, Youngeun 245
Kaplan, Rachel 199, 232
Karle, David 23, 253
Katen, Brian 244
Kauffman, Nathaniel 163
Keane, Tim 34, 138, 193, 340, 342
Kellett, Ronald 236
Kelly, Brian 65
Kelsch, Paul 102
Khachatoorian, Haig 279
Khansefid, Mahdi 276
Kim, Eujin Julia 184
Kim, Gunwoo 180
Kim, Hyun Woo 273
Kim, Hyung Jin 227, 312
Kim, Jae Hong 193
Kim, Jinah 222

Kim, Jun-Hyun 18, 69, 73, 161, 284, 298, 315
Kim, Mintai 245
Kim, Yang Mi 298
Kim, Young-Jae 185, 188
Kingery-Page, Katie 34
Klein, Andrew G. 188
Kne, Len 154
Kohler, Martin 225
Koliji, Hooman.....288
Kordenbrock, Brett 272
Krikac, Robert 255
Kuper, Rob.....212
Kweon, Byoung-Suk 12, 202, 242
Lackey, G.M. 167
Lamb, S.K. 157
Langhorst, Joern 14, 80
Lavoie, Caroline 282, 331
Lawrence, Bryce 193
Lawson, Laura 201
LeBleu, Charlene M. 106, 146, 155, 159
Lee, Chanam 185, 188, 224, 298
Lee, Jong Seon.....217
Lee, Joomee 161, 284
Lee, Michael 9, 187
Lee, Sang-Woo 222
Lee, Sungkyung 96
Leena, Cho 6
Lehrman, Barry 156
Leisnham, Paul 249
Lemon, Robert 210
Lenhart, Kevin.....337
Leonard, Jack 26
Leopold, Don 274
Li, Chunjiao 165
Li, Chuo.....182, 215
Li, Dongying 190
Li, Ming-Han.... 74, 126, 135, 137, 150, 151, 273
Li, Zhihuang 315
Lickwar, Phoebe.....32, 326
Licon, Carlos 168
Liu, Binyi 208
Liu, Hongbin 133
Liu, Hui.....208
Liu, Xiaoguang 37, 307
Livingston, Jennifer 6
Livingston, Margaret.....313
Louw, Andrew 139
Lowe, Robert.....25
Lu, Di 158, 237
Lu, Jianguo 237
Lu, Lushan 133, 194
Luo, Yi.....126, 135
Lutt, Frederick 107
Ma, Xiuwen 136
Mackay, Fletcher 325
Manack, Marc.....326
Manskey, Jim 126
Marin, Amy.....202, 242
Marshall, Cathy 57
Martin, Michael.....63, 118
Mattson, Mary Pat 38, 143
McBride, Joe 204
McCown, Ken.....2, 39, 295
McCoy, John 249
Meitner, Michael.....209
Melcher, Katherine 251

Memar, Maziar 198
Mendoza, Adriana 202, 249
Merrill, Jeremy 24
Michael, Sean 20, 37
Milburn, Lee-Anne..... 70, 86, 156, 241, 309
Miller, Patrick 60, 177, 180, 184, 244, 245
Milligan, Brett 77, 111
Mirkovich, Jared 182
Modi, Sameepa 127, 239
Moen, Bridgette 240
Mohai, Paul 242
Mohamed, Amina 202, 249
Molnarova, Kristina 92
Montas, Hubert 249
Mooney, Patrick 209
Moore, Robin 217
Morrison, Julia 214
Mozingo, Louise 163
Mulla, David J. 154
Myers, David 140
Myers, Mary 131, 138
Nassar, Hala 297, 302
Nawre, Alpa 189, 299, 317, 320
Neil, Daniel 3, 334
Nejati, Adeleh 213
Nettles, Belinda 243
Newman, Galen ... 18, 69, 73, 161, 284, 315
Novy, Ari 322
Oles, Thomas 58
Oluyomi, Abiodun O. 185
Opt'Hof, Andrew 10
Ortega, Daniel 103
Osborn, Brian 160
Özdil, Taner 21, 127, 139, 239, 293, 316
Padua, Mary 41, 105
Pardue, Douglas 318
Parfenova, Tatiana 149
Park, Sunyoung 18
Pasalar, Celen 158
Patterson, Lauren 227
Pereira, Teresa 264
Perkl, Ryan 161
Phillips, Claudia 29, 270
Pitt, David G. 154
Poff, Deborah 244
Pontius-Courtney, Tekla 10
Potteiger, Matthew 35, 49
Potter, Sarah 174
Powell, James 156
Powers, Matthew 50
Pulido, D'Genero 163
Querry, James 29
Quiros Pacheco, Luis Diego 11
Raymer, Annalisa 267
Reaves, Anna 22, 76
Reichenbach, Michael 154
Ren, Lanbin 300
Ren, Yuan 73
Retzlaff, Rebecca 155
Ribe, Robert 220
Rice, Art 59
Richards, James 15, 257
Rising, Hope 220, 305
Rivera, Alicia 21
Robinson, Alexander 230
Rockler, Amanda 249
Rodiek, Susan 213
Rogers, Carl 56

Rolley, Stephanie 24, 48
Ron, Henderson 338
Rosenblatt Naderi, Jody 278
Rottle, Nancy 71, 256, 277
Ruggeri, Deni 132, 300
Russell, Paul 266
Ryan, Kathleen 255
Samet-Shaw, E. Cody 202
Sanchez, Michael 95
Sangwoo, Lee 172
Santy, Devon 156
Sattler, Meredith 87, 123
Scharmen, Frederick 99
Schauwecker, T.J. 157, 167
Schoenthaler, Laura 279
Schwann, Alyssa 78
Sclar, Dalit 316
Sease, Anthony 93
Seavitt Nordenson, Catherine 108, 153
Seeger, Chris 233
Senbel, Maged 236
Seymour, Michael 50
Sharma, Archana 48, 234, 325, 329
Shearer, Allan 94
Shelley, Eilse 36
Shi, Yu 183
Shimmel, David 120
Shirmohammadi, Adel 249
Simon, Alf 314
Sini, Raffaella 5, 179, 333
Sleegers, Frank 225
Sleipness, Ole 178, 255
Slotterback, Carissa Schively 154
Sluznis, Richard 159
Smith, Alison 318
Smith, Carl 32, 55
Smith, Delia 131
Sohn, Wonmin 69, 315
Speetjens, Kenneth 146
Spencer, Benjamin 54, 256
Squadrito, Paul 45
Stevens, Julie 63, 252
Stewart, Curtis 174
Stewart, Dylan M. 127, 293
Stewart, Emma 231
Straub, Dietmar 68
Sullivan, Chip 327
Sullivan, Jack 296
Sullivan, William 190
Sun, Nan 133, 194
Sunah, Hwang 172
Suteethorn, Kanokwalee 204
Swaffield, Simon 43, 231
Szumański, Marek 223
Tai, Lolly 254
Tavares, Silvia 231
Tebyanian, Nastaran 198
Thomas Karle, Sarah 65, 85
Thomas, Kirby 317
Thoren, Roxi 42, 109, 289
Thurmayr, Anna 275
Toland, Tim 35, 274
Tomczuk, Ken 264
Torres-Bustamante, Cesar 31, 53
Trahan, Rachelle 6
Travaglini, Mary 140
Trowbridge, Peter 141
Trumble, Anne 253

v. Haaren, Christina 162
van der Laan, Michael 236
Vandergoot, Jana 148
Vanucchi, Jamie 310
VanWieren, Rebekah 52
Vlasak, Joseph 92
von Haaren, Christina 7
Voos, Paul 25
Wakimoto, Roger 48
Walker, Elisabeth 202
Walker, Jason 157, 167, 321
Wan, Jing 74
Wang, Hao 37, 203
Wang, Huaqing 286
Wang, Nan 208
Wang, Peng 116
Wang, Runzi 286
Wang, Yucheng 315
Wang, Zhifang 150, 286
Ware, Charles 45
Warren-Kretzschmar, Bartlett 7, 162
Wasserman, Judith 306
Watts, David 53, 262
Webb IV, Alexander 72
Webb, Donna 4, 343, 344
Wellborn Yates, Bess 264
Westort, Caroline 56
White, Janet 112
Whitlow, Heather 138
Wilcox, Joshua 312
Williams, Sara Katherine 243
Wilson, Kim 65, 258
Wilson, Sacoby 249
Winterbottom, Daniel 39, 200
Wren, Leslie 309
Wu, Chen-Fa 151
Wu, Chengzhao 136
Xia, Lu 161
Xu, Jie 136
Yang, Bo 37, 129, 131, 138, 147
Yang, Yihong 203
Yglesias, Caren 40
Yildirim, Yalcin 215
Yuill, Charles 13
Zahra, Zamani 186
Zanzot, Jocelyn 3, 334
Zawarus, Phillip 2, 16
Zerger, Cindy 154
Zhai, Yujia 91
Zhang, Bo 82, 114
Zhang, Deshun 208
Zhang, Yixun 315
Zhao, Yan 147
Zhou, Xiaolu 190
Zhu, Xuemei 188