

# SUMMARY

## ENVIRONMENTAL DESIGN RESEARCH AND THE DESIGN OF URBAN OPEN SPACE: A STUDY OF CURRENT PRACTICE IN LANDSCAPE ARCHITECTURE

Prepared for presentation and publication in the proceedings of the  
Environmental Design Research Association Annual Conference  
Providence, Rhode Island  
May 2013

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September 2012

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## INTRODUCTION

To provide healthy and vibrant environments for urban residents, design professionals strive to meet the sometimes competing demands relative to the three pillars of sustainability: environment, economy, and social equity (United Nations General Assembly, 2005). In this effort, supporting the health and well-being of those who live in cities, an element of social equity, is a critical component of sustainable urban design. There are multiple systems for evaluating a project's sustainability, including the Landscape Performance Series by the Landscape Architecture Foundation and the Sustainable Sites Initiative™, in which enhancing human health and well-being is recognized as a measurable component of sustainable design. The field of environmental design research is dedicated to this pursuit; its goal is to improve the quality of the built environment through research-based design.

The purpose of this study is to better understand how environmental design research (EDR) is used in current landscape architecture practice, specifically in the design of urban open space, and to make recommendations for how it could be more effectively integrated in practice. The original intent of the study was to explore how practicing designers use design guidelines based on human behavior, hypothesized to be an indication of their knowledge of the field of EDR as a whole. The participants revealed early in the study, however, that they do not regularly use design guidelines in practice. The study, therefore, evolved to consider their perceptions and use of EDR in more broad terms; its focus shifted from the practitioners' use of design guidelines to their understanding of the *principles* for good social spaces that have been generated and tested by EDR. The best outcome of the study would be to foster the more insightful, nuanced, and sensitive application of those principles in the design of urban open space, resulting in more city streets, plazas, and parks that meet the social needs of the people who use them.

## THE LITERATURE: TRANSLATION AND EVALUATION

One of the central themes of the literature is the assertion by researchers that “if environmental design research is to be useful, it must be translated in some way into the language of the design process” (Chapin and Marcus, 1993, p. 99). Numerous early studies (Reizenstein, 1975, Schmidt, 1985, Kantrowitz, 1985) concluded that design guidelines could be an effective method for translating EDR. David Chapin and Clare Cooper Marcus (1993), authors of numerous volumes of design guidelines, state that:

Of the various possible ways that EDR might inform the design process, guidelines seem the richest and most detailed, least coercive, most dependent on logic and inspiration, and most tailored to the design process. (p. 100)

The volume, *People Places: Design Guidelines for Urban Open Space* (Marcus and Francis, 1998) is an extensive collection that includes guidelines for 19 elements (circulation, elevation, vegetation, maintenance, etc.) of urban plazas. Other books not specifically presented as design guidelines such as Jan Gehl’s *Cities for People* (2010), Mark Francis’s *Urban Open Space: Designing for User Needs* (2003), and William “Holly” Whyte’s *The Social Life of Small Urban Spaces* (1980) offer the reader (designer) extensive research on the topic based primarily on the authors’ observations. Each book has a unique organizational scheme, graphic language, and method for communicating the research findings.

In addition to a comprehensive set of design guidelines, *People Places* also offers an in-depth discussion of post-occupancy evaluation, the process that “underlies virtually all of the research drawn upon in this book” (Marcus and Francis, 1998, p. ix). The authors describe and illustrate two levels of post-occupancy evaluation: i) informed journalistic critique, a basic process for evaluating public space that is appropriate for beginning design students, and ii) post-occupancy evaluation, a rigorous evaluation method using more advanced research methods, appropriate for advanced students, practitioners, and researchers.

In accredited landscape architecture curriculum, design students are not required to learn either of these methods of evaluation, nor must they be exposed to the field of environmental design research as a whole (Landscape Architectural Accreditation Board, 2012).

## **STUDY METHODOLOGY**

Twelve designers of high profile urban landscapes were interviewed for this study. Each had designed an urban space that was featured in *Landscape Architecture Magazine* between 2009 and 2011, and/or that won an ASLA design award in the same time period. It is acknowledged that this sample may or may not be representative of the field as a whole. Their projects, however, are the ones with the greatest visibility, the projects that are regularly discussed in the profession and the classroom. It can be argued that these are the designers who are largely shaping the conversation and the design of today's cities. An understanding of their perceptions of EDR and the social aspects of design in general has important implications for researchers, practitioners, and design faculty.

The interview process was based on Holstein and Gubrium's (1995) 'active interview,' appropriate "when the researcher is interested in the subjective interpretations, or the process of interpretation more generally, even for ostensibly well-defined information" (p. 73). The active interview is flexible, and directly and immediately informed by carefully listening to the respondents. Based on this methodology, the interview questions were refined during each conversation, as well as throughout the month-long process of conducting the interviews. The questions below represent the basic framework for the interviews:

1. Are you familiar with the field of research on social behavior in public space (often called environmental design research) and if so, do you recall how and when were you first introduced to it?
2. Are you familiar with design guidelines that are based on this research?

3. In what ways does your understanding of this research (and design guidelines, if applicable) impact you when you are designing urban open space?
4. At what point in the design process is this research (and design guidelines, if applicable) part of the discussion in your office?
5. In your firm, do designers have access to the research, and if so, do they refer to it?
6. Are there methods for sharing or disseminating this research that you believe would be useful in current practice?
7. Do your clients seem to be aware that there is a body of research on social behavior in public space?
8. How are the social aspects of design part of your process when preparing entries for design competitions?
9. Do you consider post occupancy evaluation to be an effective tool for evaluating a space? Is it something that is done in a formal or informal way at your firm?
10. Do you have additional comments about this topic that you would like to make?

The third edition of *Basics of Qualitative Research* by Juliet Corbin and Anselm Strauss (2008) provided the theoretical basis and process for the analysis of the data. As such, the goal was to “discover and present new ways of thinking about the topic at hand,” (p. 302) not to develop grounded theory. The analytic process included multiple readings of each transcribed interview, coding and writing memos to dissect the data and record the products of the analysis, extracting concepts and categories to combine the data and identify themes, and diagramming to integrate the data and explain the findings systematically and visually. Through this iterative process, a deep understanding emerges that offers insight into the relationship between researchers and practitioners, and that provides a practice-based rationale for a new way of thinking about the intersection of EDR, practice and design education.

## **FINDINGS**

(Note: in this section of the paper, representative quotes from study participants are included to convey the overall tenor of the interviews and the themes that emerged.)

Whether or not the participants considered themselves knowledgeable about the field of environmental design research, most made express statements of value regarding the importance of designing spaces that work for people:

- “I’m a true believer that if something doesn’t work because it has been designed to look or be a certain way and yet that way doesn’t include the human comforts, then I think that’s a flawed design.”
- “I have always felt it’s important that you are cognizant or consider the place of people in your design, and I don’t think any design is successful unless people use it well.”

The post-occupancy evaluation of the urban projects that qualified participants for this study is beyond its scope, so conclusions about the social success of the projects cannot be drawn; these evaluations are recommended for further research. Notably, several projects designed by the study participants have received the Places Award and the Urban Land Institute’s Urban Open Space Award (formerly the Amanda Burden Urban Open Space Award), recognition in the profession for projects that contribute to the health and well-being of the community.

As stated, the earliest interviews suggested, and subsequent interviews confirmed, that the study participants do not refer to behavior-based design guidelines, or other resources for environmental design research, in their design process for urban open space:

- “It’s not about taking observations out of E.T. Hall about the right distance, it’s really just finding out what works. That’s more like what the working journeymen like me, it’s kind of what we do.”
- “We sort of reinvent the wheel, not all of the time, but we’ll make our own....Out of precedent, we pull together our own design guidelines that are specific to the project and to the site.”
- “It’s okay that researchers are out there documenting behavior. It’s not so okay in my view that researchers are turning that into strictures for how to design.”

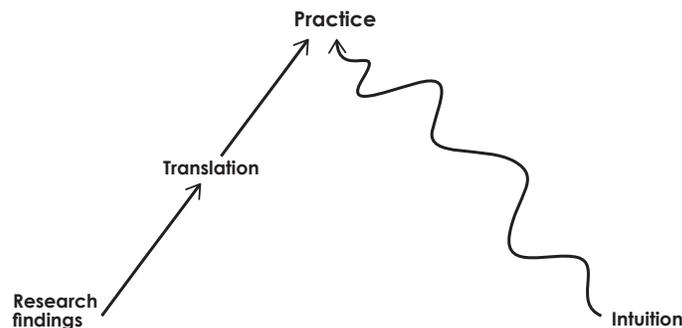
Many of the participants, in fact, were unaware that behavior-based guidelines exist, but most were very familiar with the principles for successful social space that such guidelines address: active edges, orientation to the sun, elevation changes, seating, sight lines, amenities, and other design factors. The distinction between *research* and what could be considered generally-

accepted *principles* of behavior-based social design is central to the analysis and recommendations of this study.

The study suggests that these principles are considered intuitive by the participants. Rather than relying on or referring to research, every participant cited intuition as the primary source on which they base design decisions relative to human behavior. Some acknowledged that research may have “seeped in” and become a part of their thinking, but none expressed an explicit or causal relationship between research and their intuition. For some, the relationship was described as one in which EDR reinforces their intuition:

- “For me (the social aspects of design) have always been an intuitive thing rather than an overly rationalized research thing. When people have done research, I have probably caught aspects of that and logged it into my brain, but without overtly referring to it as I design.”
- “Part of the design process is intuitive, a lot of it is, just the power of observation and how you as a human being go and move around the world. I have always been in tune with that, so to a certain extent it hasn’t mattered to me what some study says.”
- “Now after freshly reading the Jan Gehl book (*Cities for People*) it makes me think there were a lot of things that we intuitively thought about.”

This perceived dichotomy between intuition and research has been noted in the literature and is not unexpected: “a major source of difficulty in collaboration between research and design is that both types of professionals feel that ‘intuitive judgment and scientific research are mutually exclusive rather than mutually enhancing or even mutually dependent’” (Reizenstein, 1975, p. 32).



**Figure 1: Researchers and practitioners have divergent approaches for applying knowledge of human behavior to design practice.**

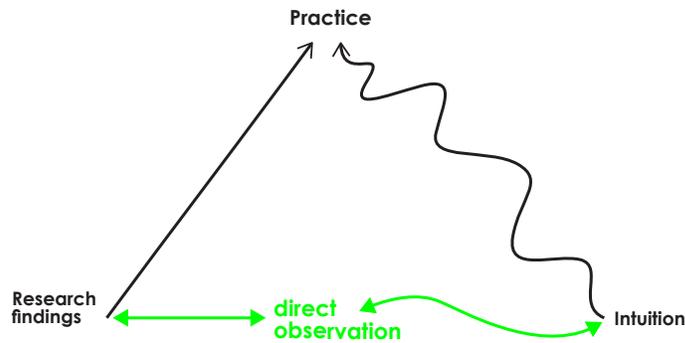
Rather than reinforcing, enriching, challenging, and informing one another's methods and findings, researchers and designers are placed at odds, their paths separate, as shown in figure 1.

One of the most significant findings of the study is that nearly every participant stated that to fully understand how to design a public space that works well for people, a designer must routinely engage in personally observing human behavior in public space. The participants described their regular practice of observation as a significant step in their design process. They acknowledge that their methods would not meet the rigorous requirements for academic social research, but this does not diminish the importance they place on the act of observation:

- “I’m a student of these great authors and observers of public space use, and I really appreciate the work they put into it, and so I think I kind of bury that intuitively. But I can’t place enough importance on site observation and taking the time to go out and watch the way a space is being used.”
- “It is a designer’s obligation to take all manner of observations in the world, their own and others, and to congeal them into something, and I don’t mean that it’s magical at all. It’s knowledge and I think designers size the situation up and they apply knowledge.”

The participants suggest that it is not enough to study and understand the observations made by others without also spending time personally observing people in public space.

The role of direct observation in the development of a keen sense of intuition was not stated overtly by the participants, yet it is unquestionable. A designer’s (or a student’s) intuition is informed and enhanced by his or her accumulated experience as an observer and a participant in the life of the city. If practitioners uniformly rely on their intuition when making behavior-based design decisions, and their intuition is based on their observations of human behavior, then their ability to make accurate and sensitive observations is essential. This fundamental research method – the careful act of direct observation – offers a link between research findings and intuition, albeit with differences in the methods used by researchers and designers, shown in figure 2.



**Figure 2: The research method of direct observation links research and practice.**

Herein lies the potential for the field of EDR to directly and significantly impact practice: not through the translation of research findings, but rather through an enhanced ability of practitioners to more effectively apply basic research methods for direct observation to their routine practice of observing human behavior.

Finally, regarding their early exposure to environmental design research, many of the participants expressed a personal interest in the subject as a design student or young professional, often sparked and encouraged by a professor or mentor:

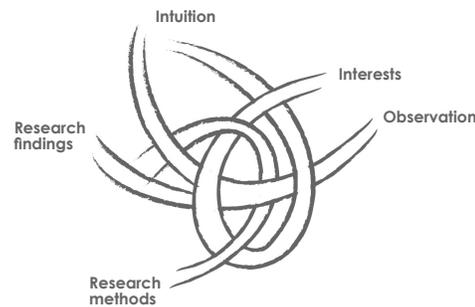
- “My exposure was purely through those great professors that are inspired, and it sort of sticks in your brain.”
- “I’m intimately fascinated with how people use urban space...some of that is self-initiative to seek it out. Also, we had a partner here who ate, drank, and slept public space, and through him and his enthusiasm I got exposed to real-life examples in real-life projects where I got an opportunity to use these tools and this way of thinking.”

The corollary to this finding is that if a design student or young professional is not inherently interested in the field or does not come into contact with someone who is, their exposure to it will be minimal since it is not part of the required landscape architecture curriculum.

## **SUMMARY AND CONCLUSIONS**

The analysis of the data reveals a number of distinct, yet intricately connected components regarding the ways in which human behavioral considerations impact the design

process, including intuition, interest in the subject, personal observations of human behavior, and the research methods and findings of environmental design research.



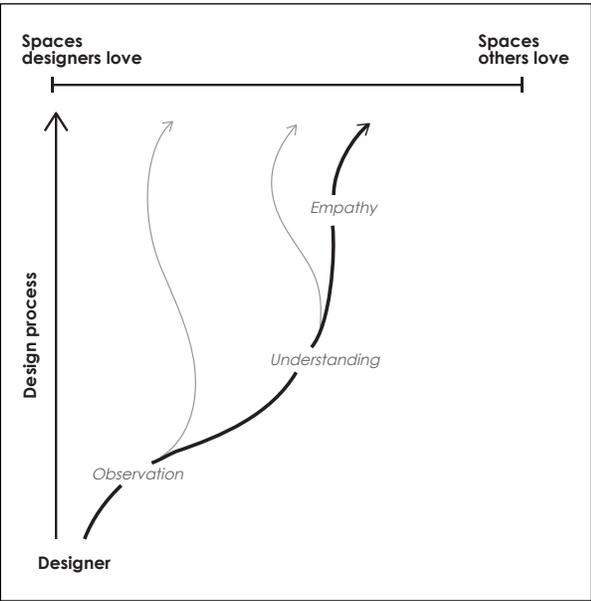
**Figure 3: Practitioners cite a variety of influences regarding the social aspects of design.**

The translation of EDR findings, a decades-long priority for researchers, is missing. This study suggests that if translations are perceived by practitioners as unnecessary, rather than trying to create better ones to insert into this web of influence, a more productive focus for researchers might be to consider a holistic approach that could enrich the entire web.

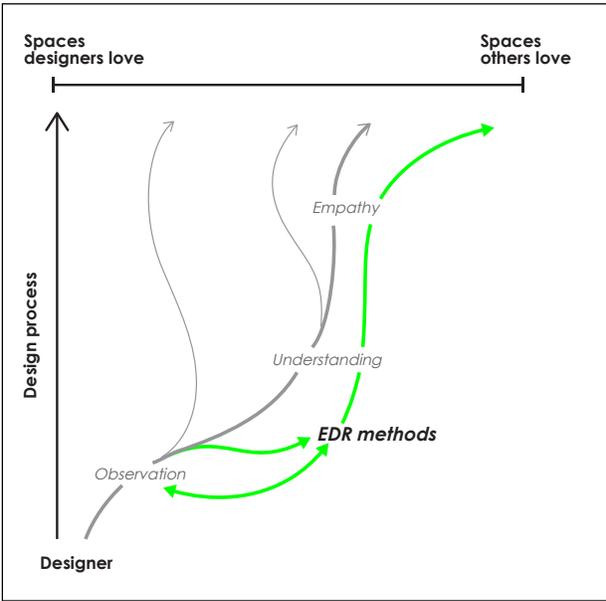
The process of observing behavior is one of discovery. Study participants value this process and engage in it regularly. This process directly informs and enhances their sense of intuition, and ideally it leads design decisions that account for what has been observed. Interestingly, the two researchers mentioned most often by study participants were William Whyte and Jan Gehl. Their work is presented visually as a collection of observations. The images on the pages of their books (and on screen) are like windows through which the reader can see the same people in the same public spaces as Whyte and Gehl. As co-observers, readers are invited to make their own discoveries that can augment their personal observations and enhance their intuition.

Ultimately, though, designers must do more than carefully observe people to truly understand their behavior and their needs. For designers to create socially successful spaces, they must develop empathy for the users of those spaces. Like intuition, empathy grows as a designer

accumulates and internalizes the meaning of personal observations and experiences in the world. Watching, listening, and interacting with people is the surest way to understand them and to develop a true sense of empathy. This ongoing and recursive process is directly related to the growth and maturity of the design process. As their process evolves, designers gain the ability to create spaces that are more likely to be loved by the people they are designed for, and not just by the designer who created them, as shown in figure 4.



**Figure 4: The evolution of the design process results in spaces that meet the social needs of people who use the them.**



**Figure 5: When designers master the fundamental methods of EDR, the results are even more socially successful spaces.**

The research methods of EDR, specifically for the fundamental method of direct observation, further enhance this evolution. These methods become a framework for inquiry, enhancing designers’ abilities to formulate important questions about the social aspects of design, to synthesize what they observe, and to apply their findings in practice. When a designer’s skills and techniques for observing behavior are based on accepted research methods, the entire evolution of the design process shifts, as shown in figure 5.

## RECOMMENDATIONS FOR DESIGN EDUCATION

1. The field of environmental design research should be reframed for design students. Rather than presenting the field in a survey course covering the work of important researchers past and present, students should first be introduced to the most basic research methods for direct observation. They should be taught how to conduct an evaluation of a public space using the methodology for the informed journalistic critique described by Marcus and Francis (1998). Presented as an exercise for students, the critique comprises two site visits of one hour each, activity and participant observation, sketching, photographing, taking field notes, and making recommendations for changes to create a more ‘people-friendly’ space. The student compiles this information in a report that outlines and explains their overall assessment of how the place works for people. The goal of the critique is “to encourage keen observation and thoughtful consideration of what is observed” among students (p. 346).

In this framework, students become novice researchers first; they are active participants in the field of environmental design research rather than readers of theories and findings written by others. Instead of offering answers, the field of EDR can teach students to ask the right questions. An exposure to the larger body of research findings, possibly including translations of it such as design guidelines, could then deepen and broaden students’ understanding of human behavior and improve their ability to conduct thoughtful observation research and analysis, but only after they have gained personal experience as observers. As one study participant noted:

- “I think probably the most powerful way to do this is to get students to actually start looking at their world differently, not reaching up on a shelf and looking for an answer from a book.”
2. This experiential approach for teaching EDR methods should be articulated in landscape architecture accreditation standards. Suggested language could read:

*Students will learn accepted research methods for the observation, documentation, and evaluation of designed landscapes, relative to human behavior. They will demonstrate a proficiency in this process and be required to explain the application of their findings in studio projects.*

Studio instruction at its best already accomplishes this objective, as is no doubt true at some universities. To ensure that *all* students at *all* universities benefit from this instruction and practice, it should be required in the accredited curriculum.

3. A new instructional tool designed for undergraduate (and potentially graduate) design education could generate excitement about contemporary urban open space and inspire students to explore the social aspects of design. The tool could serve as a jumping-off point for students as they begin a lifelong process of developing their intuition. But is it really possible to teach an intangible skill like intuition? A recent study of physicians regarding their bedside manner, perhaps the most intangible skill of all, is relevant to this question. The study found that a short, personalized computer intervention was effective at enhancing the doctors' ability to respond more empathetically to their patients; their bedside manner improved (Tulsky et. al, 2011). The proposed intervention for design students is rooted in this concept – that students can be taught how to develop an intangible skill like intuition using an experiential approach.

The recommended format for the instructional tool is a 45-55 minute video to be used in early undergraduate design education. The goals of the video are to:

- Teach basic direct observation research methods as the first step in developing a keen sense of intuition;
- Reinforce key principles of successful social design;
- Introduce a variety of contemporary urban open spaces that students may not be exposed to otherwise;
- Illustrate the connection between research and practice regarding the act of direct observation; and
- Offer the field of environmental design research as resource.

Potential components of the video include footage of practitioners and students observing behavior in award-winning public spaces, plans and renderings of those spaces, excerpts of William Whyte's film *The Social Life of Small Urban Spaces*, interviews with leading designers

and young associates, and specific instructions for conducting an informed journalistic critique. The film, however, is just an introduction. Students must then be required to practice what they have learned and to articulate the application of their findings in studio projects.

## **RECOMMENDATIONS FOR PROFESSIONAL PRACTICE**

1. Many have suggested that the criteria for ASLA design awards include post-occupancy evaluations that document the social aspects of submissions. This study reaffirms this suggestion and recommends that firms be required to work with design students to conduct the evaluations, thus offering students valuable experience and meaningful collaboration with practitioners.
2. Professional designers, particularly those new to the field, should be trained to apply the same basic research methods to their standard practice of observing human behavior in public space. The instructional tool created for students could potentially serve as an introduction for young professionals, and procedures for conducting an informed journalistic critique could be established by individual firms, as described by one study participant.
3. The Landscape Architect Registration Examination should test for a basic knowledge of the direct observation methods used in environmental design research.
4. Most study participants made statements about the responsibility of designers to create socially sustainable spaces, and some described the role that good social design can play in helping firms to win projects and design competition. Students should hear these messages directly from practitioners through established channels in the profession and a robust social media campaign.

## **A DESIGNER'S RESPONSIBILITY**

This study offers encouraging findings that provide a practice-based rationale for critical, yet achievable, changes in design education to prepare tomorrow's designers for the challenge of creating socially sustainable urban open space. As close, critical, and sensitive observers,

students will hone their intuition and develop greater empathy for people who will use the spaces they design as future professionals. As eloquently stated by a study participant:

- “I think a designer’s primary responsibility is to look and listen and understand what’s needed and what’s of value, and to effectively incorporate that into your larger design vision for a place. It shouldn’t compromise it, it should actually make it richer and deeper if you do it right. But therein is the challenge.”

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