# Revisiting "Social Factors"

# Revisiting "Social Factors":

*Advancing Research into People and Place*

Edited by

Georgia Lindsay and Lusi Morhayim

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# FOREWORD

## GALEN CRANZ

After thirty-six years at the University of California, Berkeley teaching social and cultural perspectives on architectural design, three of my students—Lusi Morhayim, Georgia Lindsay, and Jonathan Bean—held a conference in the spring of 2011. It felt like a celebration of a generation's work in that field. The presentations—and this edited collection of research articles that grew from them—demonstrate that a focus on the social nature of architecture continues to be an essential and growing part of architectural education and research. The chapters in this book show how social considerations are involved at every scale, in every setting, and accordingly, they draw from an extensive toolkit of research methods, both qualitative and quantitative.

In a sense, this trans-disciplinary research presages the recent changes in criteria for accreditation of architecture departments by the National Architectural Accreditation Board (NAAB). NAAB recognizes that social concerns touch every area of architectural decision-making and accordingly created categories that presume social research and decision-making throughout architectural curriculum (and, by implication, practice). The 2014 NAAB conditions for accreditation state that graduates

> "must be able to build abstract relationships and understand the impact of ideas based on the study and analysis of multiple theoretical, social, political, economic, cultural, and environmental contexts. …Student learning aspirations for this realm include being broadly educated, valuing lifelong inquisitiveness, communicating graphically in a range of media, assessing evidence, comprehending people, place, and context, recognizing the disparate needs of client, community, and society."

Of these six goals, two are overtly social, but all require an understanding of human interactions: representation too assumes cultural knowledge of how to communicate with others.

NAAB confirms the importance of research "to inform the design process." That is, graduates must demonstrate the "ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test alternative outcomes . . ." (NAAB 2014) and the investigative skills "to gather, assess, record, and comparatively evaluate relevant information and performance . . ." (NAAB 2014). These skills belong as much if not more to the social basis of design than its formal basis. The goal of understanding "the parallel and divergent histories of architecture and the cultural norms of a variety of indigenous, vernacular, local, and regional settings in terms of their political, economic, social, ecological, and technological factors" is even more explicitly social/cultural. Finally, understanding "the diverse needs, values, behavioral norms, physical abilities, and social and spatial patterns that characterize different cultures and individuals and the responsibility of the architect to ensure equity of access to sites, buildings, and structures" requires profound social-cultural knowledge.

In this book, research is marshaled to help establish criteria for the decision-making process in design. For example, Dominic Fisher shows how park design now benefits from observation research as it did thirty years ago (Whyte 1980). Heyligen shows how autobiographies, interviews, and video observations combine subjective and objective perspectives on the experience of disability to help able-bodied designers create supportive environments. Golembiewski and Schuette detail the quantitative and qualitative research approaches of a large commercial architectural practice. Bodelmann et al. compare preschool playgrounds (regarding size, shade, and vegetation) in North Carolina and Sweden regarding adequate access to vitamin D, sun protection, and adequate physical activity to promote kids' health as measured by their attention, activity, and sleep. L'Heureux documents the process of rebuilding three different buildings with an eye to sustainability after a tornado decimated a small Kansas community, leading to an evaluation of sustainability, LEED standards, and participatory design strategies. Perez et al. also document and evaluate participation, in the context of inter-cultural communication strategies between Berkeley students and the Pinoleville Pomo Nation in northern California. These chapters all implicate the human context as a necessary component to design, and merge the boundaries between research and practice.

## Social research in architecture continues to grow, professionally and critically

A postmodern backlash against the modern interest in research was based on the (mistaken) idea that user-oriented research was naive and a constraint on artistic freedom (Cupers 2014). Some high-style architects and theorists have turned to versions of literary theory rather than empirical readings of reality. Despite this turn to theory in architectural discourse, the amount of empirical research about users and design has grown by leaps and bounds. The Environmental Design Research Association (EDRA) is the chief professional association of architects and social scientists of all stripes and it continues to grow since it started in 1969. It is bigger, and more active, than ever. Several journals specialize in social research on building issues (among them *Environment & Behavior, Journal of Architectural Planning and Research,* and *Environmental Psychology*). Based on my observations over the last forty years from the Princeton study of the energy use in a Planned Unit Development (Twin Rivers) in 1971 to the work of Berkeley's Center for the Built Environment in 2014, I would estimate that approximately half the research in building science entails social variables, like user comfort, user regulation of thermostats, etc. Further, I note that social theory (by Giddens, Bourdieu, LaTour, etc.) has worked its way into the teaching of architectural history and theory.

Social research is directly tied to both professional service and cultural criticism. Social research in a professional school often focuses on serving the profession, but it can also serve as a form of cultural criticism in the tradition of the humanities (Franck and Lepori 2007; Cranz 1982; 1998). Professionally, social research is part of the design process at the beginning in the programming stage, and also towards the end of the cycle after a building has been planned, constructed, and inhabited in what is known as Post Occupancy Evaluation (POE) research. POEs have become a recognized specialty in architectural and planning practice (Mallory-Hill et al. 2012; Zimring 2001). And, some practitioners recognize that programming should not only list the square-footage assigned to functions, but also include more socially- psychologically- and culturally-informed performance criteria (Pena and Parsall 2001; Cherry 2003). These criteria, usually based on close observations of reality, can inspire new designs and refine existing building types in a cycle of thinking, designing, constructing, and evaluating that parallels the scientific process of hypothesis formulation, testing against reality, and revision.

At the same time, social research as a form of criticism can give us the distance to stand back and observe what society is producing through its architecture and to comment on the wisdom or folly entailed. By analyzing the way something was created, there is the implicit suggestion that it could be re-created a different way. Each scholar has to combine the roles of servant and critic in their own proportions. Similarly, each architect needs to find a balance between performing as an employee with obligation to the paying client and as a professional with an obligation to the welfare of society. When archeologists dig our built environment they will find clues about our way of life, so architects may want to challenge themselves to consider what values they are manifesting in the built environment. Our field helps by providing theoretical, conceptual, and empirical tools to do so.

## All levels of analysis, aka systems thinking

One of the theoretical tools that we offer both professionals and cultural critics is systems thinking, and the idea that architecture works at different levels of analysis. The field of person-environment studies now includes (1) behavioral, (2) organizational, (3) institutional, (4) societal, and (5) cultural levels of analysis. For example, at the *behavioral* level a lawyer needs to use forms and books, address the judge, etc. Supporting these activities in the design of the office would require workstation design like that of other office workers but perhaps with particular emphasis on settings for private conversation, a way to read large books that is comfortable from an ergonomic point of view, secure storage, etc. At the *organizational* level the design requirements are different; obligations to colleagues, the kind of law practice, and the managerial style might require conference space, thoughtfulness about the visual messages communicated in the public reception area, etc. The *institution* of the law upholds the importance of law versus force in resolving social conflicts. What is needed to reinforce the institution is different from what is needed to run the organization or meet face-to-face with a client. In this regard, courthouses often have columns, grand stairs, flags, and other common symbols of "civilization" drawn from historical contexts. Such symbols and rituals help clients, practitioners, and other members of a society remember that very general social norms are being enacted through the institution of the law. At the levels of US *society and culture*, the institution of law shares with other institutions commitment to a range of values, including fair play, equality of opportunity, legitimate power, etc. These general values are often symbolized through site selection (central

locations) and architectural form (such as large size and distinctive shape), material choice, symbolism, and decoration.

At first, much of the social factors research in the US emphasized the behavioral level of analysis, but it has expanded over the last forty-five years to include these other levels. This breadth is partly how the role of the architectural sociologist-researcher expands to cultural critic. Not only do we describe and analyze, but also we can challenge the status quo by asking if these are the right values, and if these institutions and organizations are the best ways to pursue them.

## Both qualitative and quantitative methods

As the research field has expanded, methods have expanded correspondingly. Because studies can be behavioral, organizational, institutional, or societal and cultural, methods are correspondingly varied. Some researchers in the social aspects of architecture use qualitative, interpretive, and critical approaches to describe, analyze, understand, critique, and even reform, while others use quantitative and behavioral with reformist motivations to "fix" or help resolve social-environmental problems—in housing, schools, professional offices, hospitals, commercial outlets, other workplaces, and recreational settings.

A significant methodological challenge remains. How do we measure the *relationship* between humans and their environments? How do we measure the hyphen in person-environment relations? Most scientists in the 20th century have been content to assume that persons and environments are the two units of analysis. The behaviorist legacy of Skinner and others emphasizes input and output, without regard for the transformational process that connects the two. In contrast (according to philosopher Richard Rorty), three 20th Century philosophers—Heidegger, Wittgenstein, and Dewey—have emphasized the transactional quality between people and their environments. Also, Barker's "behavior settings" (1968) and Alexander's "patterns" (1977) are attempts to couple people and their settings. If people are defined in relation to their environments, the unit of analysis is the person-in-environment, harder to measure than either person or environment.

Social research can differ from historical research for four main reasons. First, social researchers often seek to move beyond description to generalization, sometimes sacrificing minor differences among cases in order to focus attention on their commonalities. This, in turn, is motivated by the second difference, namely, attention to contemporary life, especially current problems and policy issues. The third difference

concerns data collection techniques. Observation, interviews, questionnaires, participant observation, and photo elicitation lend themselves to study of contemporary behavior. Content analysis of text, drawings, and other visual media lend themselves to the study of organizational decision-making, institutional development, and social and cultural values in the present or in the past. Here is where social history and social science are most likely to converge. Further convergence occurs when historians use social theory, and when social researchers study the present by including the historical past. A fourth difference is that social research follows a scientific model, while history follows a humanities model. However, social research does not have to subscribe to this dichotomous way of thinking—primarily because interpretive social science is widely recognized as one of the humanities. Furthermore, we can view science itself as one of the humanities. That is, science is a way that humans have constructed in order to know things.

Let us remind ourselves of the ultimate creativity and imagination that science entails. The familiar dualisms of art versus science, Romantic versus Classical reasoning, feeling versus fact are transcended by creativity. We want to use both sides of these polarities freely, appropriately, and robustly. Pirsig's (1974) novel *Zen and the Art of Motorcycle Maintenance* demonstrated philosophically that art and science share the common wellspring of creativity, and can serve as an introductory text for architecture students who need to integrate both the art and science of their chosen profession. The building has to stand up and use energy as modestly as possible, which requires knowledge of engineering and building science, *and* it should look good, which requires artistic training. Architecture is both an art, as emphasized by the French Beaux-Arts tradition, and a practical science as emphasized by the Germanic architectural tradition. We need the research techniques that come from each tradition.

We use qualitative case studies especially when we need to describe, usually the first phase of science, also sometimes called *discovery science* as distinguished from *hypothesis science*. This means we as students of space often work *inductively* rather than *deductively*. Anslem Strauss called this grounded theory, and Paolo Friere also insisted on learning about people's problems as they themselves described them and only then seeking commonalities among the problems to develop generalizations and theories about the causes of the problems. In environmental design our studies are often site-specific, so we too need to start from careful description of a unique situation, rather than testing an existing hypothesis. Our use of case studies is similar to many of the studies in history, unique

to the site, but in our case with an eye to the possibility of comparisons with other such cases and developing generalizations that can be applied elsewhere. We generate and use quantitative information *after* we have identified the range of opinions, preferences, and needs, and want to know how many fall into each of those qualitative categories. In this collection three chapters are qualitative, one is quantitative, and four combine both.

Understanding the relationship among qualities may be as or more important than quantitative measures. A correlation may be adequate statistically, but we need theory to explain its meaning, and why it might hold true, and for what reasons. In other words, in the language of the philosophy of science, "validity" (measures mean what you think they mean) is as important as "reliability" (the likelihood that two or more observers get the same result). And *vice versa*: that is, we can make a good argument for something and still need to find out if it is true in fact. For example, we can make the argument that a space will create community, but until we find out what we mean by community and then measure to see if there is more or less of it, our claims can be no more than wishful thinking, ideological propaganda, or current fashion in architectural thought and discourse.

While social research in architecture uses many levels of analysis, many environmental psychologists often start with behavioral and attitudinal analyses. There *is* a psychological bias in this field and in American thought generally. (The nineteenth-century French sociologist Durkheim worked hard to explain that sociology is different from psychology by showing how to analyze suicide—extremely personal, yes, but then why do its rates vary by nation and events?) This field also works at the levels of complex organizations (work place, hospitals, schools)—Sommer, *Hard Architecture and How to Humanize It*—institutions—King, *Buildings and Society,* Cranz, *The Politics of Park Design*, Henn, *Moving Targets*: *Managing Inter-Institutional Relations in Building Design and Construction*—and societies and culture—Hall, *Hidden Dimension*, L'Heureux, *Ideology and Architecture in Estonia*. EDRA's European counterpart International Association for Person-Environment Studies (IAPS) tends to use a more institutional level of analysis. Architectural historians work at this higher level of analysis, too. The idea that social-cultural researchers work on many levels, not just behavioral, needs wider circulation and this new volume demonstrates the multiple methods at work in the field.

In this book several authors use individual behavior and experiences as the primary unit of analysis: Fisher's observation of behavior in parks, Heylighen's focus on experience of disability, Golembiewski and

Schuette's aggregated individual data to establish patterns, Bodelmann's comparison of children's health in terms their attention, activity, and sleep.

Other authors move up to the organizational, institutional, and societal levels of analysis. L'Heureux's documentation of rebuilding three different buildings led to evaluation of emerging institutional practices regarding sustainability, LEED standards, and participatory design strategies. Perez et al. also documented and evaluated participation, which is being institutionalized unevenly in design practice.

Ethnography is valuable in our field because it requires the researcher to take the user's point of view (literally the subjective point of view), aids description and induction, and brings qualitative categories to the fore. Cognitive or semantic ethnography focuses on what people can *tell* you about their culture, so it is particularly practical for architects who would not always be able to travel to a site before designing a building. Ideally, one should observe and talk to people, but the fact is that architects' budgets often treat fieldwork as a luxury. Therefore, a method that teaches them how to get as much information as possible from *at least* phone conversations seemed practical and theoretically in line with our commitment to a user perspective. Semantic ethnography has a particularly powerful tool to offer, namely, the taxonomy. This simple device allows us to see that the same term in a different context has very different meanings. Listening for the specialized vocabulary and underlying logical structure that another person uses to organize his or her world is a skill not taught in many societies or universities. This orientation is valuable not only as a professional skill, but also as a needed part of liberal arts education. Who teaches us how to listen actively, accurately, and creatively? (Cranz, 2014, under review). In this volume, Fischer, Golembiewski and Schuette, L'Heureux, and Perez use qualitative methods and an ethnographic approach. Heylighen's focus on experience of disability involves both objective and subjective measures.

## What's in a name?

It is almost a truism that architecture has three parts: structural, social, and aesthetic. The social aspects were foregrounded in the late 1960s when the National Science Foundation funded sociological research in architecture at Rutgers, Princeton, and Berkeley, and when environmental psychologists and architects formed the Environmental Design Research Association in 1969. Sociologist Suzanne Keller at Princeton in 1971 used the term social factors. Some still call our field social factors; others call it environmental psychology, person-environment relations, or human

factors. None seem exactly right because the social is intimately embedded with the aesthetic and the structural; what we perceive as beautiful varies culturally, and our structural decisions (e.g., big span or small?) ultimately depend on how we want to live (in large or small groups or both?). The philosophical and methodological difficulties of finding a way to name the ever-shifting network of people making and being influenced by built forms have stayed with us more than forty-five years after the field began. The anthropologist Hilda Geertz once said in conversation that social science might be better called social studies. But of course the term sounds like a high school subject and the culture at large is still enamored with "science," so we continue to use the term social science to legitimate what we do. Karen Franck discusses the words we use in the field of social research in architecture in more depth in her chapter.

A factor is not a relationship; in contrast, the "use of space" embeds people with environment. Mechanism assumes that one part can be exchanged for another without consequences for the remaining parts of a system. For example, designers once thought that people can be moved from a slum neighborhood to better housing without grief or loss of supportive networks. Determinism is the belief that social life can be explained by one underlying force, for example, economic determinism, or architectural determinism. For over fifty years determinism has been in disrepute.

In contrast to determinism, symbolic interactionism is appropriate for environmental design research as sociologist Ron Smith (2006) has demonstrated in his paper on architecture and symbolic interactionism. For example, Frederick Law Olmsted described how an attractive and respectable public setting could be a place where a man could take his wife and children with the fortunate by-product of seeing himself as others saw him—as the head of the household. Seeing himself in others' eyes, he would resolve not to spend his income in the saloon or brothel, but rather on his family. Whether or not that turned out to be true in practice is another story, but Olmsted's intentions show how an environment might interact with self-conception. One can enfold symbolic interactionism into a communication model, and thereby side-step both physical and social determinism.

Today the term "Evidence-based design," copied from medicine, is positivistic in that there is the belief that more information will yield better decisions. Positivism is a philosophic idea from the 19th century French sociologist August Compte that society evolves upward and that science makes progress inevitable. The idea is discredited, but sometimes scientific research does indeed improve social policies. For example,

Zeisel et al (2003) have demonstrated that appropriate environmental design can be as effective as drugs on several dimensions for those with Alzheimer's disease. The environmental psychologist Ulrich demonstrated that patients in a hospital recovering from surgery left the hospital faster if they had a view of a tree rather than a brick wall (Ulrich 1984). Social research in environmental design does not inevitably lead to improvements, but it can be used to help mobilize people to enact social change. Social science and social studies are neither a prison, nor a guarantee of progress, but rather a springboard.

## The future of social research in environmental design

How might the field continue to grow? I see several options. The most important issue for continuing research relates to learning to live sustainably on earth with its finite resources.

The ultimate goal of our research and design proposals is to improve the quality of the environment, so perhaps we need to bring our work to the attention of the broader public, not just to other design professionals. Radio, TV, and New Media come to mind. Roman Mars has a radio program called 99% Invisible about the effects of design decisions on our everyday lives; Kim Dovey has a radio show in Australia; Nezar Alsayyad has produced a film on earth houses; Elefterios Pavlides writes letters to the editor of the *NY Times*. We need a television program to advocate serviceable, beautiful, and sustainable environments. And how about some TED talks online?

Professionally and pedagogically, we might search for a "brand" that is somewhat less mechanistic than the term "social factors." Karen Franck and I have independently proposed "social use of space." As suggested earlier, we might want to find a term that brackets persons and environments as inseparable rather than independent variables that can be "factored" into a design equation or not.

Paying close attention to social practices can inspire architectural innovation. Social patterns are not a "straight jacket," but rather a muse. We want to help students and practitioners in the design community become better artistically by helping them *feel* and interpret social forces. Fortunately, design education tends to be learning-centered, rather than teaching-centered, so those who teach social research in design can also emphasize experiential learning in the classroom. Design education is one way to bring the unified self of body and mind back into the classroom and workplace. The unity of art and science is what may keep us alive as a species as we face the burgeoning ecological crisis. Using the hand and

mind brings sensate experience and cognitive order together. Here, cultural criticism and service are seamless. To critique, advocate, and create is to serve.

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# PREFACE

# GEORGIA LINDSAY AND LUSI MORHAYIM

Between April 29 and May 1 2011, researchers and practitioners interested in spatial and social studies and design gathered at the University of California, Berkeley's College of Environmental Design for *The Death and Life of "Social Factors": A Conference Reexamining Behavioral and Cultural Research in Environmental Design*.[i] The conference brought together researchers and practitioners from a variety of disciplinary backgrounds, methodological stances, and countries of origin to stimulate discussion on what constitutes research into the social impacts of design. Around 200 participants from thirty-five countries attended for three days of panels, paper presentations, special sessions, workshops, and posters. Over 100 paper presentations indicated continued lively interest in research regarding the relationship between culture, individuals, and the built environment. The conference questioned the boundaries, the status, and the future of social and behavioral research in environmental design.

The positive and international response to the conference call for papers demonstrates that there is still strong interest in the field that has at various times been called *social factors*, *man-environment relations*, and *environment and behavior research*. One of many of our goals with this conference was to create an international platform for the discussion and critique of social factors research; it was time to take a close look at the past and future of our field. Paper sessions covered topics including special needs populations, design for health, sustainability, perception, place identity, theoretical explorations within the field, and the practice of socially conscious architecture.

Given the variety and the dynamism within this field, the conference aimed to start a dialogue about the present and future of social research in environmental design. From its early days, where there was an alignment with behavioral determinism, to more recent approaches such as anthropological studies of space, social factors has been a diverse—and divisive—topic. Interest in "the social" has moved beyond "social factors" researchers within the environmental design field, and methods have shifted in response to the adoption of participatory design and the

influence of post-modern and post-structuralist modes of inquiry. Moreover, other fields such as geography, history, and sociology have also staked a claim to the analysis of social issues related to space. In this conference, we asked how contemporary research addresses the idea of "the social" in space, not only from those in our field, but also from those in emerging fields of research, to understand how we might address critiques such as the disconnect with design practice and our use of social science methods. Thus, we aimed to connect researchers across dispersed fields, and to provide a platform for working together to define a common set of interests, research questions, and set a new direction for our field. In short, we sought the rebirth and redefinition of social factors.

The conference yielded a variety of published research. The Journal of Urban Design collected articles working at the urban scale in a special issue (Volume 17 Number 4, November 2012). And this book presents innovative research into people and space, divided into two broad topics: (1) History and future outlook and (2) Perspectives on the user.

# Notes

# INTRODUCTION

## GEORGIA LINDSAY AND LUSI MORHAYIM

The interaction between people and the built environment can be studied at multiple scales, from rooms to cities, and is comprised of many layers that interest researchers from multiple disciplines and interdisciplinary areas. A reaction to modernism in architecture—which disregarded the depth and diversity of human experiences—and a deep curiosity about the significant relationship between society, culture, body, and space, combined to give birth to the research field which is referred to as social factors in architecture and urban design. Now, this field of social factors is expanding, with vibrant interest from the Middle East, Europe, Australia, and across the US.

Understanding this area of research starts with understanding the way it is referenced. The field is called many different names, including human factors, social factors, environment and behavior, and social and cultural processes. In Chapter 1, Karen A. Franck addresses some of the words used to describe the field; for the purposes of this introduction, we will persist with the commonly used, but not unproblematic, "social factors."

Concomitant with confusion over the name comes a blurring of the edges of the field. If a geographer writes on the importance of space, is she doing the work of social factors? If an architect designs a town and claims it fosters community, is he working within the field? Should a dissertation on the totalizing nature of the neoliberal state that focuses on the spatial characteristics of urban spaces count towards a PhD in Architecture? The chapters presented in this book offer a resounding answer to these questions—all in the affirmative. In this book we revisit research into people and space: chapter topics range from new media and technological solutions to the problem of co-design from far away, to meditations on the question of physical ability and inclusive design, to measurements of sun exposure and playground design's impact on health. In doing so, we help define a way forward, based on the history of social factors.

The origins of social factors research date back to the late 1960s. The birth of the Environmental Design Research Association (or EDRA) and the journal *Environment and Behavior* marked a consensus among

researchers that the study of the meanings and uses of space is a distinctive field worthy of its own journal and conferences. The field developed as researchers from varied disciplines such as psychology, sociology, and anthropology started to pay special attention to the importance of the interaction between people and the environment. In Chapter 2, Susanne Cowan and Ayda Melika present interviews from many key individuals who defined the field in the United States, exploring how the history of the field of social factors unfolded.

The early period in social factors research gave birth to fundamental concepts in the field such as proxemics, density, and crowding, reflecting society's concerns over living in high-density urban environments and an interest in the cultural aspects of space. For example, anthropologist Edward T. Hall invented the study of proxemics, investigating appropriate personal and social distances across cultures as well as describing cultural differences in the conceptualization of time and space (Hall 1966; Hall 1959). Such cross-cultural comparisons made visible subtle norms that had previously gone unnoticed, and formed the foundations of understanding human and cultural factors in the context of spatial relations. Housing, identity, and public space were other common topics that defined the early stages of the field (Cranz 1982; Marcus 1988; Rapoport 1969). Robert Sommer uncovered the inhumane aspects of prison designs and schools, among other institutional buildings (Sommer 1974). Clare Cooper Marcus demonstrated that architects may overlook at basic human principles even at the most simple and common building type, housing (Marcus 1988).

Researchers' interests and demand from students of late 1960s and early 1970s made social factors an essential part of architecture and planning. The field attracted not only social scientists but also architects and planners who wanted to use science as a tool to better understand the human aspects of the built environment. Oscar Newman's defensible space research—in which observations and architectural analysis were used to develop guidelines to design apartment buildings in which people have better control over the safety of their physical surroundings—illustrates the point (Newman 1976). The methods of sociology and anthropology gave architects and planners tools to study cross-cultural differences. Some architects, such as Rem Koolhaas, began research not only at the architectural scale, but also at the urban scale (Koolhaas 1978). Landscape architect Lawrence Halprin worked with his wife, a dancer, to develop a system for understanding outdoor spaces as performance spaces, based on observations of people in motion (Halprin 1970). Kevin Lynch pioneered a method, mental maps, for understanding how people categorize urban spaces they move through (Lynch 1960).

The planning profession had been using surveys since the post-war period to legitimate their decisions (Cowan 2010), but in the 1970s, planners recognized the need for more genuine participation. The tools and guidelines developed by landscape architect Randy Hester's for participatory planning were largely adopted by designers and planners actively shaping our cities (Hester 1999).

Sometimes a profession's interest in social factors blossomed into a productive partnership between researchers and architects. Evidence of such partnerships includes the design of Parc de la Villette in Paris by avant-garde architect Bernard Tschumi in collaboration with sociologist Galen Cranz. The application of social science methods to spatial problems developed traction even in the minds of policy makers and legislators. It was during this period that William Whyte (1980) observed New Yorkers taking lunch breaks in urban plazas, changing building codes and creating a legacy for generations. No longer could policy to help people lack the evidence to back up. In Chapter 3, Dominic Fischer returns to public parks in New York City, investigating if the same precepts Whyte found hold true today.

Not only does social factors influence designers and researchers in design, but it has also impacted thinking in other academic fields, such as with the influence that Christopher Alexander's *A Pattern Language* (Alexander, Ishikawa, and Silverstein 1977) has had in computer science and object-oriented programming.

In addition to public spaces and public housing, the field of social factors helps understand how people of different cultures, ethnicities, genders, and physical abilities interact with and understand the same spaces. For example, women use plaza places differently than men do (Mozingo 1989) and Hispanic families use parks differently than white men (Hutchinson 1987). Likewise, Chapter 4 by Ann Heylighen demonstrates that people with lower sight abilities would notice subtle temperature changes, whereas in the same space fully-sighted people would be preoccupied with differences in materials. That is, social factors researchers study not only generalizations of people in space, but the particularities of a person in space as well.

Some of the richest work in social factors is about understanding how design impacts behavior. Post-occupancy evaluations (POE) in institutional buildings lead the way in providing concrete information to designers to create more successfully functioning buildings (Zimring and Reizenstein 1980). Evidence-based design (EBD) in healthcare settings uses research to direct inform practice, improving health and providing cost-savings at the same time. For instance, Robert Ulrich's research (1984) demonstrated

that being able to see a natural view from a hospital window cut down on the length of hospital stay length and recovery time. Since then, EBD in healthcare has become a subfield with its own accreditation and certification. This approach has expanded to a variety of building types, including learning environments, performance spaces, and retail, among others (Hamilton and Watkins 2009). Another thread of POE focuses on office buildings and workplace strategy, to create a better fit between organizational cultures. POE in workplaces is a growing field in practice existing both as a subdepartment in large design firms and as specialized stand-alone companies. In Chapter 5, Emily Golembiewski describes methods used by architecture and strategy firms to gather such evidence for spaces and organizations at a variety of scales.

Sustainability, health, and culture are strongly intertwined topics. Although, many researchers focus on the technical aspects of sustainability, such as energy-efficient design, scholars in social factors continue to explain that without the "social"—for instance demand from users, attention to user health, respect to culture and indigenous knowledge—technology's contribution to solving environmental problems will remain limited. In Chapter 8, Yael Perez et al. delve into the ways in which new media and other innovative participation techniques can be called upon to make the behavioral and cultural needs of an American Indian community part of the design process for sustainable housing design. Cecilia Boldemann et al. in Chapter 6 focus on a particular user group—children—to compare health outcomes in preschool outdoor environment design based on sun exposure and play time, and discuss different policy approaches in Europe and United States. Likewise, Marie-Alice L'Heureux, in Chapter 7, demonstrates how users and architectural education are integral parts of creating sustainable, functional, and user-friendly architecture: energy-efficiency is not a solution on its own.

This book reasserts the importance of paying attention to the social in design, to the user in space, and to the cultural particularities of place by highlighting new research in two fundamental areas: (1) the history and future outlook of the field, and (2) perspectives on the user.

## Part 1: History and future outlook

Because the field is broad, complex and contentious, uncovering its origins and scrutinizing contemporary practices help expose the fundamentals of the field. The chapters in this part also assert the potential for social impact inherent in the study of people in space.

In "The Words We Choose," Karen Frank conducts a deep analysis of two words that define the field, drawing on her lifetime of scholarship in the field. She uncovers how the word *environment*, while useful in its generality, in fact implies a separation between people and the spaces they inhabit. Similarly general, and useful because of its application to a wide variety of actions people might take, *behavior* unfortunately limits what we can study, since it abrogates people's experience of space. Drawn from the study of psychology, *behavior* limits researchers to what they can see. Taken together, the two terms often imply causality and separation, instead of propagating the interconnectedness of people and the places they inhabit. Franck proposes that instead, our field in fact studies how people *use space*, with those words implying a more symbiotic relationship.

Susanne Cowan and Ayda Melika, in "Design as a Social Act," explore the history of social factors through archival research and interviews with the people who generated many of the seminal works of the field. Cowan and Melika begin with the social upheaval of the 1960s and investigate how that time of change combined with the perceived failure of modernists led many researchers and practitioners to people-focused approaches in environmental design. The authors discuss the place of social factors in practice, research, and architecture and planning schools in the past and today. Cowan and Melika's chapter speaks to the continuing importance of research into the meaning and use of space, as many of the issues that galvanized earlier researchers are still alive in design today.

Dominic Fischer uses research from the early days of the field as a point of departure for his own research on pocket parks. William Whyte's seminal study on how people use public space in New York City is thirty years old. "Reassessing Small Urban Spaces" updates that research by focusing how people use two New York City pocket parks today. Foremost in Fischer's study is the question of how to sustain the use and viability of street corner parks as the character of the neighborhood changes and the parks themselves change. Fischer finds that as the socio-economic vitality of the neighborhood, pedestrian activity on the street, and conditions that determine ways to access to the park changes, so does the vitality of these small parks. He concludes that there is no "one-size-fits-all" design for pocket parks; land-use, density, and resident enthusiasm, in addition to the design, matter deeply to how and to what extent a park is used.

# Part 2: Perspectives on the user

In spite of the complexity of the field of social factors, the importance of the user remains foundational to research in the field. The chapters in the second part assume the user perspective, with human responses and needs as the unit of measurement, whether the topic is health-promoting design, the social aspects of sustainability, energy-efficient technologies, embodied experience, or inter-cultural communication.

Building codes demand that designers of the built environment rarely take disabled-bodies' spatial experiences into account. Ann Heylighen, in "Enacting the Socio-material," rather than taking disability as an absolute concept, accepts a socio-material model of disability and offers an insightful analysis on how disability experience can provide new meanings about space that is often unconsidered by the abled-bodied. The chapter includes an analysis of spatial experiences of visually impaired people, wheelchair users, and people with dementia and autism. The experiences of disabled bodies gathered through multiple mediums such as autobiographies, interviews, and video recording of observations reveal a variety of boundaries that are less detectable to able-bodied users. The chapter illustrates the fact that one's experience may be considered "disabled" because of spatial design, not necessarily because of biological limitations per se.

Emily Golembiewski, in "The Algorithmic vs. the Messy," gives insights into strategic programming and ways to customize the design process to clients' needs, whether it is for the design of a new building or for remodeling an existing one. Based on extensive experience working in space planning, design and strategy firms, Golembiewski details three approaches which vary from using mostly quantitative data, to mostly qualitative data, to a mix, in order to create building programs that are primarily built upon the needs of users and clients. She proposes a way forward to design firms in order to incorporate the user perspective in the overall design process.

In "The Health-Promoting Potential of Preschool Outdoor Environments," Cecilia Boldemann et al. present an interdisciplinary collaborative research effort, comparing the health potential of preschool environments in the United States and Sweden. The chapter points to the much-needed balance between providing children adequate access to vitamin D, protecting them from unhealthy solar exposure, and supporting adequate physical activity for healthy development. The authors test the qualities required in preschool outdoor environments to achieve that balance, qualities such as the size of the outdoor area, the proportion of shaded areas accessible to