1

Introduction
Environmental Psychology and its Methods

Robert Gifford
University of Victoria, BC, Canada

How did we get here? I don't mean biologically; I mean to the point where we are sharing a book about how to do research in environmental psychology. You will have your story; here is mine. Like many others, I was initially drawn to psychology because of its potential to help people with emotional and cognitive difficulties. I entered graduate school as a student in clinical psychology, even though I had worked as an undergraduate assistant for a professor (Robert Sommer) who was curious about such things as how people tended to space themselves from others and whether one's choice of study areas influenced academic performance. These studies were driven partly by pure curiosity about how humans operate in their daily environments, and partly by the goal of informing environmental design from the person outward rather than from the building inward. Put another way, these studies sought to discover fundamental *principles* of human behavior, which could then be translated into *practice* by talented designers, who would create people-centered optimal environments.

I slowly realized that I was more suited and more interested in these questions and goals than I was in being a clinical psychologist. At about the same time, in the late 1960s, what we had been doing acquired a name, environmental psychology.[1] In some senses, having a name makes something real, or at least more real. Activity becomes legitimized, recognized, and organized. After dropping out of graduate school (I also dropped out of kindergarten, but that is another story) and contemplating my future in a cabin on a remote island that had no electricity or running water, or even any furniture, I knew I had to be engaged in discovering the principles and aiding the practice as an environmental psychologist. I went back to graduate school, and here I am, 45 years later.

Why this personal story? Frankly, it is an attempt to connect with you, the reader, who also probably did not enter your post-secondary education with a ringing declaration that "I want to be an environmental psychologist!" Your story undoubtedly

differs from mine in its details, but I suspect that in broad terms it is the same. At some point you discovered environmental psychology, you were intrigued, and here *you* are.

So, where is it exactly that you are? You may well have entered this big house through a variety of doors. Do you want to conduct fundamental research, that is to learn how humans interact with their physical environments (without any particular or immediate application to saving the planet or designing better buildings)? If so, welcome to the big house; this book has chapters for you. Do you want to understand how the physical environment impacts people in negative and positive ways? We have space in the big house for you, too. I know … you want to learn how and why people are damaging the only planet we have available to live on. Yes, of course, this big house has space for you, as well. All this book's editor expects is that you respect and tolerate others in the house who have different goals.

Environmental psychology needs all of you, just as medicine needs fundamental biochemistry, knowledge about pathogens and paths to health, those whose practice focuses on the usual but important run of flu and fractures, and activist physicians who are willing to put their lives on the line by going to the front lines of the latest dangerous epidemic or war.

That is why the book has four protagonists, whom you will meet at the beginning of each chapter. I hope you will see a bit or a lot of yourself in one of these characters. They are all just now entering graduate school. Maria, Ethan, Gabriel, and Annabelle share a house and are friends who met through school or work. All four happen to be dedicated to environmental psychology, but they vary in their interests within the field and in their backgrounds.

Maria has a undergraduate degree in psychology, with a minor in neuroscience. She believes that knowledge advances best when strong and clear scientific methods are employed. She feels most comfortable in the laboratory, but she is willing to leave the lab to work on problems as long as the issue can be worked on with scientific methods. Privately, she is skeptical about the validity of field studies.

Ethan also has an undergraduate degree in psychology, but his minor was in sociology. He prefers to study environmental issues in the community, through surveys, interviews, and talking to community members. He believes that lab studies have their place, but ecological validity trumps the value of the confined laboratory. He is not so private about his belief that you can't be sure of any finding that isn't verified in the community. He belongs to three activist organizations.

Gabriel's undergraduate degree was in geography. He spent a year in architecture school before realizing that he was more interested in the human dimensions of the built environment. Currently, he has a co-op position with the regional government; he is taking a term off from graduate school, but will return next term. Every day he hears from co-workers about how academics are OK, but they take far too long to conduct studies, and are unrealistic about policy, politics, and the application of research to the real world. Although he is a scientist at heart, he largely agrees with them. He is trying hard to bridge the science–policy gap.

Annabelle did her undergraduate degree in psychology, but she took as many courses about people with problems as she could; if she were not primarily interested in environmental psychology, she would be a clinical psychologist or social worker. Her minor was in environmental studies and she gets out into nature almost every weekend.

Annabelle sees research more as a way to solve immediate problems for people. She is most comfortable with qualitative approaches, with research that has an immediate impact, and with research that sooner or later will help people overcome their personal difficulties.

As another way to connect the graduate student experience with this book, I invited some of my own advanced students to co-write the chapters with established, senior, well-published co-authors. The goal was to maximize the chances that each chapter reflected (a) the ways and means that people who are just entering environmental psychology understand it, and (b) the great experience that the senior authors possess. I hope that comes through as you read the chapters.

Which chapters? I thought you never would ask! OK, here is the preview. We cannot be a credible force in the world, even as activists, if we do not have a firm foundation in basic research. Without it we are simply … I was going to use a common phrase that involves "… the wind," but let's change that to "an ignored voice, devoid of authority." So Chapter 2, by Reuven Sussman, describes what I call Step One: observing what actually occurs in an environmental context. We should "just watch" first, then try to figure out what is going on and how to change it. But "just watching" requires more special skills than one might think. So Reuven informally calls it "You Can Observe A Lot Just by Watching," a cute title with an important theme. Whether you are studying how the built environment affects the behavior of its occupants or whether people recycle resources into the correct receptacles, a very important first step is to simply watch people, without trying to change or influence them. The design and execution of an intervention to change people or the environment can be greatly successful and useful (or not!), depending on observations about what people are actually doing now. Haste in conducting an intervention might, for example, involve much effort at changing a behavior that is already common (but you did not know that), or changing one that is so resistant to change that the planned intervention simply will not be effective. Just watching people will help to shape the nature of your study, and help to avoid you wasting much time and effort on a research design that is doomed to failure because you assumed what was going on in the setting but, sadly, you were wrong.

Chapter 3, by Cheuk Fan Ng, focuses on three special kinds of watching. Behavior mapping is about "adding up" the paths and activities of many people who use or visit a particular setting. Behavior tracking is doing the same for specific individuals in the setting, often those who have a special relationship with that setting. Observing physical traces is the "archeological" form of observation in environmental psychology. After many people have used a setting, they collectively leave traces: the wear on the floor, the impromptu signs put up, the path across the grass between buildings. This tells much about how the setting is being used.

Wokje Abrahamse, Linda Steg, and Wes Schultz contributed Chapter 4, all about the basics of moving beyond observation to actually conducting research in environmental psychology, with an emphasis on understanding human failings in our treatment of the environment. Some aspects and methods of research in environmental psychology are similar to those in other areas of psychology, but they focus on topics of interest in this big house. If you have taken a course called Research Methods in Psychology, these will be … let's not say redundant; let's say they will be refreshers. Who remembers everything about random assignment

and statistics anyway? So Chapter 4 is like that. The basics, applied to environmental psychology.

Chapter 5, by Donald Hine, Christine Kormos, and Anthony Marks, reverts to the "often used in other fields" category. However, their topic, Survey and Interview Techniques, is highly customized for this big house, and includes some ideas and techniques that are not found or used in those other fields.

Chapter 6, by Amanda McIntyre and Taciano Milfont, is the book's big-house take on the most commonly used method in all of psychology. However, no other area of psychology uses *these* measures, which have been developed over the lifetime of environmental psychology specifically to learn how people think about the physical environment. Need a tool for that? McIntyre and Milfont describe and discuss a whole toolbox of instruments for measuring each particular kind of attitude toward the environment … and if you think there is just one, you will be surprised. Selecting the most appropriate attitude measure for the hypothesis you wish to test is just as important as selecting the correct wrench for loosening a nut.

Not all methods use "objective" methods (actually, perhaps no method is fully objective anyway, but you know what I mean). In Chapter 7, David Seamon and Harneet Gill explain how to use qualitative approaches in environment-behavior research. The great value of this approach is that "the people speak, and in their own tongue." What I mean by this is that in experiments, we researchers *impose* conditions on participants and then observe how they respond. Usually we don't know what is going on in the "black box" of their minds, and that is a crucial part of learning about any person–environment interaction. Even if we conduct a survey or an interview, most of the time the person is restricted to answering the questions we ask; what if the important aspects of the person's interaction with the environment is not among the questions we ask? We should often or even always try to "learn what is going on" before we rush into experiments and interventions. What are people in a particular environment of interest thinking and experiencing, in their own words, before we impose our own frames on that experience by asking questions of our own choice, or pressing them from our external positions without knowing how they experience their environments?

I vividly remember a study that Donald Hine and I conducted in which we asked participants to "think aloud" *as* they made decisions about allocating natural resources in a microworld (see below for a chapter on microworlds). We were quite surprised at some of the rationales we heard: in the whole history of experiments in that area, no researcher had thought to investigate *these* rationales, which were important to the people in our study who were making decisions. Without a qualitative approach, some of these rationales may never have come to light.

Chapter 8, by David Canter, explores the question: "how do different places fit together – or not – in people's minds?" Which aspects of, say, restaurants or schools or cities, make them similar to or different from us? Canter explains several methods for assessing place constructs.

In Chapter 9, Daniel Montello will take you into the world of finding our way around environments. Cognition is a core psychological process, often studied in other areas of the discipline, but *spatial* cognition is a specialty of environmental psychology. Where would we be without it? Constantly lost, is where, which is why spatial cognition is so important. Because studying cognition itself is very difficult,

Montello focuses on the observables: our behavior that reflects what we must be thinking as we navigate real and virtual spaces. Spatial cognition research spans our twin themes of principles and practice: just how it works (or not) is fascinating, but what we learn about it can have huge effects on the wayfinding success (or failure) of every person who tries to find any destination, in terms of helpful (or useless) signage or building design.

Chapter 10, by Angel Chen and Paul Bell, is about microworlds, that is, computer programs that simulate natural resources and the decisions that people make about using them. We know that people often (but not always) do a poor job of managing the bounty that Earth offers, but what is it that leads us to make more or less sustainable choices? One may choose to study a real-world commons (i.e., any shared limited, potentially renewable natural resource from which a number of harvesters may remove resources, such as a fishery or shared grazing land). However, as in any real-world context, identifying the causes of a person's choices is difficult or even impossible because researchers usually are unable control the influences or factors that drive that person's choices. Thus, causal relations cannot be known in field studies. To learn about the causes, for decades environmental psychologists have been creating simulated resource dilemmas called microworlds to do just that. Chen and Bell review the main methods and microworlds that can be used to supply answers to this crucial question.

How do we understand, perceive, or comprehend the built environment? If we could see them before they are built, might we avoid bad design or create more beautiful designs? Chapter 11, by Arthur Stamps, explicates the methods and challenges involved in simulating built environments. Again we have a topic (perception) that is traditional in psychology, but is unique in its emphasis on the built environment. Again we have a topic that spans principles and practice: Simulations may be employed to discover the fundamental science of human perceptual tendencies but also to inform the design of built environments that are actually to be (or already are) constructed or renovated.

This logically leads to the subject of Chapter 12, about planning the built environment through programming, contributed by Jay Farbstein, Richard Wener, and Lindsay McCunn. When any new building is contemplated, one might leave its design to the architect's imagination, or one might work with the architect to design the building from its future users outward. That is, one might (environmental psychologists say *should*) begin with the needs and desires of those who will use the new building when it is being designed. Some may foolishly believe that these needs and desires are known or obvious; much experience of environmental psychologists says they are not. Programming is the systematic, user-centered method for creating building designs that will optimally serve those who will work, study, live, or visit it.

In turn, this leads to Chapter 13, by Richard Wener, Lindsay McCunn, and Jennifer Senick, on post-occupancy evaluation. After the building has been constructed, does it work for those who use it? Whether the "plan" was merely in a designer's head (without any programming as in Chapter 12) or even if it was carefully planned with well-conducted programming, is the real structure, as built, working for those who use it? Programs may be thought of as a kind of hypothesis, and hypotheses should be tested. Wener, McCunn, and Senick describe the methods we use to test the hypothesis that the formal programming (or "based on my

experience" guesses when programming was not done) worked to deliver what it promised, whether that is client satisfaction, or work efficiency, or optimal social relations, or anything else.

In Chapter 14, on action research, Valeria Cortés and Robert Sommer describe how to make a difference in the real world while conducting scientific research at the same time. Most environmental psychologists either conduct research to discover the principles of person–environment relations, or work to implement those principles in some real-world setting. Action research fuses the search for principles *with* their application to practice. For some, this is the dream or epitome of environmental psychology: doing both at the same time. Cortés and Sommer explain how to carry off this important two-for-one goal. Action research has its own special methods, ways to achieve both objectives without falling into a number of potential pitfalls.

Action researchers often focus on the built environment. In Chapters 15 and 16, we move to improving sustainability in one context or another. In Chapter 15, Wokje Abrahamse emphasizes the various strategies and research designs that can be used to create science-oriented change in real-world behavior. In Chapter 16, Scott Geller with Wokje Abrahamse, Reuven Sussman, and Branda Guan outline the specific approach to interventions called applied behavioral science (ABS). Although ABS and the approaches in Chapter 15 share the same goals, they offer a choice of philosophies about how to achieve those goals.

In Chapter 17, on ecotherapy, by Thomas Doherty and Angel Chen, the focus moves from improving the environment with human scientific efforts to improving people with environmental efforts. Nature is know to be a healing force (when it is not destroying people and places!). In the Hindu Shaivism tradition, the god Shiva is the creator, destroyer, and preserver – the very (spiritual) embodiment of what nature does for us and to us. Doherty and Chen document how nature can be harnessed, when it is being nice, to improve human functioning.

Not everyone has the same capabilities, and in Chapter 18, John Zeisel, Mark Martin, Lindsay McCunn, and I discuss some methods and concerns that are required in researching special populations. Disabilities come in many forms, each requiring somewhat different methods depending on which ability has been reduced, so we obviously cannot describe methods for every disability, but we thought as much as we could of the sorts of considerations that might be general as we wrote about designing for persons with Alzheimer's (more of a cognitive problem) and multiple sclerosis (more of a physical problem).

Chapter 19, by Donald Hine, Victor Corral-Verdugo, Navjot Bhullar, and Martha Frias-Armenta, gets serious about numbers. Quantitative empirical science measures things. Measurement results in numbers. Numbers must be analyzed to decide whether those numbers are meaningful. Policymakers ignore numbers that are not meaningful (yes, policymakers also sometimes ignore meaningful numbers, but if the results are not statistically meaningful, they have very little chance of their meaning being moved toward policy). So, environmental psychology must include ways of deciding whether the numbers that emerge from our studies are meaningful. This book assumes that its readers already have some knowledge of statistics, including such basics as correlations, *t*-tests, analysis of variance, multiple regression, and perhaps factor analysis. Hine et al. describe the more interesting,

useful, advanced, and newer forms of deciding whether the numbers are meaningful, that is, multi-level modeling and structural equation modeling. These words may well sound scary to anyone new to them, but the authors explain them in nice, clear prose, without too many formulae and subscripts, so that even the neophyte will come away from Chapter 19 at least well informed about what these modern techniques have to offer.

Finally, we must recognize that every individual study is limited in its sample population, the measures used, and the influences considered. Therefore no study "proves" any general principle. So, research is useless? Not at all. I like to compare the research we do to the work ants do, although that may sound unflattering (whether to researchers or to ants depends on one's point of view). Each study, like each grain of sand laboriously carried to the anthill and carefully placed there, is a valuable contribution to a larger whole. How do we create our "anthill" in science? We must somehow combine the results of studies. We can either do that by "eye-balling" the published studies (i.e., subjectively decide what all the "grains of sand" amount to, and write a narrative about them), or by combining them in a scientific (and therefore more objective) way. In Chapter 20, Christine Kormos shows just how to do that through meta-analysis.

The starry galaxy of authors of these chapters and I sincerely hope that you find our explications of environmental psychology's research methods useful.

Note

1   Let's get one thing out of the way right now: the name thing. Since the 1960s, several other names for the field have been proposed. Among these are *environment and behavior*, *ecopsychology*, and *conservation psychology*. In fact, the very first conferences that focused on these topics, in the mid-1960s, used the name *architectural psychology*. Quickly, however, those involved realized that the field included questions and answers that went beyond buildings to broader concerns with the environment itself, and *environmental psychology* was chosen as the most appropriate name. This name covers the whole field, from fundamental psychological processes such as perception and cognition of the built and natural environment to the use of everyday space by people, the design of physical settings of all kinds, understanding the impacts on people and by people on natural resources both living and not, and the climate-related behavior and attitudes. I suppose you can call it what you want to, but I believe that each of the other names represent pieces of the whole. *Environment and behavior*, by its very name, excludes such constructs as attitudes, values, and norms (although the journal of that name does publish studies involving these mental constructs). *Ecopsychology* focuses on clinical or therapeutic experiences. *Conservation psychology*, a name inspired by, and parallel to, conservation biology, originally focused on human–animal relations, although some have tried to broaden its scope to include the conservation of nature and natural resources, which was already being investigated by environmental psychologists. Perhaps it is natural that over time some researchers within a broader field specialize and prefer a narrower name for their work. I do not mean at all that the topics studied under these banners are not valuable, and so I have invited chapters on what would fit under these names in this book. However, environmental psychologists as a group unfortunately are so far a mere drop in the bucket of psychology as a whole. The membership of Division 34, the home of APA's members with these interests, is less than one-third of one percent the size of APA's total membership. This very clearly signals to

me that we should use the inclusive name environmental psychology for all who are interested, regardless of our personal research interests, partly because it is the most accurate and inclusive umbrella terms of all these topics, and partly to avoid the field splintering into even smaller factions, which likely would be followed by oblivion. Only through having an inclusive, widely accepted "brand" will universities continue to fund professorships in this field, and professors are the essential institutional foundation for training future researchers like you, who, of course, represent the future of the field. Creating and promoting even smaller groups could lead to the disappearance of the field through the attrition of university professors and programs with the inclusive name.