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A Planner's Guide to Environmental Psychology: A Review Essay

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Book Reviews

A Planner's Guide to Environmental Psychology: Review Essay

Donald Appleyard

An Introduction to Environmental Psychology

William H. Ittelson, Harold M. Proshansky, Leanne G. Rivlin, and Gary H. Winkel. Holt, Rinehart, and Winston, New York, 1974. 406 pp. $10.50.

Environmental Psychology: People and Their Settings, 2d ed.

Harold M. Proshansky, William H. Ittelson, and Leanne G. Rivlin, eds. Holt, Rinehart, and Winston, New York, 1976. 632 pp. $13.95.

Environmental Knowing: Theories, Research, and Methods

Gary T. Moore and Reginald G. Golledge, eds. Dowden, Hutchinson, and Ross, Stroudsburg, Pa., 1976. 441 pp. $32.50.

Experiencing the Environment

Seymour Wapner, Saul B. Cohen, and Bernard Kaplan, eds. Plenum Press, New York, 1976. 244 pp. $15.95.

The four books reviewed here represent some of the latest thinking and research in the flourishing field of *environmental psychology*. This field, which has now been recognized for about ten years, is still largely ignored by planners, yet planners continually make assumptions about human behavior, albeit at the crude level of location theory. We are increasingly concerned with community needs and values, so we now carry out survey research to discover how much people care about pollution, housing, traffic, conservation, etc. Our distance from the general public is superficially bridged by the shortcut of citizen participation. But in the main, land use, transportation, and environmental planners continue to view the world of cities as physical, functional, objective worlds to be manipulated through growth controls, housing subsidies, and other new financial or legislative devices.

The neglect by planners of this field has partly been due to the difficulties of seeking out the literature. It is dispersed in diverse publications, the writing is obscure and abstract, the research is narrow, and there are few writers who can show how the field might be useful to planning firms and agencies. These four books represent some of the first efforts, about to become a deluge, to collect readings together in accessible form.

Environmental psychology is not a coherent field. It is multidisciplinary with participants drawn mostly from psychology, geography, anthropology, sociology, planning, and design. Within the field it is possible to identify a number of schools of thought, now fashionably termed paradigms, bodies of theory, methods, and styles of thinking that have some consistency and coherence.

About this issue

As mentioned in the January issue, I will occasionally attempt to group a number of recent book reviews by subject material in the same issue of the Journal. *Such groupings would probably never occupy more than half the review section, since it is always essential to carry on with a regular pace of reviews of other materials which do not necessarily fit into such groupings.*

In this issue, a number of books in the emerging field of environment-behavior studies are reviewed. Professor Donald Appleyard agreed to lead off this group with an essay that both reviews several of the most prominent books in the field and, at the same time, informs our readership of current developments. It is my feeling that he has provided a fine introduction for those who have not had contact with this growing body of literature, and a solid update for those who have. A number of articles follow which review other recent publications in the environment-behavior subject area. In each case the reviewers were asked to address the contributions these works made not only to the science of environment-behavior studies, but also to the practice of planning.

In future issues I hope we can develop other themes around recent publications. Your suggestions are welcomed.

David S. Sawicki

The most well-known paradigms in the field are those of:

- Behavioral ecology: a field growing out of Roger Barker's work in Kansas which studies the ecology of behavior settings, operating at smaller scales than the social ecologists of the Chicago school (e.g., Barker, Wicker)
- Spatial behavior: a more complex and populated field which focuses on territoriality, crowding, privacy, density, and to a lesser extent on social heterogeneity (e.g., Altman, Proshansky)
- Environmental cognition: concentrates on environmental learning, comprehension, and knowledge, with marginal attention to sensory perception (e.g., Kaplan, Moore, Stea)
- Environmental esthetics: has grown more directly out of perceptual psychology and cultural geography (e.g., Wohlwill, Lowenthal, Yi-Fu Tuan)
- Environmental and personality assessment: grew out of personality research, it seeks on the one hand to transfer personality techniques to issues of environmental assessment, and on the other to define the environmental characteristics of individual personalities (e.g., Craik, Little, McKechnie)
- Symbolic interaction: a loosely defined and thinly represented field which considers the environment primarily as a medium of social communication (e.g., Duncan, Strauss)
- Environmental decision making, community participation: a field which studies the attitudes and values of environmental decision makers as well as participatory processes (e.g., Sewell)

Traditional fields of environment-behavior relations such as human factors engineering and stimulus-response behaviorism are either out of favor or ignored by active participants in the field, a blindness typical of specialization. Representatives of the broader disciplines—geography, anthropology, and the professions—usually draw on more than one of these fields.

It should be clear already that the configuration of the field is formed as much from the viewpoints and needs of the originating disciplines as from issues in the field of planning. Indeed, it is humbling to know that some of these researchers are not so much interested in serving the professions as they are interested in the psychological problems raised by our sudden awareness of whatever we mean by environment. Each field constructs its own environmental reality.

For professionals who demand some systematic approach to understanding environment-behavior issues this picture is a fragmented one with some important pieces missing, such as the central issue of motivations, needs, and values. Yet, professionals in subfields of planning may pick their own relevant fragments. Land use location planners in regional agencies may be interested in large-scale, spatial cognition. Housing and community development planners may find more useful reading in the area of social behavior. Urban designers and environmental planners may want to read the work in environmental esthetics.

There is a further complication. Writings in the field are couched either at the level of *theory, method,* or *information*. Rarely are they combined in a comprehensive balance, yet all three interact. Theory sets the stage for method and defines the information to be sought. Method depends at least on implied theory and determines the information obtained. Information may upset theory, though ironically this is quite rare until a paradigm is driven to a state of collapse.

Planners may think that they primarily need information from the environment-behavior research field. That is what those endless attitudinal surveys supply. But, at present, the field has more to offer in the realm of theory. Environmental psychology is actually rather thin on information. It is amazing how little empirical research is reported in the 1,800-odd pages represented in these books.

Theory is a problem for practicing professionals. They shy away from it. They do not understand other people's theories, and they do not trust them. Theories are often imported from other fields without modification. They have developed in their own fields from a base of empirical evidence or intuitive experience, but float into our field, complete, abstracted, without enrichment by example. I think most professionals are not convinced that theory is important for they do not realize that they already operate on the basis of their own *unconscious theories*, theories which guide their perceptions of cities and regions and their identification of issues and solutions. Among these are the theories of environmental determinism, which assumes that the physical environment alone determines satisfaction and behavior; social determinism, more common among sociologists, which assumes the environment has no relevance for human behavior; ecological models in which behavior is determined only by systems; anarchic world views that assume individual freedom of choice, perfect information, a free market, and unlimited resources. Many view the city merely as a mechanistic or economic system, a view frequently legitimized by mathematics. These simplifications, heuristically necessary to cope with complex problems, are rarely congruent with the multiple realities "out there." Planners need to look at their personal theories more critically. Some of the theories in environment-behavior research just may change their views of the world.

As for *methodology*, planners may see this as the domain of the researchers, since several of their methods, such as the semantic differential or repertory grids, seem obscure. Yet, I think, because the issues of environmental behavior are so central to much of planning, their discovery, assessment, prediction, and design should be taken on by professionals. Planners are unlikely to use research very much until they obtain it themselves or participate in its gathering. We shall look critically at these readings, therefore, for theories and methods that look promising for adoption by planners. I will take the four books in order from the broadest to the most focused: first, the two books on environmental psychology produced by the faculty of the graduate program in environmental psychology at City University of New York.

In many ways the introductory text provides the most

coherent (and cheapest) introduction to the field. It begins by defining environmental psychology as the study of the dynamic interchange of man with his everyday milieu. It emphasizes the multidisciplinary nature of environmental psychology, its concerns with social problems, and the centrality of perception, cognition, values, and attitudes.

Central to the book is the concept of *environmental man* as distinct from *natural man* (dependent on nature) and *psychological man* (living in a social and environmental vacuum). Having stated some major assumptions, it launches into a review of man's historic attitudes to the natural environment, a welcome cultural introduction, somewhat surprising in that the quotes are from philosophy, cultural geography, and art history. Environmental psychology, we gather, is not to be construed as a narrow science. This is followed by a brief but clear chapter on some relevant, modern psychological theories.

The next and most valuable chapter deals with important aspects of environment-behavior transactions, motivational processes (too briefly touched upon), the emergent nature of environmental experience, effect, learning, behavior and the physical setting, the conservation of behavior, awareness, adaptation, and the role of cognition. The main theories and concepts in the field are covered in easily readable jargon-free language.

A chapter on perception emphasizes its utilitarian and predictive nature while ignoring its esthetic attributes. The chapter on "Social Interaction and the Environment" is more solidly based in experience since it has been a major research field for this group. This chapter deals with buildings and neighborhoods, personal space, territoriality and turf, crowding, and privacy and freedom of choice; drawing on a wide research literature in social psychology, anthropology, and society. This well-ploughed field is dealt with sensibly and adds fresh insights especially on the nature of privacy. There is an interesting attempt to argue that *freedom of choice* is the deeper motivation on which desires for privacy and problems with crowding rest. This seems rather simplistic, an echo of the high value laid on choice in the early sixties, but a value we hear less of today. An equally important value, that of *identity*, is referred to only briefly. But this only shows that theory is arguable and much of this book is judgment and hypothesis, not fact. The chapter on "Individual Development and the Environment" is another strong piece, neatly summarizing research on the effects of the child's environment on its cognitive and emotional growth, and reviewing Piaget's important concepts of assimilation and accommodation, differentiation, decentering and adaptation. It also reports on some of the new research on children's use and nonuse of playgrounds and the general urban environment. This work, which incidentally emphasizes the role of "gatekeepers" (managers) over the use of outdoor spaces, will be directly applicable to neighborhood and recreation planning, a field likely to be in for some interesting policy changes as this research comes through. By focusing on recognizable population groups—children, adolescents and the elderly —this chapter is both more synthetic and concrete than other chapters.

There follows a chapter on research methods that is one of the best in the current literature. Compact, clear, yet comprehensive, it evaluates each technique within a general description of experimental, holistic, survey research and field studies. The only omission here is any reference to the assessment of environmental qualities, a serious lack for environmental planners.

The chapter on "The Urban Environment" provides an excellent review of the generally inconclusive, large-scale correlational studies on the effects of urban life, density, and crowding on mental health, calling for more small-scale studies of people under differing conditions. The newer research on overload, urban stress, especially noise, points out what an extraordinary variety of coping strategies people employ to reduce negative impacts, all of which may minimize their dissatisfaction, despite deeper long-range effects. There follows summaries of housing and neighborhood research which are reasonably complete, though important authors like Rainwater and Suttles are omitted. The chapter ends with a review of the research initiated by Kevin Lynch, on imaging cities.

The chapter on the "Natural Environment" rightly devotes an important section to natural hazard research which has significant contributions to make to our understanding of behavior and perception under conditions of risk and stress. It follows with an examination of variations in environmental values and perceptions among different groups, of wilderness attitudes, and an all-too-brief discussion of the formation of professional attitudes. It quotes at length the important study by Sewell of public health officials and engineers in British Columbia, who each interpreted the region's environmental problems and solutions in ways defined by their own expertise.

The final chapter on the "Built Environment" deals with the classic issues of environmental determinism in design, the role of the designers, and current research on behavior in institutional settings, site planning, and new towns.

Planners should consider this book as their best introduction to the field. It is not only detailed in its reporting, it is remarkably broad and cultural in its sweep and humanist in its emphasis. It covers a far broader field than work done by psychologists. It is the broadest possible interpretation of psychology and a tribute to the social and policy awareness of this new breed of psychologists.

Proshansky, Ittelson, and Rivlin also have edited a completely revised second edition of *Environmental Psychology: People and Their Physical Settings*, first published in 1970. In fact, relatively few of the readings have survived from the first edition. The editors have focused on more discrete subject areas, and the book offers more organization than the relatively chaotic first edition. It is intended to complement the introductory text. While most of the articles are by psychologists, sociologists, and geographers, a few anthropologists and professionals make substantial contributions, though the book, inexcusably, provides no backgrounds on individual authors. As with most "readers" this book has a number of gems but is weak on coherence and completeness.

The introductory essays on theory are interesting though couched mainly at a design level. A short paper by Irvin Altman discusses the differing world views of psychologists and designers, the former who look at *places*, the latter at *processes*, and describes briefly the four psychological models of man: the mechanistic model, the perceptual-cognitive-motivational model, the behavioral model, and the ecological model. An even more relevant, though abstractly written article is entitled "Knowledge and Design" by

Hillier, Musgrove, and O'Sullivan. This article, quoting Popper, Kuhn, and Lakatos, argues that while the old analysis-synthesis view of science is now discredited in favor of the view that science is as theoretical and deductive as it is fact-finding and inductive, the professions still try to live up to an out-of-date scientific model which assumes that rational analysis will result in synthesis. In this model of professional activity, research is needed merely to supply more facts, creating precisely that overload which professionals have been unable to handle, resulting in a deteriorating environment. "If scientists really operate by a kind of dialectic between their pre-structuring of the world and the world as it shows itself to be . . . then why should such a procedure be thought unscientific in design?" They go on to describe the importance of "conjecture analysis" for professionals wherein they reflect on and analyze their own implicit theories about, and solutions for, the world, a point already made at the beginning of this review.

Allan Wicker's review of undermanning, settings having insufficient personnel to carry out essential functions or tasks, promises to shed new light on issues of overcrowding and density. Proshansky's paper on methodology describes how environmental psychologists are coming out from under the domination of analytical-experimental psychology towards a broader methodological orientation. The section on perception contains an entertaining paper on images of Paris by Milgram, and a state-of-the-art paper on perception by Ittelson. The section on social processes is much more rounded with useful review papers on personal space, territoriality, privacy stress, and interesting case studies of social ritual, crowding, and neighboring by Joiner, Oscar Lewis, and Kuper.

The section on "Individual Development" is introduced by a thorough but overly compact theoretical review of the development of spatial cognition drawn from developmental psychology, geography, and planning by Hart and Moore; a neat comparative study of a traditional, contemporary, and an adventure playground by Hayward, Rothenburg, and Beasley; and a suggestive though inconclusive report on the way black youths view their environments, accompanied by fascinating pictorial maps; and a theoretical paper on adaptation and aging. Four papers are obviously inadequate to represent the studies of children and the aged in the environment. And why do class, educational, and cultural differences in environmental relations not receive equal attention?

"Research Methods" are represented by Craik's model of research strategies for comprehending the everyday physical environment, the editors' explanation of their behavioral mapping techniques, a simulation project using models and television by Winkel and Sasanoff, and a charming naturalistic study by Lynch and Rivkin of a "walk around the block" in which method is welcomely subordinate to intriguing content. Except for Craik's paper the emphasis is entirely on the small scale.

Papers in the final three sections, the "Natural Environment," the "Built Environment," and the "City and Urban Design," are written less by psychologists and more by geographers, sociologists, anthropologists and others, many of them already familiar to planners. Four excellent essays on the natural environment by Hardin, Lowenthal, Kates, and Klausner relate across many subfields of environmental psychology. Of these, the most explicit and helpful is Kates's model of the way people perceive and cope with natural hazards, suggestive also for our understanding of reactions to urban hazards. Cooper's important article on the symbolism of the home and Yancy's study of Pruitt-Igoe are followed by Milgram's well-known paper on "The Experience of Living in Cities," an extract from Lyn Lofland's new book *A World of Strangers*, and finally a clutch of familiar "oldies" by Anselm Strauss, Jane Jacobs, Herb Gans and Marc Fried. For planners it would have been more interesting to have some newer studies than the last four fifteen-year-old classics. It conveys the false impression that the field has little new to offer.

Moore and Golledge's *Environmental Knowing*, covers a major subfield within environmental psychology, that of environmental cognition, which for many planners began in 1960 with Lynch's *The Image of the City*. It is not a narrow field:

> Formally defined, *environmental cognition* refers to the awareness, images, information, impressions, and beliefs that individuals and groups have about the elemental, structural, functional, and symbolic aspects of real and imagined physical, social, cultural, economic, and political environments.

This book, the result of several meetings at the Environmental Design Research Association (EDRA) conferences, is a thorough and carefully wrought work, which attempts to review in the broadest way the thinking in this burgeoning field. It seeks its roots in psychology, and surveys relevant thought in sociology, anthropology, geography, and literature. As such, the book is not explicitly concerned with professional relevance. Indeed the research carried out by urban planners in this field is poorly reported. But for those who wish to gain a solid basis of knowledge for understanding environmental cognition the book will be a useful introduction, going further than Downs and Stea's *Image and Environment* in its discussion of various theories and methods.

The introduction sets the stage by a careful definition of *cognitive representation* and its relation to terms like *schema, image, personal construct, mental maps*, and *cognitive maps*. It then traces the epistemological bases of environmental cognition in philosophy and psychology and finally outlines the current growth of the field in psychology, urban planning, geography, sociology, and anthropology.

The first part of the book outlines four theories which bear on our understanding of environmental cognition—an information-processing theory of perception being evolved by Stephen Kaplan, personal construct theory explained by Roger Downs, environmental learning theory by David Stea, and the applications of theory in developmental psychology by Gary Moore. The structure of this section is admirable. Each theoretical paper is followed by one or two empirical studies utilizing some of the concepts and a commentary by another researcher.

The main thrust of these theories, as one would expect, is that man is an active, thinking, "scientist" who construes the environment around him for his various purposes. The environment as sensed takes a back seat, as, incidentally, does the social environment. The field is still at a stage where most of its theory has been developed in other arenas. It faces therefore the inherent problems of theory importation. Origins are difficult to discern, and applications to

problems in the new field are abstract. As Peter Stringer remarks, "Borrowing a theory from another field requires that it be developed and superceded." The application of these theories to large-scale, environmental cognition and the effort to apply Piaget's developmental concepts to adult learning, as if ontogenetic development was the same as microgenetic development, is speculative at best. While Piaget's developmental theories have emerged during a lifetime study of children using a whole variety of means to investigate their cognitive processes, so empirical studies using a range of methods will be needed before we can construct adequate theories of large-scale cognition. Yet the empirical studies reported in this section of the book, with the exception of Rachel Kaplan's, are narrow and impoverished.

Planners might well be put off by the academic tone of this section, yet the theories are intriguing. They simplify and explain processes that are important not only in our perceptions of the city, but in the cognitive processes we employ to comprehend planning issues. Kaplan's information processing theory, for example, applies as much to the comprehension of social institutions as it does to environments. Personal construct theory and method also offers a device for discerning the way in which we construe policies as well as environments.

The second part of the book is softer, more speculative, less rigorous, and much easier to read. The viewpoint of symbolic interaction is represented by an exploratory essay by the Gersons on the temporal, monetary, sentimental, and ideological order of places and a fascinating study by the Duncans on the symbolic meanings of elite and *nouveau riche* homes. Buttimer's commentary, one of the most useful pieces in the book, seeks to weave a social perspective into the individual-environment models of the psychologist. Her four-box model of people/places/social reference systems/spatial reference systems is worth noting. She also points out the implicit relationship of this thinking to phenomenological sociology.

The section on cross-cultural perspectives contains a paper by Rapoport that covers some of the work in cognitive anthropology, reminding us, among other things, that the very taxonomies and classifications that we use to comprehend the environment are an imposition of meaning on the physical world. The problem is neatly illustrated in the following paper, where a land use survey of a Philippine landscape was implemented on the basis of an ethnosemantic analysis of the terms used by the local culture to describe it. This section is lacking a summary of class differences in environmental cognition although papers by Rapoport and Duncan touch on aspects of this.

A group of papers analyzing the novel as a means of understanding attitudes toward and conceptions of the environment follows. Qualitative analysis provides richer insights into environmental cognition than formal social science does; but similar sources of enlightenment, such as films, television, newspaper articles, and editorials, which are much more relevant for urban planners, are not mentioned, though similar techniques of content analysis can be used.

The final section of the book deals with methodology. After a comprehensive survey of the various methods being used, papers are devoted to the measurement of cognitive distance, cognitive structure, and the use of semantic differential and repertory grids (based on personal construct theory). Wohlwill's commentary on this section strikes a receptive chord in this reviewer, since he questions the utility for behavioral geography, and by implication, planning, of the more subjective response measures. The measures of cognitive distance, on the other hand proffer some interesting information for planners. For instance, it has been found that distances away from downtown are underestimated in U.S. cities, while they are overestimated in British cities, the hypothesis being that relative attractiveness reduces apparent distance. Other factors, too, such as familiarity and length of residence have effects.

The fundamental difficulties of assessing cognitive representations are that researchers can only elicit indirect, external manifestations of the "landscape of the mind" which may well be distorted by the media used. Here there are intense debates over the relative validity of freely drawn maps, which Lynch strongly defends in his foreword (I agree), a learned mapping process entitled "Environmental A," and verbal responses, which verbally-oriented researchers see as more "natural" even though they may in fact be describing visual images. The bias towards verbal and numerical responses may reflect the disciplines of the researchers more than the effectiveness of the method. For those who wish to explore the psychological roots of environmental cognition, this book is essential reading.

It is unfortunate that this book, which has been so carefully organized to cover the range of possible theories and methods, neglects the field of research which explicitly relates environmental cognition to architecture, urban design, and planning issues. This is especially surprising when many of the participants, including one of the editors, are teaching in architecture and planning schools; but one cannot do everything in one book.

Experiencing the Environment, edited by S. Wapner, S. B. Cohen, and B. Kaplan, two psychologists and a geographer from Clark University, is also oriented to exploring theory and method with no explicit concern for professional relevance. This book, the result of a small invited conference, has no guiding structure, though the diversity of viewpoints and quality of thought make it interesting reading. Some of the essays here also have potential relevance for planners. Two of them extend personality research into environmental psychology. Craik discusses the history of personality research and its array of methods, both soft and hard, for assessing personality. Such methods can, in suggestive ways, be transferred to environmental assessment. But more intriguing here is the investigation of the environmental dimensions of personality. For instance, McKechnie has been discovering how different population groups and decision makers hold dispositions toward pastoralism, urbanism, environmental adaptation, stimulus seeking, environmental trust, antiquarianism, privacy, and mechanical orientation. Little finds at a more general level that people can be grouped into four primary specializations: *thing* specialists, who, for example, tend to pursue practical fields or the physical sciences; *person* specialists, whose interests are usually more in the literary or person-service fields; *nonspecialists*, who are more self-oriented; and *generalists*, who end up in more synoptic disciplines like anthropology and planning. If we knew more about these dispositions and how strongly they are held by various demographic, interest, and decision-making groups,

we might be closer in touch with the underlying orientations of our clients and ourselves. So far the time-consuming techniques of gaining this knowledge, our inexperience in utilizing personality differences, and the variability of values in a media saturated society have perhaps slowed the diffusion of this research into the planning literature. Nevertheless, an effort to uncover these value orientations would allow us to enter planning conflicts with a better understanding of the values involved.

An excellent review of the theoretical and empirical issues relating environmental preference to uncertainty, conflict, optimization, and adaptation level is offered by Wohlwill and Kohn. In this as in his other works, Wohlwill is interested in "dimensionalising the environmental manifold," that is, discovering and measuring the environmental qualities to which people respond. The other essays in the book, all of high quality, cover a number of the subfields of environmental psychology—behavioral ecology (Wicker and Kirmeyer), natural hazard research (Kates), environmental perception and cognition (Ittelson, Franck, and O'Hanlon), and the environment as transcendental experience (Lowenthal and Prince). The editors, mature researchers who are late entrants into the field, conclude with an exploratory research report on environmental learning based on the theories of developmental psychology which have historically been nurtured at Clark University.

Each of these books is a worthy representative of the embryonic field of environmental psychology. They are witness to the vitality of the field, to the commitment of first class intellects to its development, and to its multidisciplinary nature.

The Ittelson, Proshansky, Rivlin, Winkel books are the broadest in scope, having moved closer to public environmental and social issues than the other two. They show that psychologists can come out of the laboratory, can speak in clear everyday language, and can make some theoretical and methodological contributions to the understanding of our relationships with the man-made and natural environments. In doing so they share the field with many in other disciplines who are using a variety of approaches to further environmental understanding. The other two books are much more embedded in theoretical environmental psychology. Figuratively, many are just opening the laboratory door. Yet even in these two books there is a rich intermix with those of other disciplines. This is what makes the field so lively.

How might environmental psychology be useful for planners? In its broadest sense it emphasizes the role of the individual experience. It can help, with the other social sciences, to explain our environmental and urban values, why we hold them, how we view our cities and construct urban realities, why we behave the way we do, how we plan, why we make the decisions we make, and so on. Environmental psychology can help to humanize planning. There is no guarantee, however. The pressures to legitimate the field through an emphasis on sophisticated technique or abstract theory, to the exclusion of social and political awareness, compassion and relevance, are even stronger than they are in planning.

The theories discussed in these volumes are mostly partial. The most useful ones for planning attempt to integrate several aspects of environment-behavior interaction. The natural hazard research, for instance, relates perceptions, expectations, and behavior in the face of earthquakes, hurricanes, tornadoes, floods, and other disasters. The more recent work on spatial behavior connects privacy, territoriality, and crowding. These theoretical models begin to cope with the complexity of our relations with the physical environment. They also show how *relative* and *interactive* these relations are. They show how difficult it will be, for example, to develop people-based performance standards of environmental quality, any universal guidelines or desirable patterns. And even these models are limited. We need theories that make connections between social, political, psychological, environmental, and economic systems, especially in the context of change, and we need them now.

Methods by which planners can obtain people's evaluations of their environments and can assess the social and psychological impacts of physical change are also immediately required. As these books suggest, an array of methods is available, but they offer no criteria by which to select those which are professionally useful. There is also a tendency to emphasize methods which tell more about responses than about relevant environmental variables. For the situational research in which planners engage, it seems that openly structured exploratory techniques will still provide more insights than those lifted straight off the shelves of psychology. However, as environmental psychology gains more experience it should develop methods that are usable in professional situations. For the moment, those mentioned in the Ittelson, Proshansky *Introduction* are a beginning.

How can planners help bring an understanding of environmental psychology to bear on planning issues? Carefully documented case studies of actual planning situations with conscious theoretical premises using an array of critically evaluated methods have so far been, in my view, the most fruitful research strategy. Beyond this, the design professions have been much more active in sponsoring meetings, conferences, and journals where relevant priorities for research are discussed. The planning profession could usefully emulate such efforts.

Donald Appleyard is professor in the Departments of City and Regional Planning and Landscape Architecture, University of California, Berkeley. His most recent books include: Planning a Pluralist City, *(Cambridge, Mass.: MIT Press, 1976), reviewed in this issue, and* Livable Urban Streets, *(Washington, D.C.: U.S.G.P.O., 1976).*