

# POST-OCCUPANCY EVALUATION

## An Overview

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Although many definitions of post-occupancy evaluation (POE) have been proposed, a useful working definition is that POE is the examination of the effectiveness for human users of occupied designed environments (see Bechtel and Srivastava, 1978; Brill, 1974; Friedmann, et al., 1978; Gutman and Westergaard, 1974; Ostrander and Connell, 1975; Zeisel and Griffin, 1975). "Effectiveness" includes the many ways that physical and organizational factors enhance achievement of personal and institutional goals. For example, post-occupancy evaluation may examine elderly public housing dwellers' satisfaction with shared spaces (Howell et al., 1976), office workers' sense of privacy (Brookes and Kaplan, 1972; Farrenkopf and Roth, 1980), or institutional residents' aggressive and cooperative behav-

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iors in various settings (Knight et al., 1978; Paulus et al., 1975; Wener and Olson, 1980).

Research in POE is diverse and rapidly expanding. For instance, Bechtel and Srivastava (1978) identified over 1000 researchers who had conducted housing evaluations. They also identified a somewhat bewildering array of goals and methods. They found that evaluations ranged in scope from brief student projects to well-supported longitudinal studies and were performed by individuals having a wide range of backgrounds: building users with no special training, designers in private practice, social science consultants, and design or social science academicians.

A POE study or research program generally focuses on a single type of designed setting, such as highrise housing, commercial offices, city parks, or academic institutions. In contrast, most psychological or sociological research focuses on social processes, such as crowding or attribution (Altman, 1975), that presumably operate in all settings. POE tends to describe rather than manipulate. Whereas an experimentally oriented psychological researcher usually alters the situation (a crowding researcher, for example, manipulates social density), the post-occupancy evaluator studies environments that have been manipulated (designed and managed) by other people. The post-occupancy evaluator observes, records, and describes. Furthermore, because post-occupancy evaluators, like program evaluators, often lack control of the setting they are evaluating, they usually cannot randomly assign participants to different conditions and must use nonexperimental or quasi-experimental research designs (see Carson et al., 1980; Cook and Campbell, 1979). An implication of the descriptive approach is that POE is almost invariably conducted in field settings.

Another distinctive aspect of POE is that much of it is aimed at application. It is intended to be used both to improve the focal environment and to influence the vast, complex system of users, designers, planners, builders, managers, financiers, and regulators who plan, design,

build, occupy, manage, alter, and raze designed environments. This focus on studying and improving designed environments helps to differentiate POE from more general environment and behavior research or applied social science research.

However, within this wide range, POE studies vary considerably. Three specific conceptual dimensions are of particular use in cataloguing them: generality, breadth of focus, and applicability. The next section will be devoted to a brief definition of these dimensions. Then we will consider their implications for two key issues in POE: sponsorship and methods.

#### **DIMENSIONS OF POE GOALS: GENERILITY, BREADTH OF FOCUS, APPLICABILITY**

The first dimension useful in understanding POE is the intended *generality* of results. Unlike basic researchers, who often assume that the processes they study are broadly generalizable, POE researchers are explicitly concerned with different points on a continuum from generality to specificity. For example, one POE researcher may be gathering highly specific information that is to be used primarily by the management of a particular housing project, while another researcher may be concerned with providing highly general information that can be used in national housing codes. Other studies may fall between these extremes of generality. In some cases, a single study may have multiple goals.

Because the unit of analysis in POE is usually the designed setting, the limits of generality are typically considered in terms of settings. For example, Weisman (forthcoming) examined the impact on users of academic buildings' floor-plan configurations. Rather than being concerned with specific academic buildings, he was concerned with academic buildings as a subset of the set of all

buildings. In contrast, Reizenstein and Ostrander (forthcoming) evaluated a specific apartment complex for quadriplegic adults. Although they gained valuable insights into how severely disabled people relate to their living situations in general, their primary purpose was to gain insight into one specific setting. At the specific end of the continuum, a considerable amount of POE research is commissioned by design firms or corporate clients to evaluate a specific innovative or important project (Farbstein, 1979; McLaughlin, 1979).

The second dimension along which post-occupancy evaluations can be viewed is *breadth of focus*—the degree to which they focus on single attributes of settings as opposed to viewing settings as holistic systems. For example, some researchers concentrate on relatively specific physical or perceptual characteristics of settings, such as density or cognitive legibility. Other researchers cast a wider net and attempt to characterize more completely the complex social and physical workings of a setting. They may consider the design process that produced the setting, the political and historical trends that affect it, and the informal and formal organizational structure that operates in the setting. Many researchers focusing on single attributes also acknowledge these broader issues, but do not include them as the primary concerns of their evaluations.

Several examples may clarify this dimension. At the single-attribute end of the continuum, Paulus et al. have extensively studied prison crowding (see McCain et al., 1976; Paulus et al., 1975, 1976). They have principally used existing prison records to focus on the relationships of density measures, such as persons per room and area per person, to measures of physical and psychological stress, such as blood pressure, psychiatric admissions, death rates of older inmates, illness rates, and complaint rates. The results, while complex, have generally confirmed positive relationships between extremely high density and increased stress. This research, while neither simple nor simplistic,

falls on the single-attribute end of the dimension because its principal focus is on density rather than on broader prison experience.

By contrast, Wener and Olsen (1980) took a more systematic approach. They evaluated pretrial detention centers in New York and Chicago, using staff and inmate questionnaires, direct observations, and other measures to evaluate many aspects of the centers' physical and social structures. They found, for example, high satisfaction with individual rooms but dissatisfaction with recreational facilities. The broad focus of their evaluation allowed Wener and Olsen to capture interrelations of elements in the system as well, such as implications of management decisions for building use. However, it also limited their ability to capture density issues in depth.

The third dimension for cataloging kinds of POEs is the intended *timing of application*. Some researchers intend to provide findings that can immediately inform design and planning decisions, while others are concerned with long-term compilation of data that can be used at some future time. Whereas most POE is intended for application, some theoretically oriented researchers are concerned with developing heuristics that can guide future planning and design. These studies generally occupy the long-term end of the application continuum. Researchers who aim at providing specific information about a setting generally fall on the immediate-application end.

For example, at the long-term end of the continuum, Weisman (forthcoming) looked at the relationship of way-finding to several abstracted dimensions of buildings, such as legibility of floor-plan configurations. He found that buildings rated by independent judges as having less legible floor plans also had a higher frequency of people reporting they had been lost. Weisman primarily intended his results as a first step in developing a model of built-environment cognition, to be used at a later time.

By contrast, Kantrowitz and Nordhaus (1980) focused on immediate application when they evaluated a number of

subsidized housing projects in Albuquerque. They found, for example, that territorial markers such as fences were of critical importance to the occupants. Other POEs intended for immediate application include studies of radiation therapy facilities (Conway et al., 1977), interior spaces for the elderly (Howell and Epp, 1978), and playgrounds for children (Moore and Wong, 1976).

Articles in the present issue illustrate how each of these three dimensions can be seen as a continuum (see Figure 1). Intended generality and breadth of focus range from low to high, while intended applicability runs from immediate to long-term.

Although most POEs have a primary goal (for example, to evaluate lighting in an office building), a single study may have multiple goals and thus fall into more than one place along any of these three dimensions. For example, with regard to generality, Cooper (1975) evaluated a single housing development, but was also concerned with the broader issue of low and moderate family housing design.

Studies that are truly multiply focused may be particularly rich but may also contain conflicting objectives. These conflicts and the three dimensions we have been discussing may become clearer if they are considered in terms of two issues of special importance in POE: sponsorship and methodology.

### SPONSORSHIP

Given the diversity of interests in POE, one would assume that all combinations of the dimensions described above would be represented. This is not the case, and a major reason is the influence of research sponsors. As with other applied research areas, POE tends to be supported by contracts, which often suggest goals, methods, and use of evaluation results. This contrasts with basic research, which tends to be supported by research grants and therefore

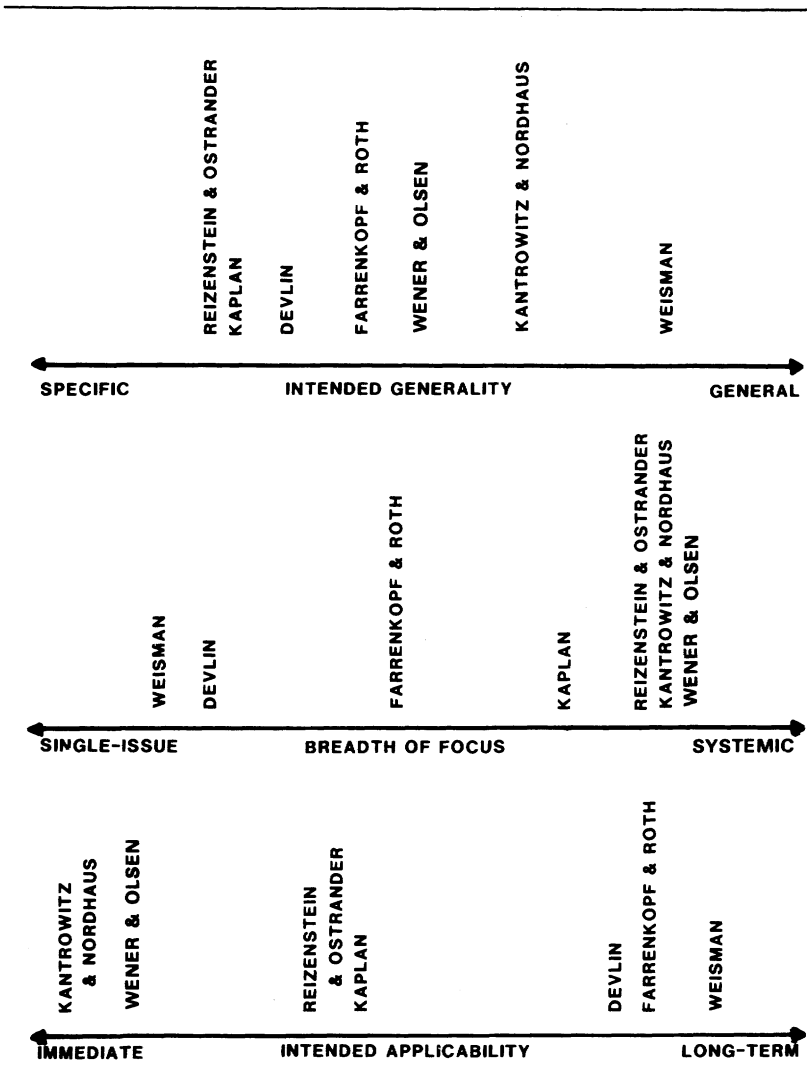


Figure 1

NOTE: The articles in the present issue and those forthcoming categorized as to the goals of POE.

usually allows researchers greater latitude. Although no overall statistical study of post-occupancy evaluations has been made, Bechtel and Srivastava (1978) reviewed 265 housing evaluations.<sup>1</sup> They found that evaluators received outside funding in 92% of these housing evaluations. The federal government was the largest sponsor, responsible for 42% of all evaluations. Universities were next with 17% followed by associations (8%), state government departments (7%), foundations (5%), housing organizations (5%), architectural organizations (3%), individual university departments (2%), city planning departments (2%), business organizations (1%), building contractors (4%) and research organizations (4%). The evaluations represented in the present journal issue and those forthcoming (Weisman; Reizenstein and Ostrander) support Bechtel and Srivastava's breakdown, with 50% of the studies federally sponsored (Devlin; Wener and Olsen; Reizenstein and Ostrander; Kaplan), 29% university sponsored (Farrenkopf and Roth; Weisman), and 31% sponsored by local government (Kaplan; Kantrowitz and Nordhaus). However, both Bechtel and Srivastava (1978) and the present editors were necessarily confined to evaluations that were published or privately available. It is likely that many evaluations are funded for exclusive use of the sponsor and thus are unavailable for review.

The heavy dependence of POE on government and university sponsors affects evaluations in at least two ways: as they are defined by the three dimensions above and their actual design and implementation. With respect to the first dimension, generality, government agencies—which have funded most evaluations—tend to be concerned with generic classes of settings. As a result, many available evaluations are on the high end of this dimension. These evaluations include, for example, generic studies of prisons (Wener and Olsen, 1980), of institutions for the developmentally disabled (Knight et al., 1978), and of low- and moderate-income public housing (Francescato, et al., 1979)



that were intended to be used in establishing national policies. The federal government has funded either comparative studies of several examples of a class of settings (e.g., Devlin, 1980) or case studies of single examples of a setting intended to reveal attributes of the class (e.g., Reizenstein and Ostrander, forthcoming). Sponsors such as architectural organizations or tenant associations are more focused on attributes of a specific setting than on a generic class of settings, and yet have sponsored fewer evaluations.

Government funding and university funding have quite disparate effects on the second dimension, breadth of focus. Government agencies are typically charged with regulating many aspects of a setting; hence they often support evaluations focused on the functioning of settings as complete systems. By contrast, university support may reinforce the interests of evaluators in single attributes of settings, such as legibility (Weisman, forthcoming). Other sponsors, such as architectural organizations and firms, may be concerned with either the systemic operating of a setting (REDE, 1974) or with single attributes of settings, such as an innovative lighting system (Wineman, n.d.).

Government sponsors often support intermediate levels of the third dimension, applicability. Their time schedule for use of information is typically shorter than that of university sponsors (universities may support long-term data acquisition) but longer than architectural organizations, who may need information for use within days or weeks. However, there is some diversity. The government-supported studies in the present issue all took a number of months to complete, yet there was a range of intended timing application. For example, Devlin studied elderly housing with an interest in developing data for later use; Kantrowitz and Nordhaus were addressing pressing policy issues.

Within the three broad dimensions of goals, however, the preponderance of government and university sponsorship of evaluations affects the type of settings and users studied. In their review of housing evaluations, Bechtel and Srivastava

(1978) identified several characteristics of settings that were frequently evaluated, including projects less than fifteen years old, institutions and public housing, and high-rise designs. Other settings, such as single-family detached housing, were seldom evaluated. Friedmann et al. (1978) noted that housing, as a class of settings was evaluated more than other settings, such as offices, commercial establishments, or public spaces. In the present journal issue, two articles deal with housing (Devlin; Kantrowitz and Nordhaus), two with institutions (Wener and Olsen; Farrenkopf and Roth), and one with public outdoor space (Kaplan). Similarly, Bechtel and Srivastava (1978) found proportionately more studies of several specific populations: children, older people, poor people, and institutionalized groups.

Government and university funding also seems to affect which occupational groups perform evaluations. Bechtel and Srivastava (1978) found that 79% of housing evaluations had university professors as principal investigators, with nonuniversity researchers accounting for 16% and architects comprising only 5%. Bechtel and Srivastava did not comment on the disciplinary composition of evaluation teams. Several recent studies seem to indicate some collaboration between designers and social scientists (e.g., Conway et al., 1977; Knight et al., 1978; Reizenstein and McBride, 1977), as well as evaluations by individuals with both design and social science training (e.g., Weisman, forthcoming). Thus, government and university funding have helped determine a "typical" evaluation: a study by academicians of poor, elderly, or children who are highrise dwellers.

Furthermore, the important role of sponsorship in post-occupancy evaluation raises serious questions of where the evaluators' responsibilities lie. Financial concerns, professional and moral responsibilities, and ethical principles often conflict. For example, the funding agency may create pressure for certain issues to be investigated or may even push for a specific outcome; the evaluator may have a

particular theoretical area of interest; the setting may have tenants, workers, or other users with their own special needs who may be considered nonpaying clients; and the evaluator may have a commitment to a particular type of social change.

In their article in this issue, Knight and Campbell suggest that these conflicts must be recognized as inherent and that the evaluator's role must be carefully chosen. These authors propose that evaluators consciously or unconsciously adopt one of three roles: the technician, who follows the values of the person or agency funding the evaluation; the facilitator, who negotiates the value perspective of the different actors in the evaluation; and the instigator, who attempts to generate different value perspectives not necessarily held by the participants. Based on their own commitment to social change, Knight and Campbell feel that the instigator role has special value because it does not merely support the status quo. Rein (1976) discusses a similar set of issues and discusses several additional strategies for social change, such as litigation between actors and a "science court" where different perspectives are aired.

## METHODOLOGY

We have seen that POE is an applied research area typically performed by academicians. However, as with many emerging fields, POE is beset by considerable methodological confusion. Although a full discussion is beyond the scope of this article, some of the confusion may be resolved if it is considered in terms of the three dimensions described above.

The first dimension, generality, aids understanding of several important sampling issues. The unit of analysis is usually the setting, and sampling of *settings* is of prime importance in POE. It is especially important for studies intended to apply to a generic class of settings. The same questions must be asked about sampling of settings that are

often asked, in psychological and sociological research, about sampling of participants: Are the settings chosen representative of the generic class? What characteristics of the settings, such as geographic location, size, or organizational structure, limit generalization? Is the group of settings large enough to allow generalization? Similarly, designed settings are highly influenced by such things as changing market conditions, government programs, and policy initiatives. As a result they may change quickly. If evaluations are to provide an accurate picture of a generic class of settings, they must also sample points in time. To provide generality, settings should be evaluated throughout their life-spans.

These two sampling issues may be analyzed in terms of a 2 x 2 table. One axis can be considered sampling over time, the other sampling over settings. The most appropriate cell for a generically focused study is multiple-setting/longitudinal. Although such studies are still open to question about the representativeness of settings chosen, they allow both a comparative analysis of settings and an understanding of the effects of time. Conversely, the combination of a cross-sectional (single-time) approach with a case study research design provides the least information about a generic class—although the evaluators' experience in other, similar settings may provide some generality.

The most appropriate type of study useful for generalization (multiple-setting/longitudinal) is the most expensive and also the most rare; we are unaware of major examples of this combination in the literature. Several studies have taken a single-setting/longitudinal approach, notably the Knight et al. (1978) three-year study of an institution for the developmentally disabled and Toch's (1969) three-year study of a prison. Also, a number of evaluations have taken a multiple-setting/cross-sectional approach, such as those by Devlin (1980), Kantrowitz and Nordhaus (1980), Paulus (1975), Snyder et al. (1976), and Zube et al. (1976). Finally, many studies have taken a single-setting/cross-sectional approach (e.g., REDE, 1974; Zeisel and Griffin, 1975).

The second dimension, breadth of focus, also has several methodological implications. Studies intended to be systemic must consider a wide range of issues, including the importance of formal and informal organizational structures (see Keys and Wener, 1980). As a result, evaluators must carefully plan how to gain entry into an organization, how to maintain an effective working relationship, how specific methods relate to organizational needs for anonymity or information dissemination, and so on. Keys and Wener (1980) suggest that there are at least four important stages in the relationship between evaluators and the organization being studied. For example, they point out that in the third stage, data collection and analysis, client organizations become suspicious when evaluators return to their offices to "hibernate" while analyzing data.

A second methodological implication for systemically oriented investigation is an especially significant need for multimethod techniques. Whereas use of multiple methods has been gaining acceptance in the social sciences for reasons of convergent validity (i.e., a variety of methods are used so that strengths of some methods compensate for weaknesses of others), a range of methods is necessary in POE to capture various aspects of a social-physical system (Friedmann et al., 1978). For example, Becker (1975) used resident interviews, tenant checklists, systematic observation, and management interviews to measure satisfaction in low- and moderate-income multifamily housing in New York State. In a systemic study of an institution for the developmentally disabled, Knight et al. (1978) used participant observation, staff interviews, and critical incidents to capture organizational functioning, and direct observation and archival records to measure resident behavior.

A third methodological implication of a systemic focus results from considering the design process that produced the setting (e.g., Cooper, 1975; Reizenstein and Ostrander, forthcoming; Zeisel, 1975; Zeisel and Griffin, 1975; Zube et al., 1976). It is important to understand the design process for two reasons. First, in order to evaluate a building (or

other designed environment) appropriately, one should understand who made various design decisions and why they were made, and compare intentions with activity. Design intentions of paying clients, designers, financiers, and so on can be compared with the constructed building, with relevant management policies, and with user reactions to the building. Second, if the design process itself is documented, evaluations can highlight ways to improve the process, identify what kinds of information are most useful, and clarify points in the process where information might be most effective. It has been recently argued, for example, that the traditional emphasis of post-occupancy evaluation on supplying information to designers must be expanded to include clients, financiers, policy makers, and organizational officers who make decisions about space utilization (Bechtel and Srivastava, 1978; Reizenstein, 1979).

Typical methods for documenting the design process include: (a) interviews with designers and clients; (b) analysis of correspondence between designers and clients (e.g., Zeisel and Griffin, 1975); and (c) "designer walk-through" (the designer walks through the completed design and comments on the experience he or she intended users to have in various areas of the project; see Bechtel and Srivastava, 1978). Once the clients' and designers' intentions are known, they are checked with actual user experience as measured by interview, questionnaire, direct observations, and so forth.

The third dimension of goals, applicability, also has several methodological implications. Perhaps most fundamental is the need for underlying heuristics to guide evaluations. These heuristics may range from elaborate theories to loosely knit conceptual frameworks. They provide an understanding of how an evaluation may generalize to different or novel situations by identifying important processes and parameters operating in a setting. For example, Reizenstein and Ostrander (forthcoming) used the concept of independence in evaluating housing for quadriplegics. Although

other housing projects for the physically limited may not have precisely the same physical characteristics as the one they evaluated, all may be approached from the perspective of independence. Had Reizenstein and Ostrander merely solicited tenants' reactions to specific design features without an underlying heuristic, generalization would have been difficult or impossible. Articles in the present issue provide additional examples of heuristics. Devlin (1980) and Weisman (forthcoming) explore cognitive aspects of experience with buildings; Wener and Olsen (1980) examine resident control over the built environment; Kaplan (present issue) and Kantrowitz and Nordhaus (present issue) discuss, among other issues, user participation in design decision-making.

Several additional implications of applicability are of particular importance. First, if an evaluation is intended to be applied by the organization being evaluated, the relationship between the evaluation and the organization must be carefully considered. Meaningful participation by organization members increases the likelihood that they will act on POE results (Keys and Wener, 1980). Furthermore, in their study of housing evaluations, Bechtel and Srivastava (1978) found that only the evaluations performed by designers and housing agencies were used in their subsequent designs. Evaluations by social scientists were not used. Bechtel and Srivastava interpreted this finding as due, in part, to the sense of proprietorship that the designers gained when they participated in evaluations.

A second related implication for studies intended for immediate application results from the recognition that designed environments are shaped by many different actors who can use post-occupancy evaluation information. If they are to use POE, these actors must have their needs addressed by evaluations and must see the results as clear and straightforward. During the planning stage, a project may be affected by developers, bankers, zoning boards, life-safety regulations, state and federal policy planners, citizen groups, architects, interior designers, landscape architects,

and consulting structural and mechanical engineers. During construction, a project may be affected by the above groups plus contractors, licensing boards, and fire inspectors. During the life of the designed project—currently considered about 40 years for a commercial project—it is additionally affected by the users of the project: owners, renters, passers-by, neighbors. Reizenstein (1979) suggests that the significance of the role of the organizational space manager has been neglected. Space managers, who usually have no design training, make various decisions about space, such as location of units, amount of space, amenities, and renovations. They have a critical impact on the relationship between the setting and users. Depending on their intended audience, evaluators must be sensitive to such things as current policy debates, shifts in architectural styles, and trends in materials and structural systems.

This leads to the third methodological implication of immediate applicability—presentation methods. For example, the clarity, attractiveness, and overall appearance of a report may play a significant role in whether various actors actually use the information. In her article in the present issue, Reizenstein suggests that evaluators should consider careful use of graphics and proposes that presentations be specifically tailored to various purposes and audiences. A single evaluation may produce a slide show for users, a technical report for other researchers, a summary report for clients, performance guidelines for designers, and so forth. Given the applied focus of many post-occupancy evaluations, Reizenstein suggests that these researchers may need to place more emphasis on (and devote more of their budgets to) presentation than would be the case for basic researchers.

Other methodological implications regarding techniques and research design result because sponsors of evaluations who want to use the information often require a short turnaround time. An architectural firm may require information within a few weeks; a federal agency may require it



within a few months. These pressures have frequently resulted in use of techniques such as focused interviews of key informants or descriptive observation (Marcus, 1978) rather than direct coded observations of large samples of users (see Michelson, 1975). Furthermore, with few exceptions, time pressures cause evaluators to study settings only after the setting is complete and users have moved in. This "after-only" research design may cause serious inferential problems in an evaluation, where the effects of the environmental design may be difficult to separate from other influences in the settings. These problems may be exacerbated when the use of control groups is not practical (although Carson et al., 1980, suggest that the comparison groups may be used in some situations instead).

Finally, a related methodological requirement of immediately applicable evaluations is that researchers may feel the necessity to provide recommendations based on inconclusive results. Although such recommendations are necessary in all applied research, the very short time frame of some post-occupancy evaluations makes this educated guessing even more common. Although a number of researchers accustomed to less pressured academia have voiced discomfort, a familiar refrain recurs: Environmental decisions will be made whether the POE is definitive or not. Given the typical lack of evaluation data on which to base these decisions, the presence of even fragmentary information can be said to be a substantial step forward. For example, a report by the American Institute of Architects Research Corporation (1977) describes several short, small-scale evaluations done for various government agencies, which resulted in usable information.

### **SUMMARY AND CONCLUSIONS**

We have suggested that post-occupancy evaluation is investigation of the designed environment with regard to its

human users. Although due to the variety of POEs no comprehensive, precise definition is possible, POEs tend to be setting-focused, descriptive rather than manipulative, and applied in orientation. Because evaluators often are unable to manipulate a setting, they must usually resort to after-only, nonexperimental research designs.

Three dimensions of POE goals were presented: generality, breadth of focus, and applicability. These dimensions interact with two key issues in POE: sponsorship and methods. Sponsorship of available POEs is heavily concentrated in the federal government and the universities. Federal sponsorship has produced evaluations that are intended for broad generality, a systems focus, and an intermediate level of applicability. University sponsorship has typically produced studies characterized by broad generality and a systems focus, but longer-term intended applicability. Other sponsors, such as architecture firms, usually require less general, more immediate evaluations, but have commissioned fewer published evaluations. Federal and university sponsorship have encouraged evaluations, carried out by academicians, of highrise buildings and institutions for the poor, the young, or the elderly.

These dimensions of POEs have a number of methodological implications: (1) Evaluations intended to be generalizable must broadly sample both time and settings. (2) Systemic evaluations should consider organizational issues, should use multimethod techniques, and should consider the design process that produced the setting. (3) Evaluations that are intended to be immediately applied should involve members of the organization being studied, should consider the various needs of different information users, and should employ particularly clear and well-defined presentation methods.

Given the current developing state of POE, in what directions should that development be moving? First, the scope of POE should be enlarged. Currently, only a few user groups are being studied, while information about many

others would be valuable (e.g., middle-class people and suburban or rural dwellers). Furthermore, evaluation should be conducted by a wider range of researchers, such as designers, developers, and members of tenant organizations. Although this could create problems in the quality of research conducted, more extensive involvement by multidisciplinary teams, universities, consultants, and professional organizations would help to maintain high standards and the broadening of POE would increase both its use and relevance. To accomplish these changes, the sponsorship of POE should also be broadened. Friedmann et al. (1978) suggest that design schools and design associations could take a leading role by encouraging and sponsoring evaluations. Evaluations of relatively short duration and low cost would seem particularly appropriate for this purpose.

Second, methodology in POE needs to be improved. Although the conditions under which the research is conducted may preclude the use of precise laboratory research methods and research designs, careful use of field methods and nonrandomized designs may still produce valid and reliable results (see Carson et al., 1980). Despite the growing sophistication of these methods and designs in other evaluation research, much POE research remains rudimentary and inconclusive.

Also, the use of POE information must be increased. For example, in her 1974 study of American architects and planners, Reizenstein (1975) found that only a small fraction of respondents reported that they often made use of environment and behavior research findings. Reasons for lack of use included difficulty in finding research information and constraints such as time and money. Eighty percent felt that research had not been translated into helpful information for decision-making. Similarly, Bechtel and Srivastava (1978) found that little POE information was used. In the present article we have proposed several ways to increase use of POE information. These include increasing the involvement of the organization being studied, better

presentation of results, and better targeting of information to appropriate decision makers. Also, however, POE information is often difficult to find and to organize. Although several publications have recently emerged attempting to synthesize information for a specific setting (e.g., Zeisel et al., 1977), POE information would be much more accessible if put in an on-line computer bank such as MEDLINE in medicine or ERIC in education (see Murtha, 1979).

Finally, perhaps the most effective way to broaden sponsorship and increase use of POE is to document evaluations that have been successfully used for policy, design, or renovation. Only when POE is truly seen to be effective in terms of cost and human satisfaction will it gain wide support.

### NOTES

1. Bechtel and Srivastava's percentages have been rounded here.
2. Kaplan's study was jointly funded by both federal and local governments.

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