

Evaluating Built Environments: A Behavioral Approach. By Robert W. Marans and Kent F. Spreckelmeyer, published jointly by Survey Research Center, Institute for Social Research, the University of Michigan and by the Architectural Research Laboratory, College of Architecture and Urban Planning, the University of Michigan, 1981, 242 pp., figs., tables, apps., refs. \$20.00

Despite the expectations engendered by its grand title, this book is not about evaluating built environments; rather, it is a report of a single case study of a federal office building in Ann Arbor, Michigan. Marans and Spreckelmeyer call their study a "developmental" piece of work and that seems to be a useful way to think about this post-occupancy evaluation (POE), which should neither be praised to the skies nor damned to oblivion in the dusty recesses of a library. As most POEs do, it has serious theoretical and methodological weaknesses and is overly ambitious in what it tries to achieve, yet it offers a solidly grounded approach to evaluating a particular built environment from the perspective of the people who use it. As with the buildings we assess, in evaluating this evaluation, there are both successes to be built upon in future work and errors to be avoided.

Sponsored by the General Services Administration (GSA), this POE was made from the perspective of the federal employees who work in the building and from that of residents of Ann Arbor and surrounding communities who use it. After ascertaining what the architect's and client's goals were for the building, Marans and Spreckelmeyer asked employees to fill out a self-administered questionnaire that focused on their activities, how they felt about the building as a place to work, how they rated the building's appearance and a number of specific environmental attributes. The questionnaire, which could be completed in 15 minutes, was returned by 239 employees, over 90% of the population. In addition, short telephone interviews were held with 113 adults who lived in the surrounding community and 60 building users who were not employees were briefly interviewed at the site.

Data were also collected on environmental conditions within each of the 14 separate agencies housed in the building and at individual work stations. Lighting, temperature and humidity, noise, furniture and equipment arrangements, and amount of work space were measured.

The evaluation found that the award-winning building "has become an integral part of downtown Ann Arbor and has contributed to the attractiveness and economic vitality of the area," but that it has not lived up to its expectations of providing a high-quality work environment for all its occupants: "Many of the people who worked in the building considered it to be aesthetically and functionally deficient."

This POE is strong in a number of areas. One of its more obvious attributes is that it is a published hardback monograph, and as such, is widely available to interested consumers of design research. For a piece of work in a field that reluctantly recognizes the invisible nature of many of its studies, this is no small achievement.

Methodologically, the study is constructed on some sound ideas. The researchers interviewed the architects and interior designers, the GSA client representative, and heads of agencies occupying the building before they designed their data collection instruments, and at the end of the study, compared designers' and clients' initial objectives with study findings. The researchers used multiple techniques of data collection, collected data on both attitudes and behavior, and made an impressive effort to collect information on the physical characteristics of the building. The physical measures along with the authors' attempt to build on a Harris survey of office workers around the nation, helps put this study in a position of beginning to build that data base so often yearned for by other evaluators. Marans and Spreckelmeyer are also to be commended for their use of multivariate analysis, a degree of statistical sophistication often absent in POE work.

The monograph is clearly organized and well written, illustrated with floorplans and photographs, and findings are often presented in a useful question-and-answer format.

Unfortunately (but not surprising for a "developmental" piece of work in a field as young as POE is), this study has some serious shortcomings, including: connection with the existing literature, conceptual model, generalizability, aspects of methodology, and presentation of conclusions.

The first major problem with this study is that the authors do not build on the existing literatures, either on work environments or on POE. Although they say they are interested in comparing results of their POE with evaluations of other comparable environments, they include no literature review and their bibliography of less than 20 references ignores most of the more than 100 studies on work environments that Wineman (1982) cites as major works in this field. At the least, some of the literature on POE, such as Knight and Campbell's (1980) discussion of researcher values, Zeisel's (1981) work on research methods and Keys and Wener's (1980) insights into the impact of the research team on the process of POE within organizations, would have enabled Marans and Spreckelmeyer to avoid some of the pitfalls they encountered.

The monograph is also weak with regard to the conceptual frameworks used. Their basic model of environment-behavior relationships shows behavior as resulting from overall environmental satisfaction, which in turn results from perceptions and assessments of objective

environmental attributes, which stem from objective environmental attributes. This model leaves out a number of important considerations, including physical characteristics and abilities of the individual, activities the person is trying to accomplish, policies and practices of the organization in which the person and environment are operating, dependent variables other than satisfaction, and so on. The authors present a more complicated model for evaluating work environments (p. 24), but this one tends to be more confusing than enlightening, with arrows showing most of the constructs as related to most others. The irony is that although the authors criticize other evaluation researchers for not presenting a theoretical framework, they present one that is not built on other work in the field and that does not clearly communicate how constructs are related, and then they mention in a footnote that they *do not test it* in their study. The study (or more likely, the reader) suffers from this lack of conceptual clarity since findings are not tied into a series of conceptually useful and potentially generalizable constructs such as Steele's ideas of task instrumentality, social contact, symbolic identification, and others.

One of the most important lessons learned from other POEs is that ways in which designed environments actually function cannot be understood without carefully analyzing the *social systems in which they operate*. Although Marans and Spreckelmeyer found that "the psychological, organizational and physical components were related in the minds of the people working in the Federal building" (p. 111), they chose to ignore these social system variables in their analysis; "we have nevertheless defined the work environment in physical terms" (p. 111).

Although GSA sponsored this POE as a single case study, the authors could have easily and inexpensively obtained some comparative data that would have made findings from this study much more generalizable. Since many of the workers expressed disappointment with their immediate environment, it would be useful to know how many other federal workers in the IRS, Post Office, or other agencies work under similar environmental conditions. For example, if Ann Arbor Federal Building workers in the Weather Service complained about visual privacy in open plan offices and this design is widely used in other Weather Service offices around the country, this study could have pointed out an issue needing attention by federal design and management policy.

This POE also suffers from several methodological problems. The most serious of these, and one that makes many of their findings somewhat suspect, is the issue of matching "objective" environmental measurements with "subjective" attitudinal data. Although their intention of comparing these two types of data was admirable, they took environmental measures some ten weeks after the attitudinal data were collected. Obviously, employee turnover, work station rearrangement, and change in environmental conditions themselves all diminish the reader's confidence in the validity of the comparisons.

Other methodological problems stem from question wording. Some questions were so general (e.g., "What do you think of the appearance of the inside of the building? Would you say it's very attractive, fairly attractive, not very attractive or not at all attractive?" p. 101) that it is difficult to know exactly what people were responding to. Other questions were ambiguous (e.g. "How would you rate the location of the Federal Building as a place to work?" p. 223) because some comparison was implied but not made clear.

In analyzing their results, Marans and Spreckelmeyer several times lost the opportunity to broaden their own and the reader's understanding of an issue. For example, they describe that:

relationships were not always in the expected direction. For example, those with more than 100 square feet of workspace were least satisfied with their work stations while those with 40 square feet or less were most satisfied [p. 165].

yet beg the question rather than hypothesizing an explanation:

While some objective attributes of the work environment were associated with the way people felt about their work stations, no doubt other factors of a more subjective nature were also important to work station satisfaction [p. 165].

This tendency to describe without explaining can also be seen in the captions to a number of photographs (e.g., p. 116, p. 117).

After reading the more than 200 pages of text and wading through a huge number of tables, the reader expects to be rewarded with a list of "so whats", design and management guidelines growing out of this study, yet usable by others. For busy design decision makes, these are often the only portions of POEs that get read at all. Although this connection between evaluations of existing environments and predesign programming and management of future buildings is *one of the major purposes of undertaking POEs* (Zeisel, 1975; Zimring and Reizenstein, 1980, 1981), this evaluation focuses only on giving some feedback to designers and clients of the evaluated building and on providing an example of evaluation research for other researchers. By neglecting to write usable performance guidelines for design and management, the authors have unnecessarily diminished the impact their work might have had.

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