POST-OCCUPANCY EVALUATION AND ORGANIZATIONAL LEARNING

Brian Schermer, University of Wisconsin-Milwaukee

ABSTRACT

This article considers post-occupancy evaluation (POE) from four separate theoretical perspectives on organizational learning and speculates how these can inform future efforts at building evaluation. The perspectives afford views of organizational learning as a phenomenon based on: (1) cultural change, (2) systems thinking, (3) improved reasoning and interpersonal competence, and (4) sharing practice-based knowledge. Each provides a distinct view of POE as a mode of organizational intervention. Moreover, they highlight a variety of ways of thinking about buildings in relation to organizational life, suggest different research agendas for organizationally relevant POE, and point to alternative strategies for facilitating organizational learning.

POST-OCCUPANCY EVALUATION AND ORGANIZATIONAL LEARNING

As a form of environmental design research, post-occupancy evaluation (POE) is associated with two aims. On the one hand, it is intended to contribute to our overall knowledge base of environment-behavior relations and building performance. On the other hand, practitioners engage in POE activities in order to apply the results in specific consulting situations. In the latter circumstances, POEs are constituted as a form as "design decision research," in which the results directly influence the choices made by designers, clients, and others who require a sound basis for their building-related choices (Farbstein and Kantrowitz, 1991).

When POE is intended to influence design decisions, its utility is judged according to its impact on the strategies of decision-makers and on subsequent improvements to buildings. While there has been a great deal of emphasis on the definitions, purposes, techniques, and rationales for POE, there is still more to be known about the implementation of POE results within organizations (Zimring, in press). Literature that directly addresses this topic has focused on specific strategies and organizational conditions that are conducive to its success (see for example, Joiner and Ellis, [1989] and Farbstein et al [1989]).

Implicit in the objective to apply POE in practice is the assumption that the knowledge gained by such efforts will not only influence decision-making, but will also be "learned," or somehow assimilated into the knowledge base of the client organization that sponsors the evaluation. It is generally acknowledged by advocates of POE however that there are often organizational impediments that prevent POE from reaching its full potential in building related decisions and the knowledge derived from it from being fully assimilated by the sponsoring organization. These impediments have been attributed to such factors as threats to designers who fear POE will expose their mistakes, the difficulty of translating POE-generated information into a usable knowledge base, or the fact that building-related research often takes a back seat to other matters that concern an organization. Whatever the problem, it is clear that successful implementation of a POE program requires careful attention to more than just data collection and analysis. It also requires careful consideration of how POEs are designed, managed, and implemented through interaction with the client organization. In an effort to develop a better understanding of how POE might be better utilized in design decision research, this paper examines four separate theoretical approaches to the topic of organizational learning and speculates how these approaches might inform the planning and implementation of building evaluation efforts.

Organizational learning has been a topic of intense interest for organizational researchers and managers for over thirty years, although there is no single theoretical formulation to describe its processes (Easterby-Smith et al, cited in Gherardi, 2001). While there is a plethora of literature on the topic, there are at least four perspectives that offer useful insights for POE researchers. Three of these approaches, which are expertly explained and critiqued by Edmondson (1996), take the approach that organizational learning takes place in the minds of individual organization members. In order for such learning to create organizational effectiveness, members must either: (1) overcome inconsistent cultural assumptions and values to produce cultural change (Schein, 1992, 1993, 1996); (2) transcend bias through systems thinking (Senge, 1990); or (3) confront idiosyncratic "theories-in-use" in order to eliminate defensive reasoning and interpersonal incompetence (Argyris, 1982, 1985, 1993). A fourth approach derives from a practice-based perspective developed by several researchers (Brown and Duguid, 1991; Holmberg, 2000; and Gherardi, 2001) which views learning as an ongoing social process that takes place within "communities of practice." In this last approach, organizational learning is enhanced when narratives are constructed into a "common text" that serves as a collective interpretive resource for organization members (Holmberg, 2000: 180).

The following discussion describes each approach to organizational learning in greater detail, and speculates on the implications of each for organizing and implementing POE.

CULTURAL CHANGE

A culture-based approach to organizational learning is attributable to the work of management theorist Edgar Schein. Schein's model of organizational culture, as shown in Figure 1, consists of various levels, which include visible artifacts, espoused values, and taken-for-granted assumptions that profoundly influence behavior in organizations (Schein, 1992). From Schein's perspective, organizational effectiveness is a function of consistent cultural assumptions and values, coupled with effective group process. Successful organizations hold widely shared, deeply held values that enable members to work together effectively, share knowledge, and grow as individuals.
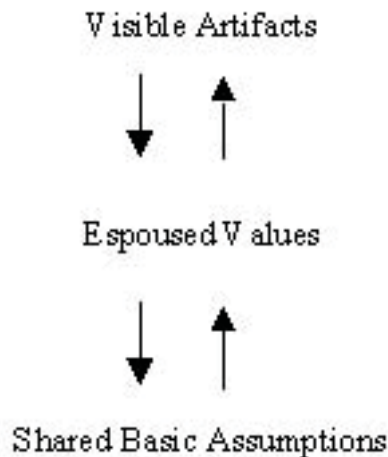

Figure 1. Three levels of organizational culture (after Schein [1992]).

From this perspective, organizations experience problems in learning when they are beset with inconsistent values, particularly among managers, professionals, and technical staff (Schein, 1996). Intervention requires a participatory process to decipher organizational culture, which involves, first, eliciting data about visible elements of culture (material artifacts, models of interaction, rituals, etc). A second level of analysis examines espoused values, or the readily offered reasons or explanations of those visible artifacts. Finally, intervention seeks to uncover the shared, tacit assumptions that underlie those values through examination of the inconsistencies among artifacts and espoused values. This information is collected and examined in order to determine which assumptions may aid or hinder progress on reaching organizational goals. Once counterproductive beliefs are articulated, then it becomes possible to address them.

Intervention of this type requires a degree of "clinical distance" to expose an organization's specific schemas or cognitive filters. The role of the researcher evolves from one of ethnographer to clinician over the course of the intervention, and requires careful attention to facilitate "constructive dialogue" (Edmondson, 1996). One risk of this approach is that it may lead to better understanding of dysfunction, but with no means to change it. The approach also discounts the potential for self-serving managers to exercise coercive influence over subordinates (Edmondson, 1996).

POE from a Cultural Change Perspective

Implementing POE from a cultural change approach highlights the fact that buildings influence and are influenced by different constituencies that may not share the same values. Managers may value building performance because of its impact on organizational bottom lines. Building occupants may be more concerned with a building's impact on their everyday working experiences. Facility managers may appreciate the extent to which a building eases their own work.

A cultural approach also suggests the importance of viewing buildings as material artifacts that are symbolic of organizational culture. With some prompting, members will be able to explain or interpret building artifacts in relation to organizationally espoused values. ("Our open plan offices facilitate impromptu meetings.") When compared with other visible artifacts (e.g., routine behaviors, locked drawers, conference room scheduling, etc.) and the explanations that underlie them, it becomes possible to analyze conflicts and discrepancies. Through further probing, it should be possible to uncover conflicting values associated with different constituencies. ("The managers value the open plan because it affords supervision; meanwhile, professionals feel it denies them status and an appropriate amount of privacy.") Subsequent negotiation would strive to achieve alignment between groups and greater clarification of organizational values. ("We agree there should be some accommodation of legitimate privacy needs, however we do not consider the workplace as an appropriate vehicle to convey status.")

To facilitate organizational learning, therefore, POE needs to be conceived and implemented as part of a process of cultural intervention that allows for the airing and resolution of differences among groups. Various constituencies need to be represented in the process: managers, occupants, consulting architects, and facility managers. POE must actively engage these members in a participatory process that looks at inconsistencies between the building artifact and members' espoused opinions, interpretations, and met or unmet expectations of building performance and qual-

ity. Examining inconsistencies between buildings and what members articulate about them can uncover taken-for-granted assumptions that may aid or hinder progress in facility improvement and better alignment between buildings and organizational goals. The task of negotiating alignment, however, requires skill and concerted effort to successfully mediate differences.

SYSTEMS THINKING

Management theorist Peter Senge (1990) has been instrumental in formulating a systems-based approach to organizational learning. From this perspective, a true "learning organization" is one that enables its managers to transcend the limitations of their own cognitive biases through systems thinking. Organizational effectiveness depends on well-designed organizational systems that enable people see how their own work contributes to organizational effectiveness. Ill-considered or poorly designed systems tend to cause or exacerbate organizational problems.

The general approach recommended by Senge is to focus not on symptoms but to attack underlying structural causes. Accomplishing this however is complicated because causes may be separated from symptoms by both time and space (Forrester, cited in Edmondson, 1996). Therefore, decision-makers need to make decisions with an appreciation of the full extent of possible consequences. Managers need to be aware of the kinds of "dynamic traps" faced by organizations, and more importantly, recognize their own misdiagnoses of causality. For example, a decision-maker's solution may cause problems that he or she attributes to other factors—a widespread phenomenon, according to Senge, because people tend to not blame themselves.

Intervention from a systems perspective requires a team of experts and company managers to jointly diagnose organizational dynamics. Initial sessions are intended to rid the team of a "quick fix mentality" and to comprehend the complexity of organizational systems. Archetypal situations serve as the starting for investigations. Causal maps are developed to illustrate dynamic traps and how they can be counterbalanced. The goal is to show the organization how it can become stuck in self-defeating patterns that prevents it from shifting to a more productive focus. For example, managers may elect to invest in a strategy that fails to deliver desired results. Consulting efforts aim to involve all people throughout the organization, although the system dilemmas uncovered relate to policy issues that can be addressed by top managers who understand the complete system, but not necessarily by lower level organization members.

POE from a Systems Perspective

Viewing POE from a systems perspective helps us to see that buildings should be seen as part of a larger organizational dynamic and that building issues need to be considered with respect to overall organizational functioning and the relationship between the organization and its social context. POE intervention would begin with a workshop to help client managers understand the impact of building design on key measures such as operating costs, and softer measures such as customer satisfaction, worker productivity, and public image. Causal maps would help to identify key indicators to track and help to minimize the gathering of extraneous data.

Figure 2 provides an example of how a causal map helps to illustrate how information obtained through building evaluation can be combined with other relevant information to inform business strategy decisions. In the example, a hotel chain building quality is part of a positive feedback loop that contributes positively to guest experiences which in turn leads to higher occupancy rates, greater profits and more money to maintain or improve building quality. When competitive pressures to lower room rates threaten to reduce profits (a negative feedback loop), a counterbalancing (negative feedback) strategy is necessary to leverage further growth. In this case, it is deemed that additional guest satisfaction cannot be obtained through further investment in building quality. The model suggests that the means to further growth is through enhanced guest services.

While a systems based approach points in a direction toward organizationally relevant POE, its ability to impact organizational policy depends on narrowing the gap between top management, facility managers, and strategic planners who participate in mapping the role that buildings play in organizational dynamics.

REASONING AND INTERPERSONAL COMPETENCE
A reasoning-based approach to organizational learning derives from the work of Chris Argyris. Argyris views organizational effectiveness as a function of interpersonal competence, which requires individuals' awareness of their own interpersonal strategies which enable them to overcome tendencies toward "defensive" reasoning and inability to learn.
Argyris distinguishes between single-loop learning, which detects error without understanding underlying processes, and double-loop learning which questions governing conditions (Argyris, 1982). The latter is also referred to as "learning to learn." He further asserts that while people assume that "espoused theories" underlie their actions, their "theories-in-use" are what people actually use when they act. People are usually unaware of the discrepancies be-
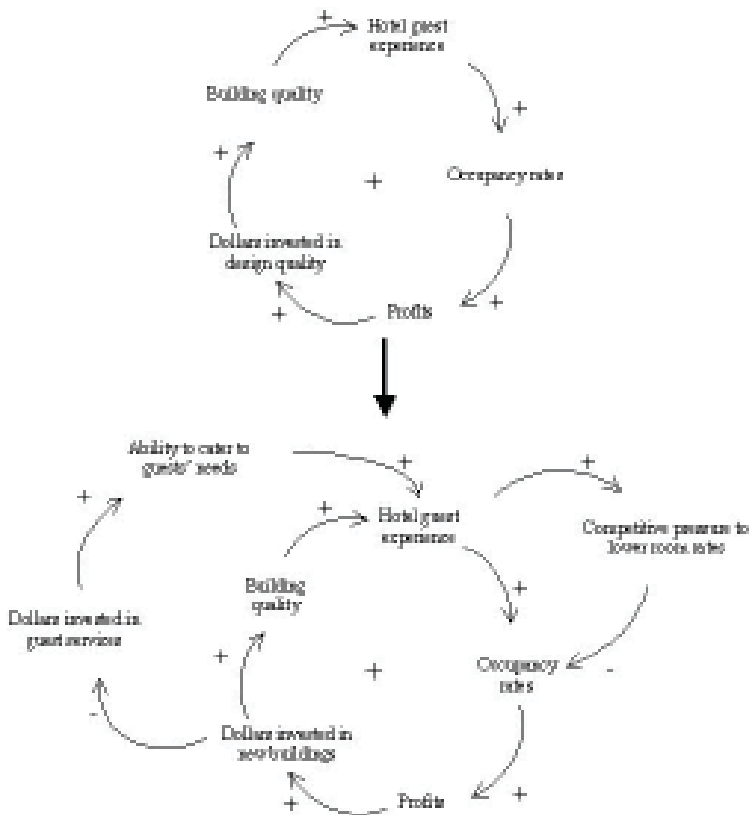
Figure 2. Systems-based model of how building design quality relates to the experience of hotel guests. Arrows indicate positive or negative causal relationships, depending on the sign (+/-). The top "closed system" diagram illustrates the initial positive feedback loop (with a plus sign) that sustains company growth. In the bottom "open system" diagram, two balancing loops (with minus signs) erode profits.

tween the two. Theories-in-use are insidious because they involve making unshared evaluations and arguing positions without reliable data. Individuals who rely solely on their theories-in-use operate from a defensive posture that makes the organization resistant to change.

To counteract these tendencies, Argyris advocates training organization members to use productive reasoning that is based on directly observable data, advocacy based on illustration and testing, and inquiry into others' views. Intervention involves engaging members in a diagnostic process that helps them understand how their own theories-in-use inhibit learning. Members are asked to contribute "cases," which reveal their own strategies for working through difficult problems (Argyris, 1985). Through analysis of these cases, members discover the discrepancies between their actual and espoused strategies. One problem in implementation of this approach however is that even if organization members buy into its assumptions, it requires a great deal of sensitivity to help members overcome their defensiveness and translate their theories-in-use into collective learning (Edmondson, 1996).

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POE from a Reasoning and Interpersonal Competence Perspective

From a reasoning-based perspective, POE can be seen as a strategy to confront the theories-in-use utilized by managers, designers, and others that lead to their defensive reasoning. Individuals involved in building decision-making may be predisposed toward protecting their turf. Architects may feel defensive about attempts to point out failures that they fear may be attributed to them. Building occupants may resist providing useful feedback for fear that negative reporting may brand them as non-team players, or because they fear that resources in the form of space and architectural amenities may be taken from them. Managers under pressure from their superiors to deliver buildings on time and on budget may make decisions without the input of others.

The goal of POE services from a reasoning perspective would focus on these theories-in-use and aim to demonstrate how these inhibit knowledge growth and improvement. Providers of POE services would seek to reveal theories-in-use by inviting organization members to contribute "cases" on difficult building-related issues. A potential example would be in the selection of building materials or components. Discussion of such cases would attempt to recognize where relevant facts are scarce, and more importantly, acknowledge the existence of counterproductive theories-in-use. ("We select building systems on the basis of manufacturers' product literature, but we don't know how they actually perform in the field.") Information from systematic building evaluation would then provide the directly observable data from which people would learn to advance their arguments through productive reasoning.

While a reasoning-based approach holds some promise for POE-inspired learning, it is important to acknowledge just how threatening it can be for individuals to abandon their habits of defensive reasoning, especially when such reasoning is a product of a difficult organizational environment (Edmondson, 1996).

PRACTICE-BASED LEARNING

A practice-based perspective views organizational learning as social endeavor that is "situated" within "communities of practice" (Lave and Wenger, 1991). Such learning involves more than the acquisition of technical knowledge and skill; it also requires developing social and cultural expertise. Thus, practice-based approach to learning highlights the process aspects of 'knowing-in-practice" and "learning-in-organizing" (Gherardi, 1991).

This perspective also emphasizes the value of non-canonical practice—the way work is actually accomplished—as a valuable asset and source of organizational learning and adaptation (Seely Brown and Duguid, 1991). It also suggests the necessity of questioning the assumed objectivity of such privileged modes of knowledge as "scientific" inquiry and official or "canonical" practice. Further, it lends itself to revealing the power relations that determine what counts as legitimate knowledge and gives voice to those who are typically restricted from decision-making because of organizational rank, ideology, gender, or racial ethnicity. A practice-based intervention to enhance organizational learning seeks to engage organization members in processes that heighten their understanding of the "complex interplay" between their daily actions and interactions and organizational development (Abell and Simons, 2000). Personal narratives play a primary role in such consulting situations. In recounting their own consulting experiences, Abel and Simons (2000) describe efforts to create a venue for members to express multiple stories, and offer opportunities for organization members to reflect upon their guiding beliefs, values, and actions, and the potential effect of these on the organization, and vice versa. At the same time, the consultants engage in their own reflexive in order to make sense of the ways in which their own assumptions and actions shape the consulting situation. Thus, a practice based consulting intervention is a "reciprocal process" that develops in relation to all stakeholders (Holmgren, 2000).

POE from a Practice-Based Perspective

From a practice perspective, conducting POE research can be conceptualized as providing a forum for members to air their individual and collective experiences as building users, designers, facility managers, and administrators. The consulting task then is one of encouraging members to reflect on their experiences, and create what Shibley and Schneekloth (1995) call a "dialogic space" for placemaking. Through the narratives that members would share with one another, they would weave a rich tapestry of knowledge that serves as the interpretive context for members to relate what they know about the building to one another and to organizational development.

The physical environment in this approach is seen less as a distinct object for study, and more as a component of the organization's material and social structure. The perspective also calls attention to the actions of building creation and actions of building use. In the creative mode of action, organizational decision-makers and designers incorporate into buildings certain canonical meanings, resources (both physical and social), and rules of interaction. In the sustaining mode of action, organization members assign their own non-canonical meanings to the built setting, and use the setting as they see fit in order to accomplish their tasks. A POE intervention aimed at practice-based organizational learning would thus investigate the extent to which these modes are separated in time and space and seek ways to minimize disjunctions through collaborative assessment and inclusive decision-making.

Implications for POE

All four approaches to organizational learning offer important insights for practitioners of POE. The first three perspectives connect organizational processes with individual cognition. To facilitate effective learning, individual acts of knowing must be revealed, scrutinized, and brought into alignment with broader organizational values, schemas, or strategies. As such, they tend to privilege a managerial perspective (Holmgren, 2000). Conversely, a practice-based perspective focuses on learning as a social phenomenon, and therefore embraces a broad-based participatory approach that acknowledges the potential value of non-canonical expertise. Though practitioners of POE may be drawn to one or more perspectives, there is something to be gained by considering each perspective as a lens for understanding what kind of information might be generated through POE, as well as the implications for organizational effectiveness.

Whatever the perspective, the important point is that POE be understood as a mode of organizational intervention. It is not enough to assume that the results from POE can be made explicit and communicated through design guidelines, computer-aided decision support software, or other media. The facilitation of organizational learning through POE must first and foremost be viewed as one of management, not the collection and dispensation of knowledge. Finally, the perspectives account for important organizational impediments to learning, and suggest how these impediments can be overcome. They each point to a particular need to know, and thus can provide powerful rationales for instituting POE programs. Moreover, and perhaps most importantly, each perspective highlights the necessity of relating building performance to the whole of organizational reality, from individual users, to communities of practice, to organizational sub-cultures, as well as to other organizational knowledges, and intra- and inter-organizational relationships. By attuning their efforts to one or more of these perspectives, environmental design researchers may find that the laudable goal of organizationally relevant POE can be reached by following the path of organizational learning.

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