How can organizational learning be modeled and measured?

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Abstract

This paper introduces questions pertaining to the nature of organizational learning and how it can be measured and modeled. The four papers that constitute this special issue on organizational learning are summarized. The nature of organizational learning found in these papers is described in terms that extend a commonly accepted definition of individual learning. A model of organizational learning consistent with these papers and based on a socially-situated, information-processing view of learning is developed along with associated measures of learning appropriate to the models. Aspects of a model of organizational learning and associated measures are then presented along with suggestions for further investigation in the area of organizational learning.
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The title of this paper is in the form of a question: how can organizational learning be modeled and measured? This is a complex question in the sense that it presumes an answer to another question, namely whether or not there is a phenomenon called organizational learning that can be investigated as the subject of disciplined research. It was this prior question which animated discussions of the *Evaluation and program planning* editorial board early in 2004. The culmination of those discussions was a decision to devote a special issue to the topic even though there was no consensus about the nature or existence of phenomena properly called organizational learning. Two special issue editors were identified to lead the effort[1]. A call for contributions developed by the special issue editors was issued in the Fall of 2004. Topics that were specifically mentioned in the call for papers included:

- Conceptual framework—what is the nature of the phenomena referred to as organizational learning? In what sense do organizations learn and how might this be measured? Is there a reliable theory of organizational learning?
- Models of organizational learning—what useful models of organizational learning exist? Are there models at the macro (organizational) level as well as at the micro (individuals acting collectively) level that are useful for evaluation and planning? What techniques for modeling these phenomena have proven useful?
- Measures of organizational learning—what measures of organizational learning been proposed and implemented and how have they impacted organizations?
- Implications for management and economic planning— what are the implications for management and for planning sustainable growth in various settings and situations based on organizational learning research?

Four papers representing authors in North America and Europe survived the selection and editorial process. These papers address the topics in different ways and from different perspectives. We briefly summarize each of the papers and then explore the four topics identified above. We conclude with thoughts about useful directions for further research on organizational learning in the context of evaluation and program planning.

1. Orthner, Cook, Sabah and Rosenfeld

Orthner and colleagues (2006) examine the impact of organizational learning on after-school programs involving

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[1] Spector proposed the topic to the editorial board and when it was approved agreed to serve as co-editor with Davidsen. Editors of prominent organizational learning journals were contacted; then prominent organizational learning researchers in North America and Europe were invited to propose contributions to this special issue.

at-risk children in Israel and the USA. The organizational learning model adopted in this paper is based on Senge's (1990) *Fifth Discipline*. Organizational learning (OL) is roughly defined as an information management strategy that consists of systematic efforts to transfer knowledge throughout an entire organization. The principles of such a model are investigated in the context of after-school programs in two countries. The fundamental notion is that these principles are relevant to public service agencies as well as to market-oriented corporate contexts.

Specific components used as part of the OL training intervention are leadership engagement, tolerance for errors, vision sharing, asking learning questions, use of tacit knowledge, time for reflective learning, value placed on new ideas, and results-oriented processes. The basic hypothesis that motivated the study was that addressing these components in OL training of after-school staff would result in lower rates of behavior problems with the at-risk children.

A new instrument was designed and refined specifically for this study. OL cultural facets were assessed using three subscales representing innovation, intellectual safety and goal-centeredness. The structure of learning was measured with subscales developed specifically for OL—collaboration, planfullness and diffusion. The hypothesis pertaining to fewer behavior problems with children in programs involving OL trained staff held up with significance in the USA but not in Israel, although the results were in the hypothesized direction.

The value of this study is two-fold. First, it shows that OL principles have applicability in human service agencies and school contexts as well as in corporate contexts. Second, it establishes the utility of a new measure of learning capacity with specific scales and measures to assess organizational learning.

2. Barlas and Yasarcan

The paper by Barlas & Yasarcan (2006) addresses the dynamics of goal formation and learning in organizations. The authors approach this issue using system dynamics—that is to say by way of modeling and simulation. The process of goal formation, whether explicit or implicit, is an important determinant in the dynamics of organizations. Consequently, understanding such processes is a key to understand and assess the performance of learning organizations. System dynamics offers a way to identify the structures governing these processes—how goal formation results from organizational dynamics and how the organization responds to the resulting goals as they are formed over time. The main idea is, therefore, that goal formation is part of an organizational feedback process in which the organization itself, and its performance with respect to goal attainment in particular, plays a central role in the development of organizational goals and vice versa.

A goal formation process can take a variety of forms. The authors demonstrate how goal formation considered within the context of an organizational feedback process has characteristics that may influence overall organizational behavior, including the dynamics of goal formation and modification.

In the context of goal formation and organizational learning, then, assessment includes (1) identifying the structural origin (diagnosis) of organizational performance, and (2) identifying structural changes (treatment) in the organization—especially those that involve the goal formation process—that may enable the organization to realize its performance potential. When successfully conducted, the formation of goals is typically considered part of a double-loop learning process in the organization (Argyris, 1992). The modeling and simulation of such a double-loop process, may, in turn, be built into a model of organizational learning. In that sense, Barlas and Yasarcan have contributed a structural design for organizational learning. Understanding and assessing what Barlas and Yasarcan call structured learning can lead to insight about the efficacy of goal-performance interactions within organizations.

Specifically, Barlas and Yasarcan extend existing models of goal formation and develop a more general theory by including organizational capacity limitations on performance improvement rates and non-linear interactions in goal erosion. Using this theory, Barlas and Yasarcan explain a variety of patterns of behavior that could result from a goal formation process; their theory can be used to generate a goal formation strategy for organizations that is likely to result in measurable improvements in performance.

3. Lick

The paper by Lick (2006) provides a passionate argument in favor of a change creation process in schools and other organizations that consists of defining a desired future state of affairs and then designing processes and measures to work toward that future. As with the other papers in this special issue, Lick draws on the ideas of a learning organization found in Senge (1990) and advocates a universal principle of change, namely that learning must precede change (systemic change of the kind discussed in the paper).

Drawing on a variety of sources, Lick focuses on collaborative work systems and teams as critical in a learning organization. Lick describes, based on prior research, effective teams as synergistic learning communities, which are characteristics also mentioned in the other papers in this special issue. Of particular interest in Lick's framework is the notion of co-mentoring in which individual team members act as guides and advocates for others and are in turn guided and supported by other team members.

Implementing effective learning teams within an organization requires alignment of resources, systems, relationships and related items within and across the organization. Lick emphasizes the practical aspects of implementing change processes to achieve alignment and implement effective learning teams, including an eight step learning design process that includes such things as fostering co-mentoring, sharing findings, and utilizing learning resources. Lick's discussion concludes with an extended illustration of these principles in