Organizational learning research: Past, present and future

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Abstract
The article provides a brief overview of past research on organizational learning. Current research themes are identified, including taking a fine-grained approach to characterizing organizational experience, understanding the role of the organizational context in organizational learning, and analyzing processes and outcomes of knowledge creation, retention and transfer. The article concludes with a discussion of future research that is likely to advance our understanding of organizational learning.

Keywords
creativity, knowledge management, knowledge transfer, learning curves, organizational learning

> Time Present and Time Past
> Are both perhaps Present in Time Future
> And Time Future contained in Time Past
> (TS Eliot, *Burnt Norton, Number 1*, *Four Quartets*,1941)

The quotation from TS Eliot is fitting as a beginning to this article on two counts. First, just as Elliott wrote about the present, past and future, the article aims to describe the past, present and future of organizational learning research. Second, the quote befits an article on organizational learning because organizational learning is the process through which the past affects the present and the future.

The article begins with a brief overview of past research on organizational learning. The publication of Levitt and March's (1988) *Annual Review of Sociology* article is used as a break point between past and current work. Current themes in the literature from 1988 to 2010 are then identified. The chapter concludes with a discussion of future research that is likely to be fruitful. Concerning the last point, my goal is not to predict the future but rather to suggest research directions that I believe will advance our understanding of organizational learning. Before discussing

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the past, present and future of organizational learning research, organizational learning is defined and the sub-processes of organizational learning are discussed.

Organizational learning: definition and sub-processes

Although debate has occurred about whether organizational learning should be defined as a change in cognition or a change in behavior, researchers now acknowledge that learning can manifest itself in changes in beliefs/cognitions or actions/behavior (Easterby-Smith et al., 2000). Thus, most researchers would agree with defining organizational learning as a change in the organization's knowledge that occurs as a function of experience (for example see Fiol and Lyles, 1985). The knowledge the organization develops can be explicit or it can be tacit and difficult-to-articulate (Kogut and Zander, 1992). The knowledge can manifest itself in a variety of ways, including changes in cognitions, routines and behaviors.

Although individual members are the mechanisms through which organizational learning generally occurs, the knowledge that individuals acquire would have to be embedded in a supra-individual repository for organizational learning to occur. That is, the individual's knowledge would have to be embedded in the organization so that other members could access it, even if the individual left the organization. The knowledge can be embedded in a variety of repositories or knowledge reservoirs, including tools, routines, social networks and transactive memory systems (Argote and Ingram, 2000; Walsh and Ungson, 1991).

Organizational learning can be conceived as having three sub-processes: creating, retaining and transferring knowledge. When organizations learn from experience, new knowledge is created in the organization. The knowledge can be then retained so that it exhibits some persistence over time. Knowledge can also be transferred within and between units. Through knowledge transfer, one unit is affected by the experience of another (Argote and Ingram, 2000) or learns vicariously (Bandura, 1977) from the experience of other units (see Easterby-Smith et al., 2008, for a review of research on inter-organizational learning).

The past

Before the late 1980s, research on organizational learning flowed in three streams with little co-mingling of their waters. One stream of research illustrated how defensive routines prevent learning (for example see Argyris and Schon, 1978). This work, which was primarily psychological, relied mainly on clinical case studies. Another stream of research, whose source was in the work of Cyert and March (1992), conceived of learning as changes in the organization's routines, which affect future behavior. This work, which was sociological, relied mainly on simulations to develop theory. A third stream of research in the 'learning curve' tradition examined how characteristics of performance such as errors or costs changed as a function of experience (Dutton and Thomas, 1984). This work, which was conducted mainly by economists and industrial engineers, relied on archival field studies to estimate rates of learning.

The present

Although research in each stream has continued since the late 1980s, a co-mingling of the streams has occurred to some extent (Argyris, 1996; Miner and Mezias, 1996). This co-mingling as well as the outpouring of research on organizational learning that has occurred in the last 20 years produced a large river of research on organizational learning that is wide and has several deep

currents. These currents are now discussed. Because organizational learning is a change in the organization that is a function of experience, I begin with a discussion of the role of experience in organizational learning processes and outcomes.

Experience

Organizational learning occurs as organizations acquire experience. Rather than characterize the experience of an organization at a gross level, researchers are taking a fine-grained approach to characterizing the experience of the organization along various dimensions (Argote and Ophir, 2002; Ingram, 2002; Schulz, 2002). For example, experience can be direct or vicarious (Levitt and March, 1989). Experience can vary in its novelty (Lampel et al., 2009; March, 1991), ambiguity (Bohn, 1995), or heterogeneity (Haunschild and Sullivan, 2002). Experience can be a success or a failure (Sitkin, 1996). Experience can be acquired from co-located or geographically dispersed units (Argote et al., in press). Experience can also vary in its pace and timing (Levinthal and March, 1981; Pisano, 1994).

Argote and Miron-Spektor (2011) described the benefits of taking a fine-grained approach to characterizing experience. These benefits include enabling us: to specify when experience has positive or negative effects on organizational processes and outcomes (see March, 2010), to understand the relationships among different types of experience, and to design experience to promote organizational learning.

Context

Another current theme in research on organizational learning is the importance of the context in which learning occurs. Studies are showing for example, that organizational learning is affected by whether the organization has a learning or performing orientation (Bunderson and Sutcliff, 2003), whether organizational members perceive that they are psychologically safe (Edmondson, 1999), whether members share a superordinate identity (Kane et al., 2005), and power relationships within the organization (Contu and Willmott, 2003). Thus, the context moderates the relationship between experience and learning processes and outcomes.

Organizational learning processes: creating, retaining and transferring knowledge

Although research has been done on all three learning sub-processes of creating, retaining and transferring knowledge, more work has been done on knowledge retention and transfer than on knowledge creation. In the area of knowledge retention, researchers have examined whether organizational knowledge is cumulative and persists through time or whether organizational knowledge decays or depreciates (Argote et al., 1990; Benkard, 2000; Darr et al., 1995). Research aims to understand what explains the variation in organizational forgetting and the role of various knowledge repositories in retaining knowledge. Research on the knowledge repositories of routines and transactive memory systems is particularly active. Research on rules (Kieser and Koch, 2008) and routines examines how recurring patterns of activities develop (Cohen and Bacdayan, 1994) and change (Feldman and Pentland, 2003). Research on transactive memory systems or knowledge of who knows what (Wegner, 1986) examines how those memory systems develop (Hollingshead, 2001; Lewis, 2004) and their effects on performance (Liang et al., 1995).

In the area of knowledge transfer, researchers have examined barriers to and facilitators of transfer. While early work examined relational and cognitive factors affecting knowledge transfer (Darr et al., 1995; Szulanski, 1996), more recent work has focused on motivational (Osterloh and Frey, 2000; Quigley et al., 2007) and emotional factors (Elkjaer, 2004; Levin et al., 2010). Current research also examines mechanisms through which knowledge transfer occurs, including social networks (Hansen, 1999; Reagans and McEvily, 2003), personnel movement (Almedia and Kogut, 1999; Kane et al., 2005), routines (Argote, 1999), templates (Jensen and Szulanski, 2007) and alliances (Gulati, 1999). Research also examines the implications of organizational learning and knowledge transfer for competitive advantage and strategic behavior (Argote and Ingram, 2000; Teece et al., 1997; Zack, 1999).

The future

Our understanding of organizational learning would be increased by continuing research on current themes, filling gaps in our theories and empirical evidence, using a variety of methods, articulating the relationship between learning and dynamic capabilities, and responding to social and technological developments. Research areas that would especially benefit from more theorizing and empirical research include knowledge creation and organizational capabilities. Social developments, such as new organizational forms, and technological developments pose both challenges to and opportunities for organizational learning.

Knowledge creation

Research on knowledge creation is needed to round out our understanding of organizational learning (see also Antonacopoulou, 2009, who argues for more attention to how knowledge is co-created). Research on knowledge creation would benefit from building on research on creativity, especially research on how experience affects creativity (for example see Audia and Goncalo, 2007; Taylor and Greve, 2006). For example, Gino et al. (2010) found that direct task experience led to more creative products than indirect or vicarious experience.

Organizational capabilities

Important concepts in strategic management such as dynamic capabilities (Teece et al., 1997) relate to concepts of organizational learning and its sub-processes (Vera, 2009). For example, Argote and Ren (2010) argue that transactive memory systems, or knowledge of who knows what (Wegner, 1986), provide a micro foundation of dynamic capabilities. Transactive memory systems develop from experience working together and enable groups both to be more efficient (Liang et al., 1995) and more innovative (Gino et al., 2010). A greater understanding of how dynamic capabilities develop through organizational learning is needed.

Multiple methods

Using multiple methods will facilitate research on organizational learning. Both qualitative or interpretive and quantitative methods hold promise for advancing our understanding of organizational learning (Li et al., 2009). A new quantitative approach that seems likely to lead to important insights builds on developments in neuroscience that enable us to see which parts of the brain are

activated (Senior et al, 2010). For example, research on organizational learning makes the distinction between mindful (Weick and Sutcliff, 2006) and less mindful processes (Levinthal and Rerup, 2006). Mindful processes appear to be examples of controlled processes (Shiffrin and Schneider, 1977) while less mindful processes are examples of automatic ones. Researchers have established that controlled processes are associated with activity in particular areas of the brain. Thus, neuroimaging techniques can enable researchers to test whether participants posited to be engaging in mindful processes are engaging in those processes. Physiological measures also hold promise for studying emotion and organizational learning, an under-researched topic that would benefit from additional study. The various physiological techniques show promise for helping us understand the mechanism through which organizational learning occurs.

New forms of organizing

New organizational forms can make it harder for organizations to interpret experience while at the same time providing opportunities to learn from new sources of experience. For example, learning can be challenging in virtual organizations in which members are geographically distributed around the globe. Virtual organizations typically communicate through electronic means rather than face-to-face (Gibson and Gibbs, 2006). The lack of social cues can make communication and the interpretation of experience more difficult (Sproull and Kiesler, 1991). Although learning in geographically distributed units is difficult, it can also expose focal units to new knowledge. Cummings (2004) found that teams that learned more from external sources were more productive than their inwardly focused counterparts.

Developments in technology

Research is also needed on how developments in technology affect organizational learning. Evidence of the effects on organizational learning of current knowledge management systems is mixed. Kim (2008) found that the use of documents from a knowledge management system generally had a positive effect on performance especially for members who did not have alternative sources of information and who dealt with products that did not become obsolete quickly. By contrast, Haas and Hansen (2005) found that the use of documents from knowledge management systems had a deleterious effect on performance, and that the effect was even more negative for experienced teams and teams working in a competitive environment.

New knowledge management systems enabled by Web 2.0 technologies have the potential to affect organizational learning and knowledge management more positively than previous generations of systems. While previous systems operated more as knowledge repositories and directories of declared expertise, new systems provide communication capabilities as well as the capability to identify experts based on who provides answers to queries. The communication capabilities provide rich media for transferring knowledge; expertise identified through the system may be more accurate and useful than self-declared expertise. Research is needed on how these new and emerging technologies affect organizational learning.

Conclusion

Research on organizational learning will continue to pour forth in the foreseeable future. The research will be fed by different disciplines and different methods. Although some approaches

might run up on shoals in shallow water, strong currents will carry the research forward to enrich our understanding of organizational learning. Because organizational learning is central to the success of organizations, a greater understanding of organizational learning promises to improve the performance of organizations and the prosperity of their members.

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