Reviewing Theory and Research on Informal and Incidental Learning

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Leaders and employees of today's organizations typically assume increasing responsibility for their own and their organization's learning. Much of that learning is informal or incidental. This article reviews theory and research to update that model and identify future research challenges. Through this review, groundwork will be laid for developing a revised model for understanding and leveraging such learning.

Keywords: Informal Learning, Incidental Learning, Lifelong Learning

Problem Statement

Lifelong learning has been in the lexicon of educators since UNESCO's prescient call (Faure, 1972). Over time, lifelong learning has increasingly been recognized as essential to meet demands for new knowledge, skills, or credentials at work and in families and communities. In organizations, its recognized value has grown along with interest in flexible, high performing organizations whose leaders are challenged to take more responsibility for their own and their team's learning, as well as learning by the organization as a whole. Employees are increasingly expected to be self-directed in their learning in order to keep up with rapid changes in knowledge and the knowledge economy. Depending on the company, and on status/level, learning may need to occur outside of work hours and be paid for by employees. Some portion of lifelong learning occurs through formal education, continuing education, or training. Much lifelong learning in organizations increasingly takes place on the job, sometimes in structured ways and with the aid of technology, but more often through informal or incidental learning that is integrated with work (Marsick and Watkins, 1990; Raelin, 1997). Mechanisms have been introduced that aid in such learning, such as After Action Reviews and Quality tools that provide mechanisms for driving out error and for continuous learning. Many structured educational programs incorporate periods of action learning from real life experiences within the program's design, creating a more formal laboratory to learn informally or incidentally from experience. An increase in the variety, unfamiliarity, and scope of information sources complicate work. Formerly routine operations have become more non-routine, calling for judgment that may require further learning. Learning demands are magnified by speed and performance pressures.

Marsick and Watkins (1990) developed an heuristic to describe the process of learning when integrated with work. Their model [see Figure 1 below] demonstrates how learning grows out of the workplace context, is triggered by something in that context, proceeds through identifying and trying solutions, and is enhanced by critical reflection throughout the process.

Theory on informal and incidental learning has centered in John Dewey's (1938) theory of learning from experience and in Kurt Lewin's (1951) field theory wherein he developed an understanding of the way behavior changes as a result of the interaction of individuals and their environment. New developments in today's fast-paced workplace — globalization, uncertainty, rapid change, diversity, technology, and virtual work — raise questions about how to revise this theory. A literature review is offered to update this learning theory.

Theoretical Framework

The theoretical framework used in this paper is informal and incidental learning as defined by Marsick and Watkins

(1990) and based on the work of Dewey (1938) and Lewin (1951) and on theory that builds on one or both of these sources, namely action science (Argyris and Schön, 1974, 1978) and transformative learning (Mezirow, 1990). Marsick and Watkins (1990) defined informal and incidental learning by contrast with formal learning:

> Formal learning is typically institutionally-sponsored, classroom-based, and highly structured. Informal learning, a category that includes incidental learning, may occur in institutions, but it is not typically classroom-based or highly structured, and control of learning rests primarily in the hands of the learner. Incidental learning…is defined by Watkins as a byproduct of some other activity, such as task accomplishment, interpersonal interaction, sensing the organizational culture, trial-and-error experimentation, or even formal learning. Informal learning can be deliberately encouraged by an organization or it can take place despite an environment not highly conducive to learning. Incidental learning, on the other hand, almost always takes place although people are not always conscious of it (1990, p. 12)

These authors are interested in individual learning within the context of organizational learning and change (Watkins and Marsick, 1993). They argue that workplace learning grows from a social contract among people who work together to achieve higher-order collective goals, ranging from immediate work groups to complex, even boundary-spanning, work organizations. Learning at these different levels is all the more apparent in informal and incidental modes because such learning is not subject to design and control by trainers whose function is to simplify the context so that skills can more easily be taught. Marsick and Watkins (1990) are less concerned with *who* organizes a specific activity or teaching process, and thus controls inputs, than with understanding *how* people learn using informal approaches. In practice, workers may not set out intentionally and explicitly to accomplish particular ends through preplanned means. Often, their choices evolve from their interaction with others in the midst of work activities. Sometimes they become conscious of these choices; at other times, they remain partially or completely unaware.
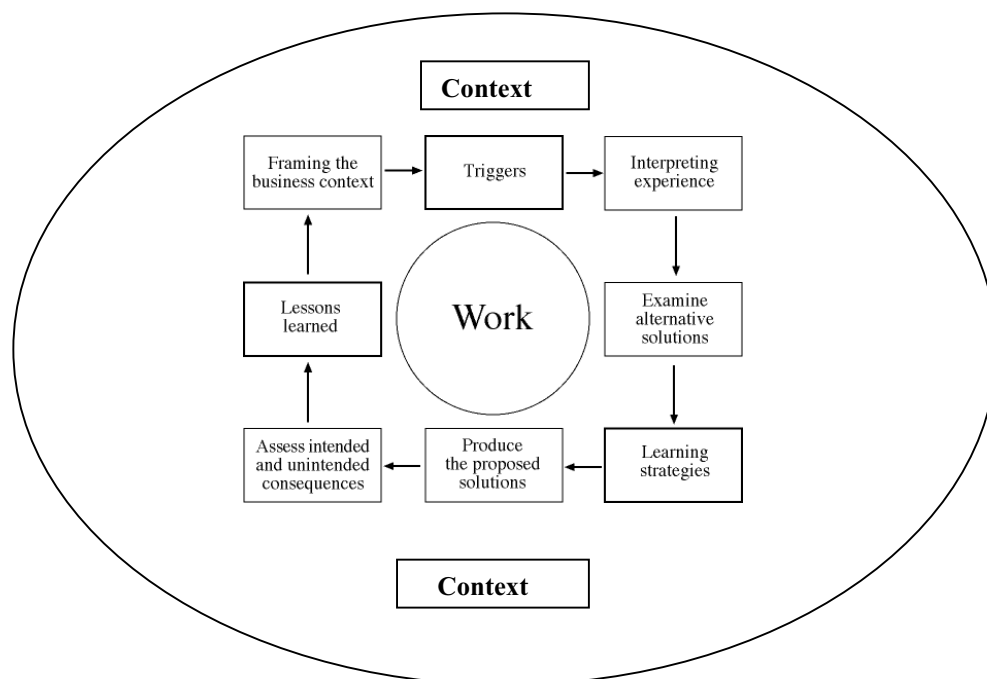

Figure 1. *Re-Conceptualized Informal and Incidental Learning Model (1999)*

Source: M. Cseh, K. E. Watkins and V. J. Marsick, "Informal and Incidental Learning in the Workplace, *Proceedings of the Annual Conference of the Academy of Human Resource Development,* 1998.

Cseh (1998) found that the foremost task faced by participants in her research (owner-managers of small private companies in Romania) was to make sense of the rapidly shifting environment and that, in this, interpretation of context dominated the informal learning process. Callahan (1999) also identified context as important in her study of members of divergent professional cultures who worked together to create innovative new businesses in a publicly-

funded small business incubator in the Southeastern United States. Context was critical for bridging learning, that is knowledge acquired through conscious and unconscious efforts to enhance empathic understanding of the other person's meaning. The incubator provided a holding environment for learning from the struggles and challenges of others. Cseh, Watkins and Marsick (1999) reformulated the earlier model of informal and incidental learning based on these insights (Figure 1).

Research Questions and Methodology

The authors reviewed literature to answer the following questions in order to update informal and incidental learning theory, based on research to date and new theory, and to identify challenges for further research:

- How can theories about tacit/implicit knowing, whole person learning, and communities of practice augment theory about informal and incidental learning in today's workplace?
- What implications does a content analysis of research studies on informal/incidental learning offered in this literature review have for the re-design of the original framework and for future research testing this re-designed framework?

The authors review theory and related research about tacit/implicit knowing, whole person learning, and communities of practice.

Results and Findings

How Can Theories About Tacit/Implicit Knowing, Whole Person Learning, And Communities Of Practice Augment Theory About Informal And Incidental Learning In Today's Workplace?

Three areas that seem particularly important for understanding informal and incidental learning in today's workplace are tacit/implicit knowing; whole person learning; and communities of practice.

Tacit/implicit learning. Implicit learning, like incidental learning, occurs without the learner's awareness. The current stream of inquiry into implicit learning in workplaces of all kinds is frequently associated with studies of expertise, tacit knowing, innovation, and organizational learning (Argyris and Schön, 1996; Gleespen, 1996; Kuchinke, 1996; Nonaka and Takeuchi, 1995; Raelin, 1997). Through tacit learning, we construct the mental, emotional, and interpersonal frameworks for processing all of our experience into knowledge. Unlearning and new learning can occur when frameworks are adjusted or reconstructed to accommodate new experience that does not fit old models. At one extreme, implicit learning and tacit learning can equate to the very basic, even primitive, inputs that might by-pass conscious thought altogether. At the other extreme, such learning includes the abstractions that allow human beings unconsciously to negotiate complex rule-governed signals from the environment (Reber, 1989) which bombard us frequently, often simultaneously and even contradictorily. Some researchers concentrate on the formation or recognition of attitudes in their discussions of implicit learning, as do Argyris and Schön (1996) in their discussions of the mechanisms of action science. However, as Seger (1994) pointed out, implicit learning also includes the acquisition of skills and habits, again as these result from non-conscious experience or observation.

Seger's 1994 overview of this segment of cognitive psychology was an attempt to sketch the contours of a unified theory of implicit learning. She also reported her own research, principally concerning how implicit learning operates within the human nervous system. She acknowledged the elusive nature of the phenomenon -- that it is "not fully accessible to consciousness…more complex than a single simple association …does not involve processes of conscious hypothesis testing" (p. 164) and that many issues are controversial, such as the exact organic mechanism whereby implicit becomes explicit knowledge (p. 188). Nevertheless, she was able to certify that incidental learning truly exists, because it survives amnesia. Seger's conclusion — that the preponderance of findings, her own and others', reveals that "in the face of strongly held explicit beliefs, knowledge gained through implicit learning is disregarded" (p. 189) — is arguable. Reber (1993), for example, is a leader among theorists who hold that implicit learning is more robust and more durable than explicitly mastered skills and beliefs.

Cleermans (1995) echoed the call for more research about the role of implicit learning in training, assessment, and knowledge elicitation, which is central to the design of expert systems. At the same time, he provided an unusually clear statement about the relationship between implicit and incidental learning. Implicit knowledge (1) tends not to be expressible through free recall, (2) tends to be associated with incidental learning conditions, (3) gives rise to a phenomenal sense of intuition, and (4) remains robust in the face of time, psychological disorder, and secondary tasks (p. 591).

Whole-person learning. Yorks and Kasl (2002) have developed a theory of whole-person learning that bears on what can be learned from implicit/tacit learning theory. They build on the work of Heron (1992) and Reason (1998) who use this thinking as the basis for the practice of learning through collaborative inquiry. Yorks and Kasl make

the distinction between experience as a noun, i.e. the object of cognitive analysis via learning, and experience as a verb, i.e., the act of learning within experience.

For Heron, the affective is the psychological basis for experiential knowledge. He makes a useful distinction between 'feeling' and 'emotions,' two words often used interchangeably. Heron (1992) refers to feeling as the capacity for participating in wider unities of a whole field of experience. This is distinct from emotion, which is defined as the intense, localized affect that arises from the fulfillment or frustration of individualized needs. Feeling is the phenomenological grounding for the meaning that people eventually make of their experience by conceptualization through reflection and the resultant discrimination. Experiential knowledge is thus considered a pre-linguistic form of knowing gained "through participation in, and resonance with, one or more beings in the unified field of being" (Ibid, p. 162). For Heron, experiential learning is pre-conceptual, "acquiring knowledge of being and beings through empathic resonance [sic. and] felt participation" (Ibid, p. 224). In essence, feelings and the experiential knowledge that they hold are brought into awareness through the use of various forms of expression that engage the learner's imaginal and intuitive processes, which in turn connects these processes to new conceptual possibilities.

Whole-person learning theory integrates feelings and emotions into the cognitive design of the informal/incidental learning framework. Rather than simply taking emotion as an "object" of analysis, this theory makes it possible to look at feeling/emotion as essential components of learning. Tacit/implicit learning can be understood and made evident through what Heron, Reason, Yorks and Kasl describe as presentational knowing: dramatic, participatory, aesthetic and experience-based formats that convey intuition and tacit knowledge in ways that are precluded by overly-analytic forms of learning.

Communities of practice. Informal/incidental learning at work is increasingly socially situated and socially constructed. Wenger (1998) provides a useful framework for understanding such learning in his discussion of communities of practice. His social learning theory speaks to the way in which people make meaning of their lives and construct their identity by participation in social practice in natural communities tied by common interests. His discussion of social learning as social practice fits well with the context of reflective learning in most workplaces:

> The concept of practice connotes doing, but not just doing in and of itself. It is doing in a historical and social context that gives structure and meaning to what we do. In this sense, practice is always social practice.
>
> Such a concept of practice includes both the explicit and the tacit. It includes what is said and what is left unsaid; what is represented and what is assumed. It includes the language, tools, documents, images, symbols, well-defined roles, specified criteria, codified procedures, regulations, and contracts that various practices make explicit for a variety of purposes. But it also includes all the implicit relations, tacit conventions, subtle cues, untold rules of thumb, recognizable intuitions, specific perceptions, well-tuned sensitivities, embodied understandings, underlying assumptions, and shared world views. Most of these may never be articulated, yet they are unmistakable signs of membership in communities of practice and are crucial to the success of their enterprises. (p. 47)

Wenger explains many of the dynamics of communities of practice using three core concepts: engagement (to create and maintain the community), imagination (which is central to learning), and alignment (which involves social interaction). Wenger argues that "Engagement, imagination, and alignment are all important ingredients of learning — they anchor it in practice yet make it broad, creative, and effective in the wider world" (p. 217). Wenger says that reflective practice emerges from the joining of engagement and imagination. Among other things, "Imagination enables us to adopt other perspectives across boundaries and time, to visit 'otherness' and let it speak its own language" (Ibid). When alignment combines with imagination, people can "align our activities" and "understand why" because it clear that what we do contributes to a larger vision that is meaningful to the community. "Imagination thus helps us direct our alignment in terms of its broader effects, adapt it under shifting circumstances, and fine tune it intelligently" (p. 218). And finally, "The combination of engagement and alignment brings various perspectives together in the process of creating some coordination between them" (Ibid).

These three factors — imagination, engagement, and alignment — enhance our understanding of *social* reflective learning. They add the following to our model: 1) an understanding of how valuing difference enriches social learning, 2) a deepened appreciation of the social context for learning, and 3) respect for the challenges involved in aligning viewpoints as meaning is negotiated within the social context.

What implications does a content analysis of research studies on informal/incidental learning offered in this literature review have for the re-design of the original framework and for future research testing this re-designed framework?

A preliminary review of research confirms the conclusion that informal learning is increasingly pervasive and central to learning in organizations. Bruce, Aring, and Brand (1998) suggested that as much of 70% of all workplace

learning is informal, confirming prior findings on managerial learning at Honeywell (Zemke, 1985). Verespej (1998: 42) concluded that "62% of what employees need to know to do their jobs is acquired through informal learning in the workplace", Mumford (1993) identified informal learning as the heart of managerial problem solving, echoing the findings of earlier studies by Burgoyne and Hodgson (1993) and Davies and Easterby-Smith (1984). Today, these percentages have even become standard rules of thumb for managerial development. GE developed a 70-20-10 leadership development practices rule that shows up in other companies: that is, that such development should involve 70% on-the-job learning, 20% learning through relationships outside of one's area of focus, and 10% structured learning/training (Corporate Leadership Council, 2004).

Bruce, Aring, and Brand (1998) highlighted the critical role of contextual factors in informal workplace learning, and they listed intrapersonal and interpersonal skills as well as cultural assimilation among the participants' learnings. Much of the learning behavior encompassed in Verespej's (1998) study is incidental, including (1) aspects of intrapsychic and interpersonal skills, (2) cultural information, shared values, and goals, (3) ability to devise and communicate ideas, and (4) how to reflect on different approaches to problems. Moreover, the learning situations described align with the settings that nurture incidental learning, such as team participation, meetings, mentoring, peer-to-peer interchanges, and customer interaction.

Marsick and Volpe (1999) described informal learning as integrated with work and daily routines; triggered by an internal or external jolt; and an inductive process of reflection and action that is often linked to the learning of others. A review of dissertation studies identified patterns of learning methods. Trial-and-error (also referred to as learning from mistakes or from experience) was by far the most often cited. Other frequently-cited methods included reading pertinent materials, observing the examples (models) of peers, supervisors, and "veterans," and finally, group involvement. The ability to critically reflect on one's own experience and mental models, either pre-existing or developed during the period of study, definitely enhanced learning. All types of learning occurred, but chiefly the learning of attitudes (like self-confidence and faith development) and both "hard" and "soft" skills. Acquisition of knowledge (information) was generally accomplished through self-directed learning projects. Ultimately, while these findings generally support assertions that the large majority of learning is informal and incidental, there was also recognition of the synergy between formal and informal/incidental modes.

Callahan (1999) proposed a re-positioning of incidental learning in relationship to informal learning based on her research on learning across organizational and professional boundaries in the business incubator. Her evidence, supported by findings of other dissertation studies, underscored the role of reflection in making positive use of incidental learning. Study participants revealed various levels of self-awareness. For some, reflection had become a habit in their lives. For others, either their preparation for the interview or the dialogue itself introduced an external prompt for reflection. When participants recounted stories and described their thoughts and activities, engaging their opinions and memories but not their reflection, the values and beliefs accessible to them remained unchanged. They would approach future problem-recognition and problem-solving occurrences without benefit of improved tools.

In a study to determine whether two different organizational settings of CPA practice produced substantially different or equivalent learning opportunities of a practicing CPA, Watkins and Cervero (2000) examined three sources of data including a work audit, interviews, and surveys from the principal parties. They concluded that the learning opportunities available in each firm were substantially equivalent. What is important for this review is that they focused on the organization as a context for informal and incidental learning—what support, structures, and incentives were in place to promote an individual's informal and incidental learning. Watkins and Marsick (2002) extended their earlier work on informal and incidental learning to embrace a vision of a learning organization—an organization that has an enhanced capacity to learn and to change, whose engine is a learning culture purposefully structured to foster informal and incidental learning.

Conclusions and Recommendations

This portion of the paper draws conclusions for changes to the original informal/incidental learning framework and implications for research to test that augmented framework. We speculate that there may be a progression, or possibly a refining, of learning processes moving from incidental learning through informal learning to self-directed learning as intention, reflection, awareness, and accessibility increase. Whether the progression is linear or spiral requires additional inquiry. If the latter, the metamorphosis would approximate Nonaka and Takeuchi's (1995) spiral of organizational knowledge creation (p. 73), but at the level of individual learning.

Controversy about the nature -- and even the existence -- of implicit learning is not likely to be resolved soon. But theory and research in this area continues to sharpen distinctions between informal and incidental learning, and adds to understanding about how to enhance the latter. Whole-person learning theory contributes to this discussion by emphasizing the role of affect in informal and incidental learning.

The theory of communities of practice provides insight into how people interact around common interests, and hence, can be used to better leverage informal and incidental learning by providing support, structure, and incentives for this kind of learning. The notion of communities-of-practice is based on two fundamental characteristics of humankind -- people are social beings, and people learn and pass on knowledge.

We conclude from this review that a key research challenge is the tacit nature of incidental learning. Such learning is difficult to observe, and when it is observed, it moves outside the incidental learning domain. When incidental learning is not examined, it can be a source of tacitly held erroneous beliefs. Marsick and Watkins (1990) noted that error may become embedded at any phase in a largely tacit learning process, leading to inaccurate or at least challengeable assumptions. For example, a triggering event may be framed by an individual as an interpersonal problem when in fact it is a system problem masquerading as an interpersonal problem. Similarly, people may select a possible solution to a problem, even if the problem is accurately defined, that does not solve the problem. The solution may be inappropriate to the context, or people may not have the skill adequately to implement the solutions that they can envision.

While we have come far in our understanding of informal and incidental learning, further research is needed. Callahan (1999) notes that research on informal and incidental learning has been largely qualitative case studies focused on the types and nature of informal and incidental learning. There are few large-scale studies that draw on what is known to examine the depth and scope of such learning within or across companies and industries. Future research will need to include intervention research aimed at learning what works to enhance this type of learning.

We do not yet understand how to support this kind of learning without making it artificial or destroying it with too many rules and regulations. Watkins and Cervero's work lead us to ask what conditions, resources, and policies support or squelch informal and incidental learning? Additional research would also increase our knowledge of the impact of new distributed working arrangements (including telecommuting, outsourcing, and use of contingency workers) on informal and incidental learning in workplaces. Finally, little is known about cultural differences in incidental learning. For example, what is the impact of individualistic versus collectivistic traditions or culturally divergent senses of time on informal and incidental learning?

Contributions to Knowledge

This research updates knowledge on the nature of informal and incidental learning in fast-paced, organizational environments that focus on individual development within and across communities and organizations. In light of a post-modern understanding of meaning making, the rational nature of the earlier model does not reflect the deeper human dimensions reflected in the theories of tacit knowledge, whole person, and communities of practice. Further research will include a content analysis of 33 dissertation studies on informal learning and 7 dissertation studies on incidental learning. These dissertations will be used since most of these studies specifically draw on the Marsick and Watkins' model of informal and incidental learning. The results of this secondary analysis will enable us to revise this model.

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