A Four-Part Model of Informal Learning: Extending Schugurensky's Conceptual Model

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Introduction

Adults are learning all the time, especially in an era of knowledge work in which lifelong learning is integral to the economy (Bennett & Bell, 2010). Technology is offering unprecedented access to new information and to knowledge communities, and there is a great need for adults to learn informally to keep up with the fast pace of life. This paper examines informal learning and proposes an extension of Schugurensky's (2000) typology, which Merriam, Caffarella, & Baumgartner (2009) describe as occurring in natural settings with learner direction, even if the learner does not recognize learning is occurring. The extension adds another form of informal learning, *integrative learning*, to conceptualize a four-part model of informal learning that is supported by implicit processing literature in Psychology.

The roots of this paper began with a manuscript I wrote for a human resource development conference. I modeled connections between organizational culture and knowledge management literature, noting that both areas of inquiry placed emphasis on tacit and explicit forms of knowledge (Bennett, 2005). Both areas also suggested change in tacit knowledge was possible, but knowledge management literature focused more so on knowledge creation processes than organizational culture. In particular, Nonaka's (1998) knowledge creation patterns indicated that tacit knowledge could be transferred from one individual to another through a tacit to tacit exchange, or a tacit to explicit transaction. He also suggested that tacit knowledge could be accessed through use of symbols, stories, and metaphors. These creative possibilities suggested to me an intuitive and potentially creative process important for learning and meaning-making; however, knowledge management literature was insufficient for describing the process of acquiring and using tacit knowledge.

Knowledge management literature often cites Michael Polanyi (1958; 1966) as a seminal theorist regarding tacit knowledge. He is recognized for stating that people know far more than they can say, referring to tacit knowledge that can never be articulated. To scrutinize tacit knowledge, according to Polanyi, is to temporarily destroy understanding and inhibit performance until it is rebuilt in a somewhat altered state. He further described how people attend *away* from tacit (personal) knowing – such as the sequence of muscular contractions needed to turn a key in a door lock – and attend *to* the larger meaning of the event, such as an unlocked door that will admit a guest. Personal knowing is embodied and it is also an indispensable power of the mind that shapes factual knowledge, bridging objectivity and subjectivity (Polanyi, 1958). How then is tacit knowledge learned and how does it shape adult learning and problem solving? To help answer these questions, we will turn to informal learning in adult education. This paper uses the terms "implicit" and "tacit" as interchangeable concepts.

Informal Learning

According to Eraut (2004), informal learning and experiential learning are partnering concepts since they both are typically grounded in everyday learning. Merriam, Caffarella, & Baumgartner (2009) noted that informal learning in adult education is not well researched. Often,

the distinguishing feature of informal learning in the literature is the context or location of learning, rather than the learning process itself. Adult learning can be subdivided into three contextual categories a) formal learning in a degree-granting institution, b) non-formal learning that is organized and typically for leisure or community oriented learning, and c) informal learning derived from the experience of daily life (Coombs, Prosser, & Ahmed, 1973; Merriam, Caffarella, & Baumgartner, 2009). Given the rise of corporate universities and training programs that are designed with goals and objectives, it seems is sufficient to distinguish between formal learning in planned instruction and informal learning, which is controlled by learners rather than instructors. Formal learning is deemed inadequate to meet adult needs in a virtual era where web-based and digital learning options are available (King, 2010), raising the importance of informal learning.

Based on survey research, Livingstone (2002) estimated that 90% of adults in Canada were engaged in a significant informal learning activity that constituted about fifteen hours per week per adult, which is five times more time than the estimated three hours per week adults spent in organized education. Assuming these numbers approximate other industrialized nations, adults spend many hours learning in informal learning activities versus formal education, and perhaps as many or more hours learning from unaccounted day to day experiences. Informal learning is so prevalent that it occurs within and around formal learning programs (Eraut, 2004). Informal learning offers adults greater freedom and flexibility to discover through their own lines of thought and action, which can result in tacit or unspoken knowledge.

Informal Learning and Kolb's Experiential Learning Theory

Given there is conceptual overlap with experiential learning theory (Eraut, 2004), one would expect greater attention to tacit knowledge in experiential learning theory; however, Kolb's (1984) experiential learning model does not overtly depict tacit knowledge acquisition even though apprehension (grasping knowledge) is described in later work as "an immediate, feeling-oriented, tacit, intuitive, subjective process (Baker, Jensen, & Kolb, 2005, p. 416)", which occurs in a part of the brain that evolved earlier than where conscious rationality is governed. Kolb (1984) indicated adults learn as ideas are formed and reformed through the transformation of experience. In Kolb's seminal work, he alluded to Polanyi's perspective on tacit knowledge, but transformation and conceptualization processes seem driven by conscious thought and planning. Comprehension involves abstract conceptualization (Kolb, 1984), which is a linguistic and interpretive process that uses symbolic representation often through thought and speech. The emphasis on linguistic processes seems to preclude or at least deemphasize tacit processes in abstract conceptualization.

Reflection (intention) on an experience from multiple perspectives is key to experiential learning, which Kolb (1984) suggested leads to developing and testing theoretical elements derived from reflection. His experiential learning theory also described a higher order form of learning that he terms "integrative", which is not the same type of learning that will be addressed later in the paper. Rather, he conceptualized integrative learning as developing integrity through the simultaneous use of two or more processes within his experiential learning cycle. In this view lifelong learning is a challenge of integrative development. According to other scholars, reflection in action may spur learning in the midst of an experience, occurring at an intuitive and

tacit level (Tennant & Pogson, 1995; Schön, 1983). Informal learning, then, should address tacit knowing even though it may be difficult to observe.

Schugurensky's Tri-part Typology

Schugurensky (2000) proposed three types of learning that vary by consciousness and intentionality in his tri-part model of informal learning. The three types are a) self-directed learning, b) incidental learning, and c) socialization. Self-directed learning is probably the most recognizable form of informal adult learning and it has enjoyed considerable status in adult education literature. It is also consistent with Knowles' early work with andragogy (Knowles, Holton, & Swanson, 2005). According to Schugurensky (2000), self-directed learning is conscious and intentional, exemplified by an adult who wishes to learn more about an historical event, and so reads resources to intentionally and purposefully meet the desired learning need. He considered incidental learning unintentional but conscious; an adult is aware learning occurred by happenstance. For example, a worker may learn about office politics in a hallway conversation. The third type of informal learning in Schugurensky's typology is socialization, which he described as unconscious and unintentional. This type of tacit learning occurs when people internalize new skills, behaviors, and values.

Socialization occurs, for example, when a person practices family norms or adapts to an organization's culture, and it can become hidden curriculum. Tacit learning is mysterious and, according to Polanyi (1958; 1966) and implied in the knowledge management literature, tacit knowledge has a farther reach then socialization. According to Eraut (2000), "thick" tacit knowledge coexists with "thin" explicit versions of this knowledge that justify an adult's actions. Implicit learning links current experiences with past memories and all learning may have implicit aspects (Eraut, 2004).

Implicit Learning and Processing

Implicit learning and processing are nonconscious activities (Lewicki, Czyzewska, & Hill, 1997; Mathews & Roussel, 1997: Reber, 1993). Lewicki, Czyzewsk, and Hill (1997) indicated the most convincing evidence of nonconscious processing is in everyday life when people make judgments but cannot articulate how they know something, such correctly guessing the age of a person in a grainy, indeterminate photo where explicit indicators are missing. Further, they noted every stimulus must be encoded with a predetermined inferential algorithm that creates subjective and meaningful interpretations. This idea suggests that there is an interpretative mechanism during concrete experience, possibly before reflection occurs. Reber (1993) stated that intelligent behaviors result from implicit and explicit capacities, rather than solely through conscious and rational processes. Consciousness, in Reber's view, is along a continuum, rather than "on" or "off". Matthews & Roussel (1997) discussed different memories associated with experience, demonstrated how people can nonconsciously learn artificial grammars in experimental situations, and they stated a key to generativity and creativity for humans is the ability to recombine fragments of knowledge in new ways. This new knowledge may be consciously accessible upon completion whereas the process may be implicit and nonconscious. Additionally, de Vega and Marschark (1996) indicated that visuospatial cognition creates spatial representations important for problem solving, reasoning, and creativity. From the authors

discussed in this section, it is a compelling notion that people process more information than is consciously available. Indeed, implicit processing is efficient and important for intuition and insight, guided by adaptive need.

A Re-conceptualized Model of Informal Adult Learning

A re-conceptualized informal learning model needs to take into account implicit processing and insight generated from intuition. Building from Schugurensky's (2000) tri-part typology and adapted from an earlier and less developed version of this work (Bennett, 2010), Figure 1 reflects a four-part model of informal learning. The model shows a matrix that combines Schugurensky's intentional-unintentional and conscious-unconscious distinctions, although unconscious is renamed nonconscious in keeping with implicit processing literature and to avoid the mental image of an unconscious person. The first two types of learning, self-directed and incidental are unchanged from Schugurensky's original conception. These forms of learning are easier to understand and commonly observed because of their conscious nature, and so are uncontested. The two that involve tacit and nonconscious facets, however, require further explanation. The model makes the types appear artificially distinct, but it is expected that learning would move fluidly across the modalities.

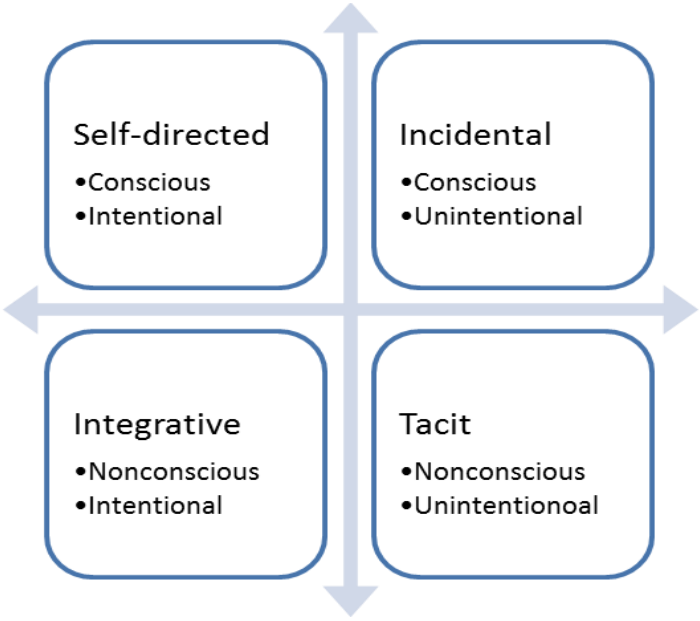

Figure 1: Four-part Informal Learning Model

In Figure 1, socialization is renamed "tacit" to capture the nonconscious and unintentional learning that occurs when an adult learns on his or her own, as well as that which is learned socially. Skill development through practice builds tacit and embodied knowledge as people make minor adjustments to build expertise without full conscious knowledge of the actions. Because some skills cannot be taught through talk alone, many professions still incorporate apprenticeship for learners to develop skill mastery through experience and practice. Tacit in this modality would be subject to implicit processing.

Schugurensky (2000) speculated there could be a fourth type of informal learning that is unconscious but intentional, yet noted he could not determine examples of this type of learning. It was this statement that caused a moment of insight for me against the backdrop of organizational culture and knowledge management literature; it seemed to be a key to tacit knowledge. Tacit knowledge is deeply embedded, but potentially accessible or alterable through reflective practice (Schön, 1983); although some tacit knowledge will always remain out of reach (Polanyi, 1966). If tacit knowledge is able to be used or altered through intentional but largely nonconscious processes, then a fourth type of informal learning is indicated. Theoretically and practically, I believe this form of learning is supportable. The next section explores integrative learning.

Integrative Learning Explored

For the purpose of this paper, integrative learning is defined as *a learning process that combines intentional nonconscious processing of tacit knowledge with conscious access to learning products and mental images*. Implicit processing of tacit knowledge can thrust new ideas, insight, and patterns to the forefront of consciousness when a solution to a complex problem is found. I propose there is an important conceptual connection between creativity and tacit knowledge made possible through integrative learning that synthesizes new and existing knowledge for productive purpose. Integrative learning may be responsible for creative insight, intuitive leaps, and moments of sudden understanding. Because implicit processing deals with memory fragments, images, and sensory data, it would not occur in a linear and rational fashion. When an intuitive and creative solution is found "a person has a conscious representation of the solution and a conscious feeling that a problem is solved, or what is referred to as insight. However, the way of solving the problem is unconscious (Stepanossova & Grigorenko, 2006, p. 244)," but then logic must be used eventually to articulate the insight.

Given that adult learners must work extensively to integrate new and existing experiences (Zemke & Zemke, 1995), integrative learning assists this process when conscious analysis is exhausted. Adults have a vast fund of prior experiences, personal history, and learning schemas, and integrative learning may be the mechanism that occurs under the surface as adults struggle to understand new material or solve problems for which they have little precedence. Adults may engage in an internal process of pattern matching, mental rotation, and other processes to gain depth of understanding and robust integration of new and existing knowledge. Because it is intentional, answers may be pushed to the surface at unexpected times, realized in the classic "ah-ha" moment. Integrative learning may help explain some of the mystery behind sudden leaps of understanding and creativity. For example, adults who are working on a problem – that is they have identified an important learning gap they intend to fill, but have gone as far as they can with conscious thought – may find the solution when they turn their attention *away* from the problem so that integrative learning takes over. This might happen during sleep or exercise and activities that distract the conscious mind so that implicit processing can occur. Integrative learning could direct responses to new experiences, too, when adults follow intuition or a "gut feeling" of familiarity.

Two Sub-Processes in Integrative Learning: Knowledge Shifting and Sublimation

I believe there are (at least) two sub-processes in integrative learning, which can be illustrated by borrowing concepts from Chemistry. First is the idea of *knowledge shifting,* similar to the idea of phase shifting. A substance, such as water, shifts phases when it goes from a frozen to liquid to gas state. The molecules are the same but the physical properties have altered state. If we loosely apply this idea to tacit knowledge, than knowledge shifting would move tacit knowledge up the ladder of consciousness through reflective processes but in an altered state. It would carry forward some properties while leaving others behind. Reflection would be nonlinear with pieces, images, and fragments surfacing and then diving below again as the mind continued to work on the problem. Sending fragments back could simply re-file a memory or potentially alter tacit structures. Knowledge shifting is to some extent supported by Schön (1983) who suggested that just enough tacit knowledge could be surfaced for it to be accessed and restructured even if all of it could not.

The second idea is *sublimation*. When water moves directly from a solid, frozen state to gaseous state, the process is called sublimation because it skips a phase. Sublimation can be used as a metaphor for sudden insight derived from integrative learning. This occurs when an idea suddenly bursts forth with no immediate antecedent, especially if there is a fair separation of time from start to end. It would not surprise me if some problems take years for solutions to be found because time yields more experiences and memory fragments. There is relatively recent evidence that a different part of the brain is activated during sudden insight versus during logical problem solving. Jung-Beeman et al. (2004) conducted an experiment in which they used brain scans during a problem solving activity. Approximately half the participants discovered the solution through rational processes and the other half claimed an ah-ha moment. The researchers found immediately prior to sudden insight there was intensive neural activity in the right anterior temporal area, which is a region of the brain that is associated with making connections between remotely related information. Neural activity differentiated between conscious and unconscious processing to arrive at the solution. I believe sublimation provides learning products or images to the conscious mind, but with very few traces to indicate how the learning products were created.

Discussion

Given the mysterious nature of tacit knowledge, this paper provided partial answers to the opening questions in the introduction. Tacit knowledge appears to be learned through a combination of interpretation of perceptual information and implicit processing. Humans process new information and perceptions of their environment through existing interpretive frames that may continually adjust and adapt for self-preservation. Discrepancies may be flagged conscious analysis. With the brief overview of informal learning and re-conceptualization of Schugurensky's (2000) informal learning typology, this paper has contributed to a greater understanding of how tacit knowledge shapes adult learning. Specifically, fragmentary memory and tacit knowledge are important for creativity and innovative thinking critical in knowledge work. Images and symbols may be stored in perceptual memory, and thus utilized for learning.

Implications for practice include the recommendation for instructors to build in reflective time and check-in time to learn what students discovered informally outside of class, especially if class content is rich in visual imagery. Web-based information often uses graphics, colors,

sounds, and other perceptually-rich material that might make learning more memorable and cause it to follow a different path than book-based learning. Incorporating reflection and reflective writing may help pull fragmentary knowledge into a coherent structure. Additionally, some training programs require processing dense visual imagery to develop expertise, such as pathology and radiology in medical education. Participants likely continue processing images outside of training, even if they are not consciously aware of this process, and they may report gaining insight after sleep or on the drive home. It is important to identify potential barriers to implicit processing and integrative learning.

Implications for research include the recommendation to study how intentionality might direct implicit processing, and test this proposition in a variety of contexts. Intentionality and use of symbols could surface cultural assumptions and mental models, at least in part. Planned change may be more successful if messages about change are consistent and produce motivation to change (intentionality). Research may yield greater insight into creative processes that do not follow linear logic, but rather produce insight through an altogether different way of thinking. For example, studying how and when scientists or innovators find solutions to complex problems or how they wrestle with theoretically dense material. It would be interesting to study introspective and intuitive people to see if they are more likely to experience sudden insight at unexpected times. Because of the embedded nature of tacit knowledge and implicit learning, qualitative methods would be appropriate for probing how learning products are recognized and the unusual circumstances in which adults may become consciously aware of a solution. Theoretically, additional work needs to be done to support the development of propositions for the four-part informal learning model.

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