

Realizing Wisdom Theory in Complex Learning Networks

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Abstract: The word “wisdom” is rarely seen in contemporary technology and learning discourse. This conceptual paper aims to provide some clear principles that answer the question: How can we establish wisdom in complex learning networks? By considering the nature of contemporary calls for wisdom the paper provides a metatheoretical framework to evaluate the appropriateness of the characteristics of learning technologies in the postmodern context. By taking into account the complexities of paradox and uncertainty in contemporary life, the paper also indicates where future research would be best directed and considers how wisdom might practically be applied via use of learning technologies.

Keywords: wisdom, learning networks, e-learning, digital learning technologies, knowledge

1. Introduction

The word “wisdom” is rarely seen in contemporary technology and learning discourse. This is problematic at a time when excellent judgment and insightfulness and character are needed. This paper argues that learning requires wisdom to provide excellence in judgment and insight and that if the principle features of wisdom are understood learning technologies can be evaluated according to a robust criteria based on these principles.

The purpose of this conceptual paper, therefore, is to provide clear principles that answer the question: How can we establish wisdom in complex learning networks? The paper begins by considering the nature of contemporary calls for wisdom. This provides a metatheoretical framework to evaluate the appropriateness of the characteristics of learning technologies in the postmodern context. By taking into account the complexities of paradox and uncertainty in contemporary life, the paper also indicates where future research might be best directed and considers how wisdom might practically be applied via use of learning technologies.

2. The Nature of wisdom

Many theorists and practitioners have increasingly become interested in wisdom. For example, Srivastva and Cooperrider (1998) assert that the need for wisdom is higher than ever and less and less available. Vaill (1998) claims that as wisdom principles are characterized by flexible and intuitive methods they are especially appropriate for our times. Perhaps the most active consideration of wisdom is in the strategic leadership literature (Boal and Hooijberg, 2000; Korac-Kakabadse, Korac-Kakabadse, & Kouzmin, 2001; Kriger & Seng, 2005; Whittington, Pitts, Kageler, & Goodwin, 2005) where it is seen as essential for complex decision making, applying knowledge and for welfare reasons.

It is important that the nature of wisdom be understood. Wisdom can be presented as a set of principles to be used as an *a priori* construct. In the day to day practice, each of these principles can be simultaneously balanced. These principles collectively constitute an *a priori* construct and present as an ideal wisdom that is beyond fallible humans. Nonetheless, this ideal of wisdom can be aspired and used as a standard to measure. The goal would be to enhance those practices that fulfil these principles:

Principle 1:

Wisdom requires the formulation and understanding of logical arguments based on sound propositions. Nonetheless, wise people are epistemologically sceptical. Their fluid intelligence questions the knowledge inherent in propositions. Thus, a wise person needs occasionally to be sceptical of the facts, common sense and orthodoxy.

Wisdom also requires one to focus at the right level by choosing what facts are salient in a given situation. In other words, filtering and interpreting the noise from within their own community and determining the salient points on which to act are crucial to wisdom. Good judgment should also be used to reach better decisions (Sternberg, 1990).

Principle 2:

Non-rational aspects should also be used in the process of wise decision making. These include insight, imagination and foresight that occur outside a rational process of intersubjective verification (reaching a consensus on what the facts and evidence are.). As 'gut' level intuition can be valuable in making judgments, wisdom is manifested as a coordinated and balanced interplay of intellectual, affective and motivational aspects of human functioning. So, the ability to interpret and decode meaning and mental maps of other community members is essential to wisdom (Malen & Kriger, 1998).

Metaheuristics is a combination of two heuristics: one that organizes at a high level of aggregation and another at a more explicit level used by individuals in planning and evaluating issues surrounding the pragmatics of life such as knowledge about oneself, insight into the social nature of human existence and variability of life goals. This might also be referred to as a 'sixth sense' or well-developed intuitive powers that implies moving beyond existing rules.

Wisdom requires one to respect tradition and experience and use this resource appropriately. Issues can be considered reflexively from cultural-historical perspective. These insights complement the reasoning process.

Visioning and a perspective-taking capacity that incorporates long-range goals is also a characteristic of wisdom. This is the capacity to overcome and transcend the quotidian and ephemeral features of any judgment and to see the effect of alternative actions in the longer term. Having backgrounds of domain-specific knowledge, focusing at the right level and making unusual associations might also contribute to the perspective-taking capacity (Eflin, 2003).

Reason-based approaches work best with established propositional assumptions and are less effective when the epistemic and ontological foundations of these assumptions are mutable or contested. Wisdom requires one to deal effectively with uncertainty. This refers to being aware that life is constructed from various perspectives, ontogenetic and historically situated. This awareness in wise people allows them to recognize the limits of reason-based cognition. At an interpersonal level, this capacity refers to wise people's ability to grasp and reconcile the paradoxes, changes and contradictions of human nature. So, wisdom requires one to grasp the meaning of several contradictory signals and stimuli and interpret them holistically (Malen & Kriger, 1998).

Principle 3:

Since Aristotle (1984), wisdom theory has been concerned with the role of ethics and virtue. A central capacity for practical wisdom is ethical judgment. For Aristotle (1984), the inclination to virtue defines our humanity: one should do what one does just because one sees those actions as noble and worthwhile. Values are therefore an integral part of wise thinking. Wisdom manifests as concern for others, being thoughtful and fair, admitting mistakes and also learning from them (Sternberg, 1990). Both the protection of values and smoothening the path of human interaction are essential to gaining wisdom.

As wisdom is essentially practical it is concerned with navigating the travails of day-to-day living and working in a way that contributes to well-being. While one should know absolute principles one must know how and when to apply them to a complex reality as decision-making rarely involves applying absolute principles. Wisdom requires rich factual or declarative knowledge about the fundamental pragmatics of life. So, wisdom is for making decisions and taking action in everyday life.

Aesthetic capacity refers to the ability of articulating insights and judgment in decision-making to others. So, wisdom must be articulated in an elegant way so that it reaches out to meet the affective as well as cognitive needs of those who will be affected. Besides, interacting with people all the time and continually picking up clues and meaning from these interactions is also essential to wisdom.

To sum up, wisdom is essential as we are not just conscious deciders but also conscientious deciders who use cognitive processes rather than simply habitual patterns of thought. The greater an enquirer's ability to move fluidly between producing alternatives and evaluating them and to operate at both levels simultaneously the better he will be at finding valuable discoveries (Eflin, 2003). As Eflin

(2003) states, the central epistemic Aristotelian virtues are ingenuity, perceptual creativity, acuity of inference, a sound sense of relevance and an active ability to determine the relative importance of heterogeneous ends.

Derived from these statements, main principles of wisdom can be summarised as follows:

Using reason and careful observation to make logical deductive explanations

Evaluating the salience and truth-value of logical propositions by using clear understandings of ontological categories that theoretically describe substance, process and quality through logical argument

Acknowledging the sensory and visceral as important components of decision-making and judgment

Having a metaphysical and spiritual quality that does not bind one absolutely to the rules of reason thereby enabling vision, insight and foresight

Respecting and drawing upon tradition as a means of apprehending who and what one is as a form of personal insight enabling them to understand the contingency of life and constructedness of phenomena

Being humane and producing virtuous and tolerant decisions

Being practical and oriented towards everyday life

Being articulate and understanding the aesthetic dimension of one's work and seeking the intrinsic personal and social rewards of contributing to the good life (Eflin, 2003).

3. The role of knowledge in wisdom theory

Understanding how collective knowledge impacts on learning is important when considering the role of wisdom. Cognitive complexity theory which relates to the number of dimensions used by individuals to perceive stimuli and the capacity to think and decide about complex phenomena (Wang & Chan, 1995) emphasizes an individual's rational thought but contemporary knowledge goes beyond this and sees knowledge as a socially shared resource. Given today's learning networks such as online communities of practice or social networks, one of the most important challenges for learners is to manage well in this context of shared knowledge. Thus, knowledge can be characterized as pluralist, socially constructed, fragmented and discontinuous and having an axiological dimension. Disappointingly, the learning technologies literature makes little direct comment about knowledge despite the fact that learners constantly deal with high-level knowledge work of analysis, synthesis and deciding. The literature suggests that there is a considerable mental load in discerning, clarifying, deciding and communicating knowledge at the ontological and epistemological levels. This paper argues that the more needs to be said about knowledge in online learning communities as the capacity to handle knowledge is a crucial component of wise learning. Wisdom principles assume not only that there is significant knowledge in these networks, but more importantly that learners deal effectively with the shifting nature of knowledge. This requires artfulness and craft that are also implied by some of the wisdom characteristics.

Knowledge is a major source of complexity and can only be exploited to its maximum degree when complemented by wisdom. Knowledge is not a unitary thing, but a complex network of facts, ideas, beliefs, memories and intuitions (Rooney, Hearn, Mandeville, & Joseph, 2003; Rooney & Schneider, 2005; Saul, 2001). Ideas need to be connected to other ideas to create meaning and to find answers to problems. So, knowledge networks are not static as one's state of knowledge is constantly changing. While knowledge helps us to decide and solve, it also produces ambiguity and complexity. For example, research can produce radically different knowledge about a particular question and some people who are creative might produce knowledge that is simultaneously imaginative and insightful by pulling together disparate ideas. Dealing with the extent and scope of knowledge systems can therefore cause as many problems as answers. So, digital learners who pursue wisdom are those who apply creativity, vision, foresight and insight to knowledge issues. Given the central role of knowledge in learning networks – collective knowledge- and the complex nature of knowledge, it is crucial that knowledge is characterized in a community context that is relevant to a wisdom-oriented view of learning.

Collective knowledge residing in the learning networks is pluralist (Spender, 1996). Knowledge systems are taken to be constructed of multiple and contradictory ideas, assumptions, beliefs, intuitions and memories that are taken by their possessors to have socially justifiable truth values (Rooney & Schneider, 2005). So, knowledge is taken to have truth values that are (re)constructed in social relations and especially through online communication. This is also consistent with the sociological view of knowledge that sees knowledge as an expression of culture, as symbolic rather than simple explanatory (McCarthy, 1996, Berger & Luckmann, 1966). This symbolic perspective suggests that sophisticated communication is essential if knowledge is to be shared and diffused throughout a community (Rogers, 1980; Winter, 1987; Zander & Kogut, 1995). So, a large part of wisdom is the steering and facilitating activities using collective symbols and communication.

Complex formal and informal social networks through which knowledge is communicated form an essential part of learning networks. In such uncertain environments, knowledge has been characterized as being “fragmented” and “discontinuous” such that there is much ontological and epistemic confusion (Murphy, 2005). To negotiate these relationships, social intelligence and skill are essential for wise learning as knowledge is embedded in relationships and within individuals. In other words, the context in which we learn is messy. Without wisdom, learning might be compromised by complexity and by epistemic and cognitive uncertainty and so is more likely to lead to conflict, mistakes and confusion.

Learning networks can be considered as complex, autonomous self-organizing systems that emerge as the outcomes of the interaction of different types of knowing within a bound and deliberately created context (Spender, 1996; Tsoukas, 1996; Chia, 1998; Hansen, 1999; Snowden, 2000; Schneider, 2001; Stacey, 2001). Throughout the literature, such systems have also been referred to as socially distributed activity systems (Engestrom, 1991, 1993; Blackler, 1995) and shared contextual spaces (Nonaka, Toyama, & Konno, 2000). So, knowledge is not formulated in relation to content, but, rather, as flows, relations, patterns, contexts and emergence in complex systems. For learners, the realization that knowledge is a background of complex processes should bring with it an understanding that knowledge work is a social challenge. Simon (1955, 1987, 1991) argues that we are boundedly rational and Berger & Luckmann (1966) argue that knowledge is subjectively constructed. Wisdom is an ability that minimizes these cognitive limitations for learners.

4. Wisdom as complexity: a metatheory of effective digital learning

Wisdom is a process that brings together the rational and the transcendent, the prosaic and higher virtues, the short- and long-terms, the contingent and the absolute, and the self and the collective rather than being only concerned with rational processing of knowledge. Wisdom accepts the complex, cuts through ambiguity, and derives its energy from the uncertainties of a complex world. So, wisdom involves both complexity/nonlinear unpredictability and discernment/clarity/knowledge. This complex system is the learning environment of the millennial learners. This paper argues that wisdom enables today's learner to both see more complexity and know how to respond appropriately in such complex learning networks. The capacity to simultaneously discern the technical complexity, the social complexity and the cultural complexity of such networks is crucial to gaining wisdom through learning.

These wisdom characteristics inherent in learning networks is also aligned with Siemens' statements about learning in networks. This approach to learning has been captured under the heading of 'connectivism'. In his paper of the same name, Siemens (2004) articulates the major theses: Learning and knowledge rests in diversity of opinions. Learning is a process of connecting specialized nodes or information sources. Learning may reside in non-human appliances. Capacity to know more is more critical than what is currently known. Nurturing and maintaining connections is needed to facilitate continual learning. Ability to see connections between fields, ideas, and concepts is a core skill. Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities. Decision-making is in itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality which might ultimately lead to the cultivation of wisdom.

As Siemens (2004) argues, in any network, there will be three major elements:

Entities, that is, the things that are connected that send and receive signals

Connections, that is, the link or channel between entities (may be represented as physical or virtual)

Signals, that is, the message sent between entities. It must be noted that meaning is not inherent in signal and must be interpreted by the receiver.

Given this description of networks, the essential elements of learning network semantics can be identified. First, context, that is, the localization of entities in a network (Siemens, 2004). Each context is unique –entities see the network differently, experience the world differently. Context is required in order to interpret signals, that is, each signal means something different depending on the perspective of the entity receiving it (Siemens, 2004). Second, salience, that is, the relevance or importance of a message (Siemens, 2004). This amounts to the similarity between one pattern of connectivity and another (Siemens, 2004). If a signal creates the activation of a set of connections that were previously activated, then this signal is salient. Meaning is created from context and messages via salience. Third, emergence, that is, the development of patterns in the network. Emergence is a process of resonance or synchronicity, not creation. We do not create emergent phenomena. Rather emergence phenomena are more like commonalities in patterns of perception. It requires an interpretation to be recognized; this happens when a pattern becomes salient to a perceiver. Fourth, memory is the persistence of patterns of connectivity, and in particular, those patterns of connectivity that result from, and result in, salient signals or perceptions (Siemens, 2004).

This is not the definitive statement of network learning, yet it is developed in the classic mold of network learning, through a process of immersion into the network and recognition of salient patterns (Siemens, 2004). What sort of network? The following list is typical of what might be called 'wisdom network' practices online:

Practice: Content Authoring and Delivery

- Numerous content authoring systems on the web...
- Weblogs
- Content Management Systems
- Audio and Podcasting
- Digital imagery and video
- Collaborative authoring

Practice: Organize, Syndicate Sequence, Deliver

- Aggregation of content metadata
- Aggregators
- Aggregation services
- the Semantic Social Network

Practice: Chatting, Phoning, Conferencing

- Bulletin board systems and chat rooms, usually attached to the aforementioned content management systems
- Audioconferencing
- Videoconferencing

Derived from these statements, a wise learner in the digital age will be a person who becomes a laudable instantiation of the five characteristics of wisdom via these learning networks as specified above. In the digital age, wise learners must have cognitive complexity; a capacity to deal with complex and ambiguous phenomena in complex environments. Secondly, wise learners must be rational and deep thinkers; having a capacity to seek out and understand the facts of a situation and to deal with them rationally, but also to understand and question the ontological basis of these facts. Thirdly, a wise learner displays creativity and draws on the non-rational as appropriate; having a capacity to think creatively and to acknowledge the potential worth of one's own instincts in making judgments. Fourth, a wise learner displays long-term vision; having a proven commitment to life-long learning. Finally, a wise learner is articulate; having a proven capacity to reach people online.

It might be argued that these five features of a wise learner could have been devised without having to go through the theoretical process outlined in this paper as wise action is self-evident. Yet, this analysis provided a meta-theoretical framework for understanding the nature of wisdom and judging wise learning based on philosophical and psychological traditions. Wise learners will require each of these characteristics to varying degrees according to the circumstances.

5. Implications for future research

The theoretical approaches to wisdom seem to vary according to whether research should use implicit – based on beliefs and mental representations about wise people- or explicit theories – as determined by researchers- of wisdom. While the Berlin School asserts wisdom as an expert knowledge system in the fundamental life pragmatics including learning (Baltes & Smith, 1990), Sternberg (2004) defines wisdom as the application of intelligence, creativity and knowledge to the common good by balancing intrapersonal (one's own), interpersonal (others') and extrapersonal (community or larger interests) over the long and short terms through the mediation of values. According to Webster (2003), wisdom is multifaceted and involves the following dimensions: experience, emotional regulation, reminiscence, reflectiveness, openness and humour.

Methodologies also vary. The Berliner School tends to use hypothetical scenarios to measure wisdom that involves the solving of difficult problems from one's life. As wisdom is associated with many positive characteristics, further research into creating the online learning conditions that are conducive to wisdom would be warranted. The type and life-span of wisdom in online learning communities, the transfer of wisdom in social networks might also be significant research topics.

From a sociological perspective, research would focus on the nature of knowledge, on the socially constructed context and patterns of online communities that produce particular forms of knowledge. Discourse theory might assist in understanding the sociology of wisdom in terms of structure and agency as discourse links thought, ideas, agency and action (van Dijk, 1997).

Further areas of interdisciplinary wisdom-related research are the areas of creativity and intuition. Although creativity has been extensively researched its role in wise learning still needs much consideration.

Although many individuals will not become fully wise, the raw components of wisdom reside in all of us to one degree or another. This paper, therefore, takes an optimistic view that a better future is possible if we are able to look beyond the accumulative assumptions about technology to wisdom. Wisdom requires judgment, insight, creativity and other transcendent forms of human intellection rather than a great accumulation of knowledge. Wisdom is concerned less with how much we know and more with what we do and how we act. Wisdom is a way of being and is fundamentally practical in a complex and uncertain world.

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