Organizational learning, knowledge and wisdom

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Abstract *To improve our understanding of the impact of organizational learning and knowledge on competitive advantage, we propose a framework that includes the constructs of data, information, knowledge, and wisdom. Each of these constructs is then associated with a different type of learning. We further argue that wisdom is an important, albeit missing, construct in the knowledge-based theory of the firm. A key to organizational wisdom is judgement and decision making, which requires an understanding of the complexity of a situation, but also requires the ability to make sense and simplify so that action can be taken. Three important drivers for the development of organizational wisdom are experience, a passion to learn, and spirituality. Processes for acquiring organizational wisdom such as transformational leadership, organizational culture and knowledge transfer are also discussed.*

Introduction

> Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information? (T. S. Eliot, *The Rock*).

The field of strategic management has been jolted by the recent flood of attention given to the knowledge-based view of the firm and organizational learning (e.g. see *Strategic Management Journal*'s Winter 1996 special issue on knowledge and the firm). Since the early 1990s the resource-based view of the firm (e.g. Prahalad and Hamel, 1990; Grant, 1991; Mahoney and Pandian, 1992) has almost supplanted the traditional I/O approach to strategy (e.g. Porter, 1980). The central argument of this school is that a firm's resources will be a source of competitive advantage if the resources are valuable, rare, inimitable and not substitutable (Barney, 1991). Strategic analysis then follows a continuous path of:

- identification of a firm's resources and capabilities;
- appraisal of the rent-generating potential of the resources and capabilities;
- determination of how to best exploit the resources and capabilities (the strategy); and
- identification of resource gaps that need to be filled if the firm is to be successful in the future, and the attempt to fill these gaps (Grant, 1998).

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Research on the resource-based view of the firm illustrates that for most firms knowledge is the most important strategic resource and that the capability to create, integrate and apply knowledge is critical to the development of sustainable competitive advantages (Nonaka, 1994; Kogut and Zander, 1992). Thus, the knowledge-based view of the firm has emerged, which identifies the primary rationale for the firm as the creation and application of knowledge (Grant, 1996; Spender, 1996). This approach has led to the general prescription that firms should become "learning organizations" to maximize their knowledge base (e.g. Senge, 1990). However logical this prescription, others have pointed out the difficulty of integrating different types of knowledge (Kogut and Zander, 1992) and the need for "absorptive capacity" to understand and acquire external organizational knowledge (Cohen and Levinthal, 1990). Subsequently, research on knowledge strategies (Bierly and Chakrabarti, 1996; Bierly, 1999; Pisano, 1994; Henderson and Cockburn, 1994) and organizational learning have been undertaken (e.g. Huber, 1991). Following the knowledge-based view, strategic analysis focuses on the different ways firms can strengthen their overall knowledge base by determining which specific knowledge areas should be strengthened. The general argument of these researchers is that superior knowledge in critical areas will lead to a sustainable competitive advantage and organizational success.

A major critique of the knowledge-based approach to strategy is that it is based on the underlying assumption that more information and knowledge lead to greater success. Clearly, this assumption is difficult to test, but empirical tests studying the links between R&D intensity and profit, and between patents and profit do not seem to support this assumption, at least for some industries (Scherer, 1980; Morbey, 1989; Griliches, 1990). Likewise, the link between information technology intensity and organization performance remains fuzzy. Despite propositions that the use of advanced information technologies should result in more effective intelligence and that this intelligence should produce higher quality decisions (Huber, 1990), the evidence is equivocal and idiosyncratic at best (see Brynjolfsson, 1993). For example, Hitt and Brynjolfsson (1996) found that firm investment in information technologies may have differential effects on productivity, consumer surplus, and performance. Although knowledge should impact organizational performance, there is evidence that suggests that something is lacking.

What we believe is lacking is an explicit link between strategic choices and the application of organizational knowledge. There needs to be a shift from a focus of maximizing efficiency (or one's knowledge base) to a central concern with making difficult (strategic) decisions that involve trade-offs concerning products, markets and technologies (Porter, 1996). Ideally, this focus should also extend to the social and environmental issues surrounding organizations (Hawken, 1993). Thus, success does not necessarily go to the firms that know the most, but to the firms that can make the best use of what they know and know what is strategically most important to the firm and to the society at large. We will argue that this is not a function of maximizing knowledge as

currently being discussed, but the selection of what kind of knowledge to select, apply, and institutionalize in the firm. This distinction is similar to that between efficiency and effectiveness where effectiveness refers to "doing the right thing."

Clearly, many of the decisions firms make are very complex and usually require the decision maker to filter through a large amount of information. A broad knowledge base may be needed to understand, interpret and integrate the information (Leonard-Barton, 1995; Pisano, 1994; Kogut and Zander, 1992). The actual process of making the decision and acting requires the simplification of information and knowledge. The complexity of the situation must be channeled, such that the most critical knowledge areas dominate the decision making process. Additionally, the complex information and knowledge must be evaluated in a broad, holistic framework. This simplification and evaluation of knowledge requires judgement, which few researchers have investigated.

The judgement, selection and use of specific knowledge for a specific context is what we term organizational wisdom. That is, wisdom relates to the ability to effectively choose and apply the appropriate knowledge in a given situation. To illustrate this point further, and to make the concept of organizational knowledge more useful to the field of strategic management, we propose a framework that differentiates data, information, and knowledge, and introduces the concept of organizational wisdom in understanding how a firm makes best use of its knowledge. We will further argue that organizational wisdom involves both the collection, transference and integration of individuals' wisdom and the use of institutional and social processes (e.g. structure, culture, routines) for storage. Thus, organizations can act wisely even though it may not be possible to ascribe wisdom to any individual actor within the organization. Furthermore, organizational wisdom is concerned with making decisions (judgements) intended to change the conduct of organizational actors. Thus, it is an action-oriented construct.

> The wise see knowledge and action as one (Bhagvad-Gita).

Conceptual model and definitions

The following illustrates the relationship between the different constructs in our framework. A book contains data in its letters and words; reading and understanding a book imparts information; breaking down and integrating that information with other related information imparts knowledge, and using the knowledge to solve the practical problems of life, both personal and organizational, imparts wisdom. We view learning as a multilevel concept that applies to each of these constructs and ties them together.

Learning is the process of linking, expanding, and improving data, information, knowledge and wisdom. Argyris and Schon (1978) discussed two levels of organizational learning: single-loop and double-loop learning. They defined single-loop learning as responding to changes in the environment without changing the core set of organizational norms, and double-loop

learning as responding to changes in the environment by changing the core set of organizational norms and assumptions. In other words, single-loop learning is learning within a given framework and double-loop learning is learning by changing the framework. Other researchers have discussed a third-order of learning. According to Bateson (1972) and Berman (1981), second-order learning is learning about the context one learns within and third-order learning is learning of the contexts of those contexts. Berman (1981, p. 346) also claims that third-order learning is "an experience in which a person suddenly realizes the arbitrary nature of his or her own paradigm." They view third-order learning as moving toward a holistic worldview of ultimate truth. McWhinney (1992) views third-order learning differently, claiming that third-order learning occurs when one uses "multiple realities to reframe one's own and others' experience in alternative frameworks" (p. 8). He argues that the multiple realities, or meta-praxis, will enrich understanding of a situation far greater than when only using a single framework of reality.

There may even be a higher order of learning. Bateson (1972) suggested a fourth order of learning that involves evolutionary change in society. Harman (1988) argues that western society is currently undergoing a radical change in its fundamental belief structure, which he terms a "global mind change." He believes we are shifting from a positivist metaphysic framework where we learn about reality from studying the measurable world to a more intuitive metaphysic framework focusing primarily on consciousness and spirituality.

Utilizing the long standing and tested Bloom's taxonomy of educational objectives, we develop a framework (see Table I) that posits four levels of learning, one for each of the levels in our data/information/knowledge/wisdom framework. The next several sections define each construct and tie them together in a conceptual framework.

> In time of profound change, the learners inherit the Earth, while the learned find themselves beautifully equipped to deal with a world that no longer exists (Al Rogers).
>
> No amount of sophistication is going to allay the fact that all your knowledge is about the past and all your decisions are about the future (Ian E. Wilson).

Table I.
Distinctions between data, information, knowledge and wisdom

Level	Definition	Learning process	Outcome
Data	Raw facts	Accumulating truths	Memorization (data bank)
Information	Meaningful, useful data	Giving form and functionality	Comprehension (information bank)
Knowledge	Clear understanding of information	Analysis and synthesis	Understanding (knowledge bank)
Wisdom	Using knowledge to establish and achieve goals	Discerning judgments and taking appropriate action	Better living/success (wisdom bank)

Data

Data are defined by Webster (1961) as something given, granted, or admitted; a premise upon which something can be argued or inferred. Others have argued that data are taken-for-granted facts which are the raw material of higher order constructs (Davis and Olson, 1985). Data are representations whose meanings are dependent upon the representation system (i.e. symbols, language, etc.) used. For example, the characters "1001" are meaningless unless the application of its specific meaning is inferred or known. Comparing this concept to the Bloom taxonomy, gaining data represents "level-1" (memorization) of increasing one's cognitive skill (Bloom, 1956). For example, having data is being able to define the word "industry". Therefore, we define data as raw facts, and learning about data (our first level of learning) as the process of accumulating facts.

Information

Information is defined by Webster (1961) as a representation, an outline, sketch, or giving form. It is comprised of data that have been processed into a form that is meaningful to the recipient and is of real or perceived value in current or prospective actions or decisions (Davis and Olson, 1985). An important feature of the common use of the term is that information is transferable and can be communicated in some fashion. The meaning that it is given is in part determined by the existing knowledge of the receiver. Schramm (1954) describes this process by positing that the basis of the transferred meaning in any communication act is a function of the "field of experience" or knowledge of the sender and receiver. Acquiring information represents Bloom's (1956) "level 2" (comprehension) and "level 3" (application) of increasing one's cognitive skill because it goes beyond simply remembering by being able to grasp the meaning of something and use it in new, concrete situations. For example, having information is being able to describe the meaning of "industry" and categorize companies into industries. Therefore, we define information as meaningful, useful data, and learning about information (our second level of learning) as the process of giving form to data.

Knowledge

Knowledge is defined by Webster (1961) as a clear and certain perception of something; the act, fact, or state of understanding. Knowledge involves both knowing how, which is generally more tacit knowledge, and knowing about, which is more explicit knowledge (Grant, 1996). Gaining knowledge represents Bloom's (1956) "level 4" (analysis) and "level 5" (synthesis) of increasing one's cognitive skill because it goes beyond previous levels by being able to see the content and structural form of something and being able to formulate new structures based on it. For example, having knowledge is being able to identify the central causes of industrial isomorphism and formulate its implications for

competitive strategy. Therefore, we define knowledge as clear understanding of information and their associated patterns and learning about knowledge (our third level of learning) as the process of analysis and synthesis of information.

Our distinction between information and knowledge is somewhat different from other uses of these terms. One of the most common approaches equates information and knowledge, allowing for information to be communicable knowledge elements. In other words, information is encoded packets of knowledge. Many, in utilizing this approach, assert that knowledge is a stock of information and that information is the representation of accumulated facts (data). In Huber's (1991) review of organization learning, the constructs of knowledge and information are used interchangeably, although consideration is given to information as being data that reduce ambiguity, equivocality and uncertainty. He states that ". . . more organizational learning occurs when more of the organization's components obtain (this) knowledge and recognize it as potentially useful" (Huber, 1991, p. 90) and thus describes learning as the accumulation of information. However, Huber and others (e.g. Daft and Huber, 1987) who have followed this approach have not dealt directly with the learning that occurs as the frames of reference which form the baselines for ambiguity, equivocality and uncertainty change. That is, learning can occur both as one's frame of reference is confirmed as being valid through the reduction of ambiguity, or as it is disconfirmed and modified by the lack of fit between the data received and the information to which it is associated (Argyris and Schon, 1978).

Equating information and knowledge oversimplifies and even confounds the already contentious division among biologists, cognitive psychologists, sociologists, and organizational researchers regarding data, information and knowledge (Miller, 1978). If knowledge is information, then information sharing provides for learning. Contrary to Huber, Starbuck (1992) argues that knowledge is a stock of expertise and not the flow of information. Logically, he goes on to point out that knowledge and information intensity (i.e. frequency of flow) are not dependent such that the existence of a great deal of information processing does not mean that there is a great deal of knowledge application. This is because of the epistemological distinction between expertise and knowledge that has been maintained by arguments in favor of separating action and cognition (see Nass, 1994). However, learning can take place in both the realm of action and cognition, as has been recently pointed out by the work of Spender (1994) and Nonaka (1994). Unfortunately, beginning with a weak distinction between knowledge and information, Starbuck's subsequently useful parameter of knowledge intensity is substantially weakened.

Another, more recent, approach posits that knowledge can be viewed along two dimensions – social-individual and explicit-implicit (Nonaka, 1994; Spender, 1994). In this work, knowledge is defined, as an understanding of how things work and should work, which can be an implicit model or representation (e.g. schemata, frame, etc.) or an explicit and communicable set of rules, procedures and policies (Nelson and Winter, 1982). In addition, this knowledge

can dwell in an individual or in their social relationships such as communities of practice (Brown and Duguid, 1991). The relationship between knowledge and information here is more complex because of the two dimensions. Nonetheless, information is fundamentally about the conveyance of meaning using language, and language is itself a social phenomenon. According to Machlup (1983), information is the flow of meanings that might add to restructure or change knowledge. What is most interesting in this approach is that knowledge and information are recursive yet hierarchical constructs, thus making knowledge creation and its communication a dynamic process.

In the cognition literature, a concern for the concept of knowledge is evidenced in the study of categorization (Anderson, 1991) and in the work on schemas (Hastie *et al.*, 1981). In terms of categorization, it has been found that humans make sense of "bits" of data through the categorization of these bits in a way that associates them with a body of more generalized beliefs (i.e. knowledge) (Kiesler and Sproull, 1982). Schemas, on the other hand, are "a framework for tying together the information about a given event, with the specification about the types of interrelationships and procedures upon the way things fit together" (Norman and Bobrow, 1975, p. 125). In this manner, schemas:

- influence what will be attended to and how it will be encoded and organized;
- form the map for the storage, retrieval and organization of information;
- function as the interpretive framework that influences evaluations and judgements; and
- should influence overt behavior (Markus and Zajonc, 1985).

Thus, we believe that knowledge is the understanding of information and their associated patterns.

Wisdom

Wisdom is defined by Webster (1961) as the faculty of making the best use of knowledge, experience, and understanding by exercising good judgement. Gaining wisdom represents Bloom's (1956) "level 6" (evaluation) of increasing one's cognitive skill because it goes beyond previous levels by being able to make conscious value judgements based on clearly defined criteria. Wisdom is an action-oriented concept, geared to applying appropriate organizational knowledge during planning, decision making and implementation (or action) stages. Therefore, we define wisdom as the ability to best use knowledge for establishing and achieving desired goals and learning about wisdom as the process of discerning judgments and action based on knowledge.

This type of learning is associated with the third-order learning described by Bateson (1972), Berman (1981) and McWhinney (1992) and the spirit-action connection described by Rothberg (1993) and Beck (1999).

To this point, we have laid out a dynamic hierarchical model beginning with data and moving to wisdom, as seen in Figure 1. Although the present model has been developed in a static fashion, our belief is not that this is a rational and static process. Rather we present it as such for theoretical clarity and parsimony. In the next section we will further elaborate on the wisdom construct.

Philosophical basis of the concept of wisdom

According to the *Encyclopedia of Philosophy* (Edwards, 1972), there is a fundamental difference between being merely knowledgeable and being wise. A knowledgeable person is one who holds justified true belief, or belief supported by fact. However, being knowledgeable is but one component to wisdom, the other being a demonstration of sound and serene judgement regarding the conduct of life. The wise person not only holds justified true belief but uses his or her intellectual grasp and insight to practically apply it. This wisdom is manifest in the characteristics of reflectiveness (considering events and their grounds and consequences, having foresight, taking the broad view) and judgement (appraising and choosing the appropriate goals, having sound judgement, using knowledge to achieve objectives).

This representation of wisdom is, for the most part, historically and culturally consistent. Focusing on eastern thought, a consistent idea is that wisdom involves establishing harmony with ones environment and leading a good life. Confucius, in the *Analects*, maintains that wisdom entails righteousness and that the wise person studies and knows the Way (Tao). However, he is clear that knowledge must be combined with action and

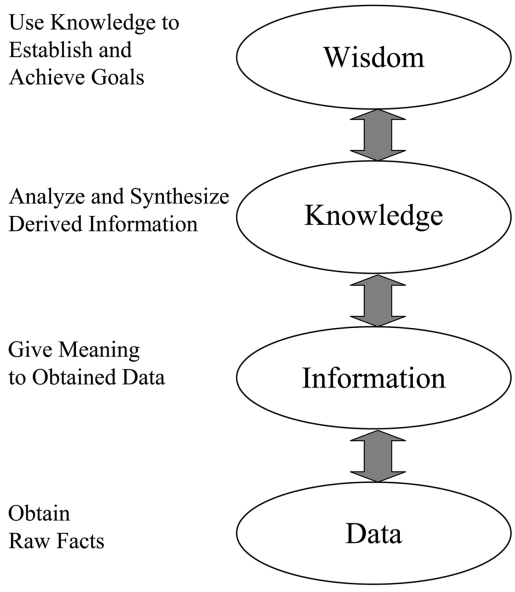

Figure 1.
Data, information, knowledge and wisdom framework

practice. In Buddhism, wisdom is seen as a form of enlightenment (nirvana) which is achieved by gaining understanding and living one's life consistent with the "right".

Western thought focuses on the practicality or "value-added" quality of wisdom. Aristotle, in *Nicomachean Ethics*, spoke of "practical" wisdom as the ability to deliberate well about what is good and expedient regarding the conduct of the good life. Immanuel Kant, in *Critique of Practical Reason*, described a higher state of true wisdom concerned with the practical end of the existence of man on earth. William James, in *Pragmatism*, subjects ideas to the criteria of practical usefulness and speaks of the "cash-value" of ideas. Tolstoy, in *War and Peace*, talks of wisdom not being found in knowledge and the sciences but through a consideration of the whole and explaining man's place in it. Jonas Salk, in *The Survival of the Wisest*, writes that importance is attached to the notion that wisdom is of "practical value" for human survival and for the maintenance and enhancement of the quality of life.

Beck (1999) blends several of these diverse views of wisdom and argues that ultimately wisdom entails the awareness used by the self to relate successfully to the environment. This is a useful definition for the strategist, for it can easily be adopted to the practice of achieving and sustaining competitive advantage within institutional and industrial arenas. Beck goes on to argue that wisdom is comprised of both knowledge (understanding the truth) and action (doing what is good). To know what is right to do and not to do it is not wisdom, though it is a kind of passive understanding. Also, to do what is right without knowing it is right is not usually considered wisdom, but rather good fortune. If a person is wise, then to the extent that he knows what is the highest good, he acts accordingly. This is consistent with Rothberg's (1993) idea of "socially engaged spirituality", which refers to the integration of our practical lives with our spiritual development so that we might respond to the needs of our time. In this sense, wisdom is not merely a result of inquiring and reflecting on the relationship between self and society, but it is also the embodiment of action taken to transform self and society towards a better whole.

Thus, wisdom is more than scientific knowledge. Science can tell us how to do things but not whether any specific thing that can be done, ought to be done. This is reminiscent of the debate after World War II over using the atomic bomb as well as the fictional "Jurassic Park" debate on whether to bring dinosaurs back to life. With regard to the former example, J. Robert Oppenheimer's reflection on the atomic bomb test at Los Alamos highlights this distinction between knowledge (i.e. if we can do this) and wisdom (should we do this) (Srivastva and Cooperrider, 1998). In short, wisdom takes into account the bigger picture. Maxwell (1984) draws a bolder line between knowledge and wisdom. To him, knowledge is the result of rational inquiry whereas wisdom includes knowledge but goes further to incorporate "judgement of value … to help us devise better ways of living, better institutions, customs, and social relations" (p. 66). Said another way, knowledge

means having the right answers whereas wisdom represents asking the right questions (McClean and Staughton, 1996) and taking the right actions (Rothberg, 1993).

In summary, the relationship between knowledge and wisdom is complex. Generally speaking, knowledge is necessary but not sufficient for wisdom. One would not be considered wise if one is not knowledgeable, but knowledge does not always make one wise. In a sense, knowledge can be viewed as a double-edged sword with respect to wisdom. On the one side, it provides us with the raw materials from which to reflect on and enable us to derive more global principles and meanings. This is if the knowledge is kept in its proper context and does not "take over" us as science (means) can sometimes overpower our spiritual (ends) side. But on the other side of the sword, knowledge can inhibit our pursuit of wisdom if it acts to obscure perspective, just as individual intelligence can make us resistant to positive change. When this happens, unlearning is necessary to regain perspective.

Acquiring individual wisdom

Having argued for a distinction between knowledge and wisdom, the next question to address is how wisdom is acquired. This is an especially important question, given Srivastva and Cooperrider's argument that "Precisely at a time when we sense the need for wisdom is higher than ever, it appears, paradoxically, to be less and less available" (Srivastva and Cooperrider, 1998, p. 3). We set forth three paths to individual wisdom: experience, spirituality, and passion. Afterwards, we will discuss how individual wisdom and organizational wisdom are related.

Experience

The education, training, and "seasoning" of a person can help them along the path to wisdom. Experience can aid in understanding the broader context of issues, seeing how new knowledge can be integrated into existing knowledge, and assigning value to different types of knowledge. Mahatma Gandhi (*My Experiments with Truth*) tells us that finding a truthful way to solutions requires constant testing. Confucius (*Analects*) reminds us that only the wisest and the very stupidest cannot change. Accordingly, the Confucian school proposes eight successive steps (one being the extension of knowledge) to the Tao. David Kolb's (1984) experiential learning theory provides a model of how learning might be maximized through a cycle of concrete experience to observations and reflection, followed by the formation of abstractions and generalization that are then applied in new situations. The notions and processes we are developing are consistent with Kolb's and are attempting to better understand why wisdom may not develop exactly the same among individuals with the same experience.

Wisdom is partly acquired by means of everyday trial and error (Beck, 1999). We tend to grow wiser throughout most of life; but obviously some are wiser than others, and some increase in wisdom more rapidly than others.

Wisdom is in fact learned or developed. If wisdom involves an interaction between the self and the environment, then a greater knowledge of the environment makes wiser action possible. This is consistent with the ancient Chinese teachings of Lau Tzu who tells us that to be wise is to realize one's harmony with nature and to live in conjunction with nature's rhythm (Solomon and Higgins, 1997).

Harmony can be established both internally and externally. This is not a new idea in the strategy literature. Regarding internal fit, Chandler (1962), Mintzberg (1990) and others have spoken about achieving a fit between an organization's strategy and its structure. That is, structure follows strategy. Regarding external fit, Miles *et al.* (1978), Andrews (1971) and others have spoken about achieving a fit between an organization's strategy and elements in its primary problem or task environment; that is, adapting the structure to the nature of product-market engagements and strategic focus.

It is also consistent with the arguments of Malan and Kriger (1998), who maintain that wisdom develops from a process of progressively finer discernment of variability in the environment. That is, interactions with the environment (experience) lead to the ability to discern variability, which in turn leads to learning and ultimately wisdom. At its core, experience gives individuals an intuitive, "sixth sense"-like ability to assess the relative salience of events, detect changing patterns, judge the importance of developments, and make decisions. In this sense, Malan and Kriger (1998) define managerial wisdom as "the ability to detect those fine nuances between what is right and what is not . . . the ability to capture the meaning of several often contradictory signals and stimuli, to interpret them in a holistic and integrative manner, to learn from them, and to act on them."

Along similar lines, strategic management researchers following the resource-based view of the firm have illustrated the importance of experience in understanding and being able to apply tacit knowledge (Kogut and Zander, 1992; Nonaka, 1994; Spender, 1994). Explicit knowledge, which is knowledge that is articulable or codifiable, can usually be understood and applied in a relatively simple manner without the need for experience. However, tacit knowledge, which is knowledge that can not be formally communicated (Polanyi, 1966), requires experience to be understood. Tacit knowledge is considered especially valuable because it is so difficult to understand and interpret (Kogut and Zander, 1992; Winter, 1987). Thus, wisdom, which is the ability to best use knowledge for action, also requires experience.

Spirituality

Spirituality and religion are different, but related, topics. Spirituality is moral and emotional in nature and involves an understanding and appreciation of one's position in the universe, one's soul, and the role of a God. Organized religions provide rituals, routines and ceremonies that can provide a vehicle for achieving spirituality (Rothberg, 1993). Marcic (1997) illustrates that while the specific rituals of religions are dramatically different, almost all major

religions, including Buddhism, Christianity, Confucianism, Hinduism, Islam and Judaism, follow a variation of one fundamental law: "love your neighbor and treat your neighbor as you would wish to be treated" (pp. 3-5). Being spiritual involves belief and action directed toward aligning oneself with or expression of what is "sacred" (Rothberg, 1993), for example, helping others with integrity and justice. One could be spiritual without following the doctrine of a specific organized religion. Likewise, one could be religious by faithfully attending the ceremonies and following the rules of an organized religion, but lack the true belief associated with spirituality. We argue that spirituality in an organization is a driver of wisdom. Practices of organized religions may help to institutionalize some of the basic beliefs, but not necessarily.

We argue that spirituality can enhance wisdom in two ways. First, wisdom is gained through a self-reflection of experiences and a formulation of deeper goals. Basically, spirituality facilitates wisdom insofar as it helps clarify goals and objectives by providing a foundation of core beliefs and a better, holistic understanding of one's purpose in life. Wisdom is not just the result of rational analysis, but includes a strong sense of integrity, truth and reflection. It includes an understanding of the difference between right and wrong. Thus, self-interest is replaced with more of a sense of community and the "greater good." In this sense, wisdom can be viewed as something that accrues along a spiritual journey (Marcic, 1997). This journey will vary between individuals as people can choose different vehicles for reflection. Take for example, Tom Chappel, founder of "Tom's of Maine". As his company became more profitable he actually became less happy and even lapsed into despair. It was only after he enrolled in the Harvard Divinity School and reflected on his values and beliefs that he was able to run a successful and personally rewarding company (as well as put out a natural, environmentally friendly product). Also, a more formal vehicle that has received some attention in organizations has been transcendental meditation, which has been linked to such desirable organizational outcomes as increased motivation, creativity, job satisfaction, productivity, and employee health (Schmidt-Wilk *et al.*, 1996; Swanson and Oates, 1989; Hagelin, 1993). Other researchers have illustrated the promise in using the technique to raise the consciousness of workers (Harung, 1993; Gustavsson and Harung, 1994).

Spiritual growth can also involve the establishment of partnership between management and employees and a sense of unity with others, which can lead to increased commitment to these goals by all concerned. According to Korten (1995), large multinationals particularly need to change their basic framework of economic beliefs to include a more spiritual dimension "in order to restore democracy and the rights and freedom of people and communities" (p. 308). For the strategist, spirituality leads to a self-understanding of objectives and a translation of overarching purpose that guide actions. For example, Khandwalla speaks of organizational greatness as walking on two legs (Srivastva and Cooperrider, 1998). One is organizational excellence in a

competitive context (traditional strategy). The other is "exalted striving", the advancement of the social conditions of humanity (higher-order strategy). These are independent but not irreconcilable insofar as one's actions can conform to one, the other, neither, or both. In this vein Mahatma Gandhi (*My Experiments with Truth*) tells us that we should adopt "principles of courage, nonviolence, and truth … (because) the way a person behaves is more important than what he achieves." Similarly, Confucius (*Analects*) says that "the superior man thinks of virtue; the small man thinks of comfort. The proper man understands equity, the small man profits." The book of Job in the *Bible* supports the belief that spiritual awareness is a prerequisite for wisdom. Jones (1995), also illustrates this point.

Alice Bailey describes the difference between wisdom and science as relating to the spiritual and material respectively (Beck, 1999):

> Wisdom is the science of the spirit, just as knowledge is the science of matter. Knowledge is separative and objective, whilst wisdom is synthetic and subjective. Knowledge divides; wisdom unites. Knowledge differentiates whilst wisdom blends … Wisdom concerns the one Self, knowledge deals with the not-self.

Thus, Bailey's argument is fundamentally consistent with the establishment of higher-order goals. This is also supported by Wilber's (1998) argument that science is "value-free" in that it only tells us what is true but not what is good or bad, *per se*.

Albert Einstein tells us that accumulating knowledge is insufficient to become wise. In a speech at Princeton University (Einstein, 1939) he spoke about the importance of the spiritual element of wisdom:

> Convictions which are necessary and determinant for our conduct and judgements cannot be found solely along this solid scientific way … The scientific method can teach us nothing else beyond how facts are related to, and conditioned by, each other … Knowledge of what is does not open the door directly to what should be. One can have the clearest and most complete knowledge of what is, and yet not be able to deduct from that what should be the goal of our human aspirations. Objective knowledge provides us with powerful instruments for the achievement of certain ends, but the ultimate goal itself and the longing to reach it must come from another source … The knowledge of truth as such is wonderful, but it is so little capable of acting as a guide that it cannot prove even the justification and the value of aspiration toward that very knowledge of truth. Here we face, therefore, the limits of the purely rational conception of our existence … Intelligence makes clear to us the interrelation of means and ends, but mere thinking cannot make clear these fundamental ends and valuations.

Second, spirituality provides faith, courage and hope that facilitate wise decision making and actions. Most decisions by top management are very complex and based on bounded rationality (March and Simon, 1958). One's spirituality provides guidance and reassurance. The literature on intuition seems to apply here. Intuition is in essence a "leap of faith" which becomes active under certain conditions. Instead of following rigorous scientific principles, it lets creativity and wonder "bubble up" to take one to a place that facts alone could not do (Wilber, 1998). Isenberg (1984) found that managers use intuition in five distinct ways:

(1) for problem sensing;
(2) to perform well-learned behaviors;
(3) to synthesize scattered data;
(4) as a reality check; and
(5) to create solutions, bypassing analysis.

It is immediately apparent that intuition can be all inclusive, allowing the manager to recognize a problem and create a solution without so much as passing any of the decision or problem solving stages described by rational decision models (see Simon, 1977). This results in what might be termed irrational behavior at the extreme but is not often the case in practice. Thus there is evidence that decision making at the highest managerial levels runs contrary to rational decision making approaches (Isenberg, 1984; Spender, 1989). According to Peter Vaill, this type of wisdom can be thought of as feeling your way along or the ability to dance with change and instability without losing one's sense of purpose and direction (Srivastva and Cooperrider, 1998). Agor (1986) describes, as a result of several field studies, under what conditions intuition seems to function best:

- When a high level of uncertainty exists.
- When little precedent exists.
- When variables are less scientifically predictable.
- When facts are limited.
- When several, plausible alternative solutions exists.
- When time is limited.

In summary, there is reason to believe that faith in doing the right thing, in the long run, will be rewarded and provides the courage necessary to act rapidly, decisively and confidently. Consequently faith allows for experimentation and trial and error necessary for the development of wisdom.

Passion

To be wise, one must also have the strength of belief to make it happen. Because wisdom includes action, one must be able to have the drive and the courage to overcome personal, social, and institutional barriers in the name of implementing the "right" strategy. Spirituality promotes passion, as was alluded to above, but passion also increases with the belief that one's work is meaningful. Along with passion comes pride, commitment, empowerment, and energy. As Mahatma Gandhi (*My Experiments with Truth*) tells us, "One must know what is right and to have the strength to do it." Similarly, Confucius (*Analects*) says that "Sincerity is the way of Heaven ... He who attains to sincerity, is he who chooses what is good, and firmly holds it fast. To see what is right and not do it is cowardice." This idea that courage is an element of wisdom is of critical importance, because there is an action-orientation to being

wise. For example, Beck (1999) argues that the process of becoming wise includes a looking-within-oneself component so that a person can direct their love and motivation toward greater values. This is reflected in the actions of James E. Burke, former CEO of Johnson and Johnson, after the Tylenol tragedy. His response was to first serve the public interest regardless of the costs. This illustrates the action orientation of wisdom, or knowing what is right and having the courage to do it. The behaviors of whistle-blowers, police, soldiers, and similar others also illustrate the importance of having the courage to be wise and do the right thing (Srivastva and Cooperrider, 1998).

Passion is strongly linked to motivation. The term motivation comes from the Latin word "movere", which means "to move." Consistently, to be motivated is to arouse and direct action toward a goal in a persistent manner (Mitchell, 1982). Motivation is critical insofar as it puts the energy of the individual into wisdom implementation. Without passion, wisdom reverts to innate, sterile knowledge with potential but unrealized value.

Passion also relates to research on project champions from the innovation literature. Champions are highly committed and persistent individuals (Chakrabarti, 1974; Howell and Higgins, 1990) who typically demonstrate a willingness to sacrifice position or prestige in order to complete the task at hand (Maidique, 1980). Specific ways in which they increase the implementation of strategy include their ability to overcome resistance, get resources, "sell" projects, coordinate activity and facilitate communication, and motivate key participants (Chakrabarti, 1974; Spender and Kessler, 1995). Without a passionate champion or champions, good ideas and strategic wisdom often wither and die within the political trappings of self-interests. Additionally, Peters and Austin (1985) illustrated the need for a passion for excellence by most individuals in an organization to ensure continual learning and to overcome resistance to change.

Organizational wisdom

A strategy that is developed exclusively by only a few top executives and is not communicated to other employees does not guide the employees' actions and does not become an organizational strategy. In other words, there may be wise individuals in the organization, but the organization does not become wise unless individuals' wisdom is articulated and transferred to others. For this, dissemination tools must be used to transfer values and goals to those charged with translating the vision into reality (Christensen and Kessler, 1995). We argue that individual wisdom is transformed into organizational wisdom through several means, three of the most important being:

(1) transformational leadership;

(2) organizational culture and structure; and

(3) knowledge transfer.

Leadership

Karl Jaspers writes that in the history of civilization there have been four men who created and demonstrated a way of life that has been followed by countless peoples: Buddha, Confucius, Socrates, and Jesus (Beck, 1999). These great teachers can be seen as visionary and charismatic leaders in the sense that they transferred to their followers the light of their wisdom and the energy of their dedication. The organizational analogy to these great teachers are the wise CEOs or strategists who, as transformational leaders, impart wisdom to their organizational colleagues and motivate them to achieve their vision.

Transformational leadership "occurs when leaders broaden and elevate the interests of their employees, when they generate awareness and acceptance of the purposes and mission of the group, when they stir their employees to look beyond their own self interests for the good of the group" (Bass, 1990, p. 21). Components of transformational leadership include. . . "(a) charisma: providing vision and sense of mission, instilling pride, gaining respect and trust, (b) inspiration: communicating high expectations, using symbols to focus effort, expressing important purposes in simple ways, (c) intellectual stimulation: promotes intelligence, rationality, and careful problem solving, and (d) individualized consideration: gives personal attention, treats each employee individually, coaches, advises" (Bass, 1990, p. 22). Transformational leadership tends to be most effective if it is strongly based on spirituality, promoting commitment and a sense of community (Bolman and Deal, 1995). Many of the characteristics that we might attribute to the transformational leader are also present in Greenleaf's notion of "servant-leadership." Servant-leadership describes a philosophy in which leaders act as servants to their community through priorities that include conceptualization, foresight, stewardship and community building (Spears, 1995). Similarly, Freire (1997) argues that revolutionary leadership must be co-intentional education; leaders and followers learn from each other's actions and both demonstrate committed involvement.

The transformational leader is similar to the Northern Buddhist conception of the Bodhisattva, a person who does not enter the state of nirvana when they reach enlightenment (read "become wise") but instead remain active in the world, as Buddha did, helping others along the path to enlightenment (Solomon and Higgins, 1997). The Bodhisattva dedicates his life to helping others to become wise. Thus the wise individuals, through education and dedicated effort, can play the role of "teacher" to diffuse and instill wisdom in their followers.

Culture and structure

Among the disparate views of culture (Allaire and Firsirotu, 1984), the most commonly accepted organizational view refers to culture as a system of shared meaning based on common characteristics and shared values (Schein, 1985). Culture serves as a sense-making mechanism that guides and shapes the

values, attitudes, and behaviors of employees (O'Reilly and Chatman, 1996). Its role in shaping values is of special note, for it is through values that behavior flows and is guided (Simon, 1976).

Cultural approaches provide answers to the question, "How do organizations institutionalize an appropriate sense making structure to enable the interpretation of unfamiliar events?" For example, Weick (1985, p. 384) has argued that an organization's culture imposes "coherence, order, and meaning." Coupled with relatively new evidence supporting the link between an organization's culture and its overall performance level (Denison, 1990; Gordon and DiTomaso, 1992) and the perspective of culture as an independent, internal variable (Smircich, 1983), it appears increasingly necessary for strategists to recognize the critical role that cultural tools may play in the success or failure of disseminating wisdom.

Recent evidence has provided increasing support for the claim that the strength of an organization's culture is predictive of its performance, at least in the short term (Denison, 1990; Gordon and DiTomaso, 1992). That is, organizations with coherent, homogeneous, stable, and pervasive belief systems have been shown to outperform those organizations with relatively weaker cultures, as measured by financial measures such as ROI, ROA, and growth in assets (Collins and Porras, 1994). Therefore, one tool available to strategists for diffusing strategic wisdom is to build strong belief systems, perhaps through indoctrination rituals, tangible signs of advocated values, and other practices that symbolize these standards. A strong culture that emphasizes "the wrong things" may not be an asset but a detriment to promoting organizational survival and growth. For example, a strong belief in not overextending oneself will most likely hinder rather than boost a firm's performance. Therefore, strategists must influence both the content and strength of an organizational culture.

Cultures that enable firms to do things for employees, customers, suppliers, the community, and other influential interest groups that could not be done without these cultures have a positive economic value to organizations (Barney, 1986). For example, Christensen and Gordon (1999) found that different patterns of cultural values were associated with sales growth in eight industries. Coupled with similar culture research (Chatman and Jehn, 1994; Phillips, 1994; Spender 1989), this provides some evidence that culture facilitates organizational wisdom in that it prescribes the applicability of certain types of knowledge between and among industries. That is, movement of personnel from one industry to another may produce unwise decisions in the new industry because of the underlying differences in the assumptions and values of that industry. Therefore, the promotion of specific values that are in line with the strategic focus of one's organization, for example "creativity", "quality" or "social responsibility", can significantly aid in the wise selection and translation of plans and objectives for organizational members. Disney (creativity) and Ben and Jerry's (social responsibility) are examples of organizations whose culture imparts these types of values to their employees.

Regularities in activities constitute the structure of organizations (Hickson and Pugh, 1989). Specifically, structure refers to such elements as work specialization, departmentalization, chain of command, span of control, centralization, and formalization (Daft, 1995). These dimensions of structure establish normative (e.g. values, roles) and behavioral (e.g. group and individual activities) expectations (Scott, 1992). Organizations differ on these dimensions, hence they have different structures. For example, some organizations' attributes combine to form bureaucratic, organic, modular, or boundaryless designs. To the extent that structural design matches internal (e.g. technological, strategic) and external (e.g. industrial, institutional) demands, a structure can be said to be wise. That is, wisdom can be institutionalized through appropriate regularities that take into account relevant contingencies. In this sense, structure guides or pre-programs activities to achieve effective ends and hence provides a means of transferring wisdom from individuals to organizations.

Torbert (1991) argues that for a culture to support the development of organizational wisdom, liberating structures must be in place. Liberating structures are means of overcoming barriers that limit organizational learning. The fundamental aim of liberating structures is to empower employees to challenge conventional wisdom by expanding their degrees of freedom and discipline (Torbert, 1991). Openness through liberating mechanisms promotes the development of wisdom by continually challenging an organization's core beliefs and boundaries in the search of truth.

Knowledge transfer

The very processes of knowledge transfer and organizational learning provide a fundamental mechanism for the development of organizational wisdom. Simply put, organizational wisdom can be enabled through an effective organizational communication system that encourages learning. The rationale is that as knowledge is transferred from person to person, department to department, and level to level, it not only carries the potential of broadening the organization's overall knowledge base (Anand *et al.*, 1998) but its usefulness is simultaneously transmitted. Over time the wisdom becomes institutionalized, remaining with the organization even if the initial "wise" individuals leave.

Acquiring knowledge is not easy for any firm (Huber, 1991). It may be transferred from external sources in the form of new employees (Matusik and Hill, 1998), acquisition, alliances, and joint ventures among others (Hamel, 1991; Powell *et al.*, 1996). It may also be created or transferred from within such as from research and development to production. In either case, one of the fundamental characteristics of successful knowledge transfer is the perceived usefulness of that knowledge. We know that ambiguity about the applicability and usefulness of knowledge is a fundamental hindrance to transfer (see Nelson and Winter, 1982). Cohen and Levinthal (1990) discussed the need for "absorptive capacity" to transfer knowledge; the members of the firm need to

understand and appreciate the knowledge before they can actually use it. Knowledge transfer is particularly difficult when it must be integrated with other types of knowledge (Kogut and Zander, 1992).

Table II summarizes the key arguments we make in this paper. First, judgement and action are the core elements of wisdom. Second, experience, spirituality and passion provide the paths to individual wisdom. Third, individual wisdom is diffused to organizational wisdom via:

- transformational leadership;
- appropriate organizational culture and structure; and
- effective knowledge transfer mechanisms.

Conclusion

A perusal of the corporate landscape and academic literature cannot help but reveal the increased attention paid to "knowledge management" and the rise of a new breed of organizational strategist, the chief knowledge officer (CKO). This is a positive step, but not an end in itself. Knowledge management is valuable insofar as it involves the practice of capturing a corporation's collective experiences (LaPlante, 1997). However, knowledge management is transitory and but one link in the value chain. Just as CIOs (chief information officers) evolved into CKOs, firms need to establish a coordinated effort towards applying their knowledge with courage and creativity. That is to say, a wise CEO will make better decisions and inspire greater loyalty and trust than just a knowledgeable CEO (Schrage, 1996).

> Imagination is more important than Knowledge (Albert Einstein).

Additionally, wisdom must be transferred throughout the organization. This will not happen unless:

- the concept of organizational wisdom is understood and valued throughout the organization; and
- organizational leadership, culture and structure are specifically focused toward facilitating its development and transfer.

As a final note, it is important to realize that precision in using words also contributes to wisdom. As argued by Confucius, "If words are not right, judgements are not clear." Therefore, this paper can be framed as contributing

Elements of wisdom	Paths to individual wisdom	Diffusing individual to organizational wisdom
Judgement Action	Experience Spirituality Passion	Transformational leadership Appropriate culture and structure Knowledge transfer

Table II.
Elements of, paths to, and diffusion of wisdom

to our collective wisdom by helping to make clearer the distinction between knowledge and wisdom. Of course, since wisdom also implies action, we cannot predict its real contribution until it is read.

References

Allaire, Y. and Firsirotu, M.E. (1984), "Theories of organizational culture", *Organizational Studies*, Vol. 5, pp. 193-226.

Anand, V., Manz, C.C. and Glick, W.H. (1998), "An organizational memory approach to information management", *Academy of Management Review*, Vol. 23, pp. 796-809.

Anderson, J.R. (1991), "The adaptive nature of human categorization", *Psychological Review*, Vol. 98, pp. 409-29.

Andrews, K.R. (1971), *The Concept of Corporate Strategy*, Irwin, Homewood, IL.

Agor, W.H. (1986), "The logic of intuition: how top executives make important decisions", *Organizational Dynamics*, Vol. 14, Winter, pp. 5-18.

Argyris, C. and Schon, D.A. (1978), *Organizational Learning*, Addison-Wesley, Reading, MA.

Barney, J. (1986), "Organizational culture: can it be a source of competitive advantage?", *Academy of Management Review*, Vol. 11, pp. 656-65.

Barney, J. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99-119.

Bass, B.M. (1990), "From transactional to transformational leadership: learning to share the vision", *Organizational Dynamics*, Winter, pp. 19-31.

Bateson, G. (1972), *Steps to an Ecology of Mind*, Ballantine, New York, NY.

Beck, S. (1999), *Confucius and Socrates: The Teaching of Wisdom*, http://www.san.beck.org

Berman, M. (1981), *The Reenchantment of the World*, Cornell University Press, Ithaca, NY.

Bierly, P. (1999), "Development of a generic knowledge strategy typology", *Journal of Business Strategies*, Vol. 16 No. 1, pp. 1-26.

Bierly, P. and Chakrabarti, A. (1996), "Generic knowledge strategies in the US pharmaceutical industry", *Strategic Management Journal*, Vol. 17, Winter special issue, pp. 123-35.

Bloom, B.S. (1956), *Taxonomy of Educational Objectives, Handbook I: Cognitive Domain*, Longman, New York, NY.

Bolman, L.G. and Deal, T. E. (1995), *Leading with Soul: An Uncommon Journey of Spirit*, Jossey-Bass, San Francisco, CA.

Brown, J.S. and Duguid, P. (1991), "Organizational learning and communities of practice: towards a unified view of working, learning and organization", *Organization Science*, Vol. 2 No. 10, pp. 40-57.

Brynjolfsson, E. (1993), "The productivity paradox of information technology", *Communications of the ACM*, Vol. 35, pp. 66-77.

Chakrabarti, A.K. (1974), "The role of champions in product innovation", *California Management Review*, Vol. 17 No. 2, pp. 58-62.

Chandler, A.D. (1962), *Strategy and Structure*, MIT Press, Cambridge, MA.

Chatman, J.A. and Jehn, K. (1994), "Assessing the relationship between industry characteristics and organizational culture: how different can you be?" *Academy of Management Journal*, Vol. 37, pp. 522-53.

Christensen, E.W. and Gordon, G.G. (1999), "An exploration of industry, culture and revenue growth", *Organization Studies*, Vol. 20, pp. 397-422.

Christensen, E.W. and Kessler, E.H. (1995), "A toolbox metaphor for navigating the strategic discourse", in Foster, L.W. (Ed.), *Advances in Applied Business Strategy*, Vol. 4, JAI Press, Greenwich, CT, pp. 171-202.

Cohen, W.M. and Levinthal, D.A. (1990), "Absorptive capacity: a new perspective on learning and innovation", *Administrative Science Quarterly*, Vol. 35, pp. 128-52.

Collins, J.C. and Porras, J.I. (1994), *Built to Last: Successful Habits of Visionary Companies*, HarperCollins, New York, NY.

Daft, R.L. (1995), *Organizational Theory and Design*, 5th ed., West, St Paul, MN.

Daft, R.L. and Huber, G.P. (1987), "How organizations learn: a communication framework", in DiTomaso, N. (Ed.), *Research in the Sociology of Organizations*, Vol. 5, JAI Press, Greenwich, CT, pp. 1-36.

Davis, G.B. and Olson, M.H. (1985), *Management Information Systems: Conceptual Foundations, Structure and Development*, McGraw Hill, New York, NY.

Denison, D.R. (1990), *Corporate Culture and Organizational Effectiveness*, Wiley, New York, NY.

Edwards, P. (Ed.) (1972), *Encyclopedia of Philosophy*, Vol. 8, Free Press, New York, NY.

Einstein , A. (1939), *Address at Princeton Theological Seminary*, May 19, Princeton, NJ.

Freire, P. (1997), *Pedagogy of the Oppressed*, Translated by Myra Bergman Ramos, Continuum, New York, NY.

Gordon, G.G. and DiTomaso, N. (1992), "Predicting corporate performance from organizational culture", *Journal of Management Studies*, Vol. 29, pp. 783-98.

Grant, R.M. (1991), "The resource-based theory of competitive advantage", *California Management Review*, Vol. 33 No. 3, pp. 114-35.

Grant, R.M. (1996), "Toward a knowledge-based theory of the firm", *Strategic Management Journal*, Vol. 17, Winter Special Issue, pp. 109-21.

Grant, R.M. (1998), *Contemporary Strategy Analysis*, 3rd ed., Blackwell, Malden, MA.

Griliches, Z. (1990), "Patent statistics as economic indicators: a survey", *Journal of Economic Literature*, Vol. 28, pp. 1661-707.

Gustavsson, B. and Harung, H.S. (1994), "Organizational learning based on transformming collective consciousness", *Organizational Learning*, Vol. 1, pp. 33-40.

Hagelin, J.S. (1993), *The Physiology of Consciousness*, Maharishi International University Press, Fairfield, IA.

Hamel, G. (1991), "Competition for competence and interpartner learning within international strategic alliances", *Strategic Management Journal*, Vol. 12, pp. 83-103.

Harman, W. (1988), *Global Mind Change*, Knowledge Systems, Inc., Indianapolis, IN.

Harung, H.S. (1993), "More effective decisions through synergy of objective and subjective approaches", *Management Decision*, Vol. 31 No. 7, pp. 38-45.

Hastie, R., Ostrom, T.M., Ebbsen, E.B., Wyer, R.S., Hamilton, D.L. and Carlston, D.E. (Eds) (1981), *Person Memory: The Cognitive Basis for Social Perception*, Lawrence Erlbaum, Hillsdale, NJ.

Hawken, P. (1993). *The Ecology of Commerce: A Declaration of Sustainability*, HarperCollins, Publishers, New York, NY.

Henderson, R. and Cockburn, I. (1994), "Measuring competence? Exploring firm effects in pharmaceutical research", *Strategic Management Journal*, Vol. 15, Winter special issue, pp. 63-84.

Hickson, D.S. and Pugh, D.J. (1989), *Writers on Organizations*, Sage, Newbury Park, CA.

Hitt, L.M. and Brynjolfsson, E. (1996), "Productivity, business profitability, and consumer surplus: three different measures of information technology value", *MIS Quarterly*, Vol. 20 No. 2, pp. 121-42.

Howell, J.M. and Higgins, C.A. (1990), "Champions of technological innovation", *Administrative Science Quarterly*, Vol. 35, pp. 317-41.

Huber, G.P. (1991), "Organizational learning: an examination of the contributing processes and the literatures", *Organization Science*, Vol. 2, pp. 88-115.

Huber, G.P. (1990), "A theory of the effects of advanced information technologies on organizational design, intelligence, and decision making", *Academy of Management Review*, Vol. 15, pp. 47-71.

Isenberg, D.J. (1984), "How senior managers think", *Harvard Business Review*, November-December, pp. 81-90.

Jones, L.B. (1995), *Jesus, CEO: Using Ancient Wisdom for Visionary Leadership*, Hyperion, New York, NY.

Kiesler, S. and Sproull, L. (1982), "Managerial response to changing environments: perspectives on problem sensing from social cognition", *Administrative Science Quarterly*, Vol. 27, pp. 548-70.

Kogut, B. and Zander, U. (1992), "Knowledge of the firm, combinative capabilities, and the replication of technology", *Organization Science*, Vol. 3, pp. 383-97.

Kolb, D. (1984), *Experential Learning: Experience as the Source of Learning and Development*, Prentice-Hall, Engelwood Cliffs, NJ.

Korten, D.C. (1995), *When Corporations Rule the World*, Kumarian Press, West Hartford, CT.

LaPlante, A. (1997), "Sharing the wisdom", *Computerworld*, Vol. 31 No. 22, p. 73.

Leonard-Barton, D. (1995), *Wellsprings of Knowledge*, Harvard Business School Press, Boston, MA.

McClean, A. and Staughton, R. (1996), "Never mind the answers, check out the questions. Reflections on patterns in the application of management wisdom", presented at the British Academy of Management Conference, Birmingham, UK.

McWhinney, W. (1992), *Paths of Change: Strategic Choices for Organizations and Society*, Sage, Newbury Park, NJ.

Machlup, F. (1983), "Semantic quirks in studies of information", in Machlup, F. and Mansfield, U. (Eds), *The Study of Information*, Wiley, New York, NY.

Mahoney, J. and Pandian, J.R. (1992), "The resource-based view within the conversation of strategic management", *Strategic Management Journal*, Vol. 13, pp. 363-80.

Maidique, M.A. (1980), "Entrepreneurs, champions, and technological innovation", *Sloan Management Review*, Vol. 21 No. 2, pp. 59-76.

Malan, L.C. and Kriger, M.P. (1998), "Making sense of managerial wisdom", *Journal of Management Inquiry*, Vol. 7 No. 3, p. 242.

March, J.G. and Simon, H.A. (1958), *Organizations*, John Wiley, New York, NY.

Marcic, D. (1997), *Managing with the Wisdom of Love*, Jossey-Bass Publishers, San Francisco, CA.

Markus, H. and Zajonc, R.B. (1985), "The cognitive perspective in social psychology", in Lindzey, G. and Aronson, E. (Eds), *Handbook of Social Psychology*, Lawrence Erlbaum, Hillsdale, NJ, pp. 137-230.

Matusik, S.F. and Hill, C.W. (1998), "The utilization of contingent work, knowledge creation, and competitive advantage", *Academy of Management Review*, Vol. 23, pp. 680-97.

Maxwell, N. (1984), *From Knowledge to Wisdom*, Blackwell, Oxford.

Miles, R.E., Snow, C.C., Meyer, A.D. and Coleman, H.J. (1978), "Organizational strategy, structure, and process", *Academy of Management Review*, July, pp. 546-62.

Miller, J.G. (1978), *Living Systems*, McGraw-Hill, New York, NY.

Mintzberg, H. (1990), "The design school: reconsidering the basic premises of strategic management", *Strategic Management Journal*, Vol. 11, pp. 171-95.

Mitchell, T.R. (1982), "Motivation: new direction for theory and research", *Academy of Management Review*, Vol. 7, January, pp. 80-8.

Morbey, G.K. (1989), "R&D expenditures and profit growth", *Research Technology Management*, Vol. 32 No. 3, pp. 20-3.

Nass, C. (1994), "Knowledge or skills: which do administrators learn from experience?" *Organization Science*, Vol. 5 No. 1, pp. 38-50.

Nelson, R.R. and Winter, S.G. (1982), *An Evolutionary Theory of Economic Change*, Harvard University Press, Cambridge, MA.

Nonaka, I. (1994), "A dynamic theory of organizational knowledge creation", *Organization Science*, Vol. 5, pp. 14-37.

Norman, D.A. and Bobrow, D.G. (1975), "On the role of active memory processes in perception and cognition", in Cofer, C. (Ed), *The Structure of Human Memory*, Freeman, San Francisco, CA.

O'Reilly, C.A. and Chatman, J.A. (1996), "Culture as social control: corporations, cults, and commitment", in Staw, B.M. and Cummings, L.L. (Eds), *Research in Organizational Behavior*, Vol. 18, JAI Press, Greenwich, CT, pp. 157-200.

Peters, T.J. and Austin, N. (1985), *A Passion for Excellence*, Random House, New York, NY.

Phillips, M.E. (1994), "Industry mindsets: exploring the cultures of two macro-organizational settings", *Organizational Science*, Vol. 5, pp. 384-402.

Pisano, G.P. (1994), "Knowledge, integration, and the locus of learning: an empirical analysis of process development", *Strategic Management Journal*, Vol. 15, Winter special issue, pp. 85-100.

Polanyi, M. (1966), *The Tacit Dimension*, Routledge & Kegan Paul, London.

Porter, M.E. (1980), *Competitive Strategy*, Free Press, New York, NY.

Porter, M.E. (1996), "What is strategy?", *Harvard Business Review*, November-December, pp. 61-78.

Powell, W.W., Koput, K.W. and Smith-Doerr, L. (1996), "Interorganizational collaboration and the locus of innovation: networks of learning in biotechnology", *Administrative Science Quarterly*, Vol. 41, pp. 116-45.

Prahalad, C.K. and Hamel, G. (1990), "The core competence of the corporation", *Harvard Business Review*, Vol. 68 No. 3, pp. 79-91.

Rothberg, D. (1993), "The crisis of modernity and the emergence of socially engaged spirituality", *Revision: A Journal of Consciousness and Transformation*, Vol. 15 No. 3, pp. 105-14.

Schein, E.H. (1985), *Organizational Culture and Leadership*, Jossey-Bass, San Francisco, CA.

Scherer, F.M. (1980), *Industrial Market Structure and Economic Performance*, Rand McNally, Chicago, IL.

Schmidt-Wilk, J., Alexander, C. and Swanson, G. (1996), "Developing consciousness in organizations: the transcendental meditation program in business", *Journal of Business and Psychology*, Vol. 10 No. 4, pp. 429-44.

Schrage, M. (1996), "Why stop at knowledge management", *Computerworld*, Vol. 30 No. 46, p. 37.

Schramm, W. (1954), "How communication works", in Schramm, W. (Ed.), *The Process and Effects of Communication*, University of Illinois Press, Urbana, IL.

Scott, W.R. (1992), *Organizations: Rational, Natural, and Open Systems*, Prentice-Hall, Englewood Cliffs, NJ.

Senge, P.M. (1990), *The Fifth Discipline*, Doubleday, New York, NY.

Simon, H.A. (1977), *The New Science of Management Decisions*, Prentice-Hall, Englewood Cliffs, NJ.

Simon, H.A. (1976), *Administrative Behavior*, Macmillan, New York, NY.

Smircich, L. (1983), "Concepts of culture and organizational analysis", *Administrative Science Quarterly*, Vol. 28, pp. 339-58.

Solomon, R.C. and Higgins, K.M. (1997), *A Passion for Wisdom*, Oxford University Press, Oxford.

Spears, L.C. (1995), *Reflections on Leadership: How Robert K. Greenleaf's Theory of Servant-Leadership Influenced Today's Top Management Thinkers*, Wiley, New York, NY.

Spender, J.-C. (1996), "Making knowledge the basis of a dynamic theory of the firm", *Strategic Management Journal*, Vol. 17, Winter Special Issue, pp. 45-62.

Spender, J.-C. (1994), "Knowing, managing and learning: a dynamic managerial epistemology", *Management Learning*, Vol. 25 No. 3, pp. 387-412.

Spender, J-C. (1989), *Industry Recipes: The Nature and Sources of Managerial Judgment*, Basil Blackwell, Oxford.

Spender, J.-C. and Kessler, E.H. (1995), "Managing the uncertainty of innovation: extending Thompson (1967)", *Human Relations*, Vol. 48, pp. 35-56.

Srivastva, S. and Cooperrider, D. (Eds) (1998), *Organizational Wisdom and Executive Courage*, The New Lexington Press, San Francisco, CA.

Starbuck, W.H. (1992), "Learning by knowledge intensive firms", *Journal of Management Studies*, Vol. 29 No. 6, pp. 713-40.

Swanson, G. and Oates, R. (1989), *Enlightened Management: Building High Performance People*, Maharishi International University Press, Fairfield, IA.

Torbert, W. (1991), *The Power of Balance: Transforming Self, Society, and Scientific Inquiry*, Sage, Thousand Oaks, CA.

Webster's New Tewntieth-Century Dictionary of the English Language, Unabridged (1961), The Publisher's Guild, New York, NY.

Weick, K.E. (1985), "The significance of corporate culture", in Frost, P., Moore, L., Louis, M., Lundberg, C. and Martin, J. (Eds), *Organizational Culture*, Sage, Beverly Hills, CA, pp. 381-9.

Wilber, K. (1998), *The Marriage of Sense and Soul: Integrating Science and Religion*, Random House, New York, NY.

Winter, S. (1987), "Skill and knowledge as strategic assets", in Teece, D. (Ed.), *The Competitive Challenge*, Ballinger, Cambridge, MA, pp. 159-84.