

Identification of Problems Associated with Implementing Organizational Learning through A Systems-based Approach

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1.0 Abstract

This paper uses a systems-based approach to identify problems associated with organizational learning in various subsystems in an organization. The functionalist model of the systems-based approach is first used to identify the relevant sub systems involved in organizational learning. This is followed by a consideration of key functional sub systems deemed important in the context of Organizational Learning. These sub-systems include the goal, managerial as well as human subsystems. Problems that are manifested in the context of each subsystem are identified. These problems are then assessed in the context of the overall organizational setting. An analysis the problems associated with each subsystem suggests that a traditional, linear model of problem identification that is normally used to identify problems is inappropriate. Organizational learning requires a system based approach to accurately identify organizational learning related problems. The paper concludes that for an accurate and definitive identification of the root causes of problems associated with organizational learning to be identified, a consideration of the interdependencies and inter relatedness of the various sub systems has to be carried out. For this to be done a systems approach is required.

2.0 Introduction

In the knowledge economy, knowledge is increasingly becoming the only sustainable source of competitive advantage (Prahalad 1990; Hedlund 1993; Grant 1996; Prusak 1996; Roth 1996; Mohrman 2002). This is more so when the knowledge available or sought, is used extensively to overcome work based problems or as a leverage on opportunities that emerge (Sugarman 2001). Since knowledge has been considered as a quality possessed by people through a process of learning (Buckley 2000), it follows that knowledge levels may grow exponentially if management is able to “ stimulate the conditions to learn more and increase the experience of the workforce” (Carneiro 2000).

As such, organizations need to continually engage in a learning process to remain competitive. This implies that organizational learning itself is a main source of competitive advantage, a proposition that has high lighted extensively in scholarly literature and research (Stata 1989; Spender 1994; Inkpen 1995; Rahim 1995; Bierly 1996) as cited by Schultz (Schulz 2001) . However, despite the generally accepted notion that organizational learning is important, most organizations fail to implement or sustain organizational learning.

One of the reasons for this is due to the difficulty associated with identifying specific problems faced in organizational learning. Three of the most cited authors in the field of Organizational Learning and Knowledge Creation are Peter Senge and Nonaka and Takeuchi. Peter Senge (Senge 1990), for example, made a moot point about the five disciplines required for Organizational Learning to take root and Nonaka and Takeuchi in their influential work on Knowledge creation (Nonaka 1995) proposed the use of metaphors to encourage dialogue and make tacit ideas explicit. Both these authors have contributed considerably towards prescribing what needs to be done but neither of them have provided a framework of action that can be readily pursued (Garvin 1998).

The extant literature on Organizational Learning as a whole seems to be skewed excessively towards defining concepts and proposing interventions that appear good on paper but do not attempt to provide a clear framework that allows for identification of problems encountered on the ground. This view is shared by Taudes who laments that the main weakness of the formal models of learning organizations so far developed is their limited practical relevance (Taudes 2002).

The reason for this could be attributed to the fact that "it is not easy to identify a concrete example of an organizational setting that fits the model" of organizational learning (Lounamaa 1987). Hawkins pointed out some of the dangers faced by 'half-developed' ideas: "the notion becomes the latest visible solution," and "all too quickly, rigorous exploration of the concept and the careful development of workable models gives way to evangelism and commercialisation." as cited by Sadler-Smith (Sadler-Smith 2001).

Based on the above, the challenge lies in identifying what specific problems are being faced before attempts may be made to establish how these problems can be resolved as organizations grapple with the challenge of trying to implement or sustain organizational learning. This paper makes an attempt at identifying through the use of a systems based approach, the nature of problems faced in organizational learning.

To fulfill this objective, the following approach shall be adopted. A system based approach will be used to identify based on extant literature, specific problems associated within each subsystem that is significant in the context of organizational learning. This will be followed by an attempt to classify these problems so that a better understanding of the nature of these problems may emerge.

3.0 Definition of Organizational Learning

For organizational learning to be successfully implemented, three important requirements need to be met. These requirements include addressing issues that relate to meaning, method and measurement (Garvin 1998). Conceptually, these requirements may be met through the use of knowledge management models (Sharma 2003) However, to ensure that organizational learning is permanent and routine, it is necessary to define organizational learning in a manner that encompasses these requirements so that they can be readily operationalized. With this in mind, it would appear that the definition proposed by Marsick and Watkins is appropriate (Marsick 1999). The definition emphasizes the need for systems level, continuous learning in order to create and manage knowledge outcomes. This would result in improvements to the organization's performance and ultimately, in its financial and intellectual capital. A close examination of the definition reveals that a systems-based approach for organizational learning is advocated. In addition, organizational learning needs to be closely monitored to ensure that the knowledge outcome of learning is managed effectively to bring about the desired end results by the organization.

4.0 Systems-based Approach to Organizational Learning

A system may be defined as "an organized, unitary whole composed of two or more interdependent parts, components or subsystems and delineated by identifiable boundaries from its environmental super system" (Kast 1985)

Many writers (Senge 1990; Argyris 1996; Marsick 1999) have recommended the use of a systems-based approach in facilitating organizational learning. This is primarily done to emphasize the continuous learning process required at the individual, team and organizational level, functioning essentially as an integrated system (Marsick 1999). The reason for this has been succinctly put forth by Flood (Flood 1999) who observed that the learning process is "highly creative and adaptive and is therefore eminently suitable to a systemic approach".

Peter Senge (Senge 1990) recognized this and proposed the concept of systems thinking that needs to be incorporated in order for organizations to become “learning organizations”. He cites systems thinking as the most important of the five disciplines necessary because it underpins the others, namely, personal mastery, mental models, shared vision and team learning.

Senge’s contribution towards increasing the awareness of the importance of learning organizations is considerable. However, his discourse is primarily descriptive and is not prescriptive enough for organizations to implement the concepts extolled easily. It essentially does not provide a “framework for action” (Garvin 1998). In addition, his version of systems thinking is severely limited because it “ adds little of originality to interpretive systems thinking” (Jackson 2000) and does not enhance the contributions of other systems gurus (Flood 1999). It has been, in the view of the writer, correctly pointed out, that he should have used a more pluralistic approach (Jackson 2000) that may include a functionalists approach as well.

This paper adopts a systems approach towards identifying problems associated with organizational learning through the use of a Functionalist Systems Approach.

The Functionalist Systems approach describes ‘Organizations as Systems’ in which the system appears as objective aspects of reality, independent of observers. In this way, it becomes possible to acquire knowledge about the system to improve the technical efficiency or efficacy of the system. (Jackson 2000). This will allow for a closer examination of specific problems associated with organizational learning within each sub system and how they in turn affect other sub systems in the organization.

5.0 Rationale for the Use of a Systems-Based Approach

The literature on organizational learning may be broadly categorized as individual, team- based or systems-based learning. Individuals learn through direct experience but team learning involves attempts to reconcile differing interpretations of commonly observed events or actions. The degree of complexity increases as the transition to systems learning is made. This requires new skills and insights into “how individuals learn about larger systems and how larger systems in turn learn from individuals and teams existing within it” (Roth 1996)

Roth observed that as organizations become increasingly complex and dynamic, individuals become increasingly limited in their ability to conceptualize this dynamic complexity. Similarly, team learning is inadequate in serving the larger interest of the organization. The reason for this is the emergence of barriers between teams and larger systems due to teams attempting to “protect the teams innovative learning effort” (Roth 1996)

For a better and more comprehensive understanding of the complexities involved in implementing and sustaining organizational learning, a systemic enquiry approach is recommended.

A systemic inquiry is best described as:

“The intentional, holistic, consistent and interdependent incorporation of as many relevant perspectives, knowledge types and methodological approaches as possible to the work of a purposeful learning community as possible. It directly confronts the forces that tend to limit learning in organizations.”

(Cavaleri 1996)

It is therefore advisable to address organizational learning issues in terms of a systems-based approach that allows for a systemic inquiry to be adopted

6.0 Application of Functionalist Systems Approach

According to the Contingency Theory, the organization is viewed as consisting of a series of interdependent subsystems, each of which has a function to perform within the context of the organization as a whole.

Jackson identified four subsystems: the human subsystem, the management subsystem, the technical subsystem and the goal subsystem to be significant within the context of this theory (Jackson 2000).

For a modern organization, De Green (De Green 1982) recommended the subdivision of an organization into the technological, the psychological, the social as well as the political subsystem.

In line with this social perspective, Organizational Learning has been defined as :

“the process of actively creating, acquiring and communicating information and knowledge through the involvement of all members of an organization in a

continual basis. It is essentially an activity undertaken by a Learning Organization which essentially is a particular type of Organization in itself" (Di Bella 1995; Tsang 1997; Elkjaer 1999; Finger 1999) as cited by Ortenblad (Ortenblad 2001)

Based on the definition listed above, it appears that there are four main constituents that are important in order for organizational learning to take place, There must be a clearly defined goal for the organization concerned, there must be involvement of managers and all employees and this involvement has to be at a psychological level. Therefore, it is instructive to focus on addressing problems associated with organizational learning, it is proposed that the discussion revolves around human, management goals as well as psychological subsystems, given that these sub systems are most closely associated with organizational learning.

6.1 Goal Subsystems Consideration

6.1.1 Importance of goal sub systems in organizational learning

There exists a high degree of interrelatedness between the goal and the rest of the other sub systems described. This is because the choice of a goal " will have an effect on the technical, managerial and human systems and also upon the best structure to employ" (Jackson 2000)

Within the context of Organizational Learning and Knowledge Management, many prominent scholars have repeatedly demonstrated this view. The need for a clearly defined and explicitly identified Knowledge Management strategy is required for a strategic alignment between "business vision, knowledge management system implementation and architectural design considerations" (Tiwana 2002). Failure to develop such a goal could impair the maintenance of "coherences in activities that relate to organizational structure and culture, process and technology" (Quintas 1997). This is an important requirement in order to make the factor knowledge productive (Beijerse 1999) on a continual basis. Furthermore, the absence of a goal would result in the organization concerned being unlikely to be able to make choices about key aspects of their knowledge environment (Liebowitz 1999) and this will impede efforts aimed at promoting Organizational Learning.

6.1.2 Problems associated with goal subsystems

One of the enabling factors for organizational learning is the development of appropriate learning and knowledge management strategies or purpose (Demarest 1997; Quintas 1997; Beijerse 2000). Having a learning strategy is crucial because it serves as the attractor for “pulling certain competencies into its orbit” (Allee 1997). It is imperative then that the nature and purpose of organizational learning be explicitly identified and communicated for organizational learning to be implemented effectively.

Since learning may be considered as a form of knowledge transfer (Tiwana 2002), it follows that for it to be effectively implemented, a knowledge management-corporate strategy link should be identified (Zack 1999). Empirical Studies have shown that this is not the case (Sharma 2003b). The absence of such a link has been identified as a major hindrance to knowledge creation and utilization in the workplace. (Lang 2001). Two main reasons account for this. The first relates to the preoccupation with short term goals and the second on time constraints faced by management.

6.1.2.1 Preoccupation on short-term goals

Due to the unrelenting pursuit towards meeting short term financial objectives, organizations invariably find themselves trapped in a situation in which they “demand action over learning” (Tiwana 2002). Even if organizational learning goals are identified, empirical studies have shown that they are pursued implicitly and are not explicitly defined in organizations, functioning in highly competitive environments (Sharma 2003b). As a direct consequence of the pressing need for meeting short term financial objectives, there is a tendency for senior management to assume that strategy formulation and implementation is the sole purview of a few senior managers (James 2003); as such, issues relating to learning and knowledge acquisition are not considered during strategy formulation. This results in a failure to develop a knowledge management strategy –corporate strategy link.

6.2.1.2 Time Constraints

The failure to identify the link between learning and corporate level strategy may also be attributable to scant time being devoted to this endeavor. This ultimately affects the effective implementation of organizational learning. This is in line with Gunn's (Gunn 1978) contention that the failure to allocate sufficient time for the endeavor aimed at implementation is a contributory factor towards failure to implement a policy.

Many reasons account for why scant time is devoted to this endeavor. One of them is that organizations that operate in highly competitive environments are hard pressed to allocate sufficient time for ensuring its implementation because of the pressures exerted to meet aggressive deadlines (Elmes 1995). Furthermore, building a learning organization is a long-term project (Kippenberger 1997) that needs time, focus and commitment in order to materialize. These resources are short in supply given that management has to continually address industrial, market and economic conditions that may possess strategic learning barriers to organizations. (Levinthal 1993; Nordhaug 1994; Szulanski 1996). This takes considerable time and effort and in highly competitive environments, survival takes precedence over long term growth prospects.

It follows therefore that that practical realities on the ground make it extremely difficult for identifying and pursuing knowledge based strategy that is an important enabling condition for organizational learning.

6.2 Managerial Subsystems Consideration

6.2.1 Importance of managerial subsystems in organizational learning

Management is clearly a functional imperative since management is required to "balance the pulls exerted by other subsystems and to fit the organization into its environment" (Jackson 2000). The functional imperative provided by the management subsystem is important because managers possess "strategic choice" which may be used to influence some of the environmental factors that affect organizations (Child 1972; Child 1984) The existence of the authority boundary in the minds of managers results in business strategy not being routinely shared and discussed with employees (Mohrman 2002). Senior managers believe that top management knowledge is privileged over others (Coopey 1994; Coopey 1995). They have no direct contact with realities of the situation and find it difficult to accept the insights of those who are close to the environment (Easterby-Smith 1997).

The failure to accept and consider insights from front line workers can affect organizational learning. This is because the front-line workers are best positioned to provide the kind of insight required as they continuously encounter problems on the ground. However, all too often the knowledge gained by overcoming these problems remains with the individual and is not passed on to those who could make a lasting difference.(Tucker 2002).

The existence of organizational structure issues regarding hierarchical positions can pose significant barriers to organizational learning (Hodgkinson 2000). Green (Green 2000) contends that these barriers have their reasons for existing and “ cannot simply be ignored or condemned, rather, they need to be made explicit and worked through by each organization to find its own way forward.”

Based on the above, the boundaries that exist in the minds of managers and in existing organizational structures inhibit efforts that are necessary for continued implementation of organizational learning. This in turn impedes the development of the necessary processes and structures required for learning to be permanent and routine (Marsick 1999)

6.2.2 Problems associated with managerial subsystems

Managerial subsystems-related problems may be attributed to difficulties associated with dealing with other stakeholders and external factors that can influence organizational learning outcomes as well as problems relating to developing a shared vision and commitment towards working together.

6.2.2.1 Dealing with other stakeholders that can influence organizational learning outcomes

Successful implementation of organizational learning involves active involvement of all stakeholders in the organization. Management depends on the shareholders for funds to implement organizational learning, on providers of technological infrastructure for technical and operational requirements and on the willingness of knowledge workers to successfully implement it. In addition to this, other external factors beyond the control of managers can affect organizational learning. Matzdorf (Matzdorf 2000) identified competition, the

complex nature of professional bodies and unwritten rules as such external factors in a survey conducted.

Since the nature and degree to which organizational learning succeeds are contingent on factors beyond the immediate control of management, its implementation is imperfect. This is because one of the pre conditions for perfect implementation of a policy is that “there should be a single implementing agency, which need not depend upon other agencies for success.” (Gunn 1978). If there is a dependence on other agencies, then the implementing agency will be unable to be in full control of the implementation. Within the context of organizational learning, this can frustrate management attempts at implementing and sustaining organizational learning. Based on this, it is evident that the implementation of organizational learning that is contingent on external factors is less likely to succeed.

6.2.2.2 Developing a shared vision

In addition to addressing a critical business need, a successful learning based change will require new processes and capacity to collaborate more effectively to be developed (Sugarman 2001). This view is supported by Sveiby (Sveiby 2002) who demonstrated empirically the critical role a collaborative climate plays in supporting organizational learning. The development of new work processes and increased capacity to collaborate effectively will require the development of a shared vision for this to succeed.

Developing a shared vision was identified by Senge (Senge 1990) as one of the five disciplines of a learning organization. However, developing a shared vision is the “the most difficult part of the paradigm of Senge” because visions of managers and operators differ considerably. (Steiner 1998). Two factors account for this. Firstly, organizations are made up of a collection of people who have different objectives in working lives, different motivations and different orientations towards work (Watson 1986). Secondly, individuals’ perspectives in organizations are “inevitably influenced by their position in hierarchies of power” (Burgoyne 1997; Snell 1998) as cited by Hodgkinson (Hodgkinson 2000). As such, developing a shared vision is desirable but extremely impractical.

Based on the above, there are inherent problems within the management subsystem that can frustrate attempts at developing and sustaining organizational learning.

6.3 Human Subsystems Consideration

6.3.1 Importance of Human Subsystems in Organizational Learning

The human subsystems are deemed to play an important role in successful implementation of Organizational Learning because human needs have acquired the status of a functional imperative (Jackson 2000). Organizations cannot create knowledge on their own without the “initiative of the individual and the interaction that takes place within the group” (Nonaka 1995). What is required is a learning culture built with individuals who have chosen to grow into being mature learners. (White 1994).

In learning organizations, employees must become knowledge workers. Each person is responsible for mastering his or her job and for disseminating important information to others in the organization. Knowledge workers are continually updating and developing new skills that make them valuable to the organization. They help the organization continually adapt and expand its exploration and exploitation capabilities as well as to transfer knowledge to other parts of the organization.(James 2003)

6.3.2 Problems associated with human subsystems

The primary considerations that relate to human sub systems are those that involve developing an appropriate learning culture and managing knowledge workers. The problems associated with each of these issues are discussed below:

Identity boundaries exist primarily because of the “we versus them” mentality that employees tend to have. This mentality exists due to lack of trust between different specialized functions within the organization. Trust may be defined as an “optimistic expectation on the part of an individual about the outcome of an event or the behavior of another person” (Hosmer 1995).

Lack of trust reduces opportunities for learning through problem solving. Trust is required for colleagues to talk more effectively about difficult subjects and enable better problem solving to occur (Sugarman 2001). This view is supported

by Molleman (Molleman 2001) who contends that members will only be willing to be open and contribute their knowledge and creative thoughts if they trust their fellow members (Molleman 2001). However, to create trust is a time-consuming and difficult process, which can very easily be undermined (Hosmer 1995).

6.3.2.1 Organizational Culture Considerations

Organizational culture has been extensively cited as a major factor that can affect organizational learning (Nonaka 1995; Stewart 1997; Beijerse 2000; Gooijer 2000; Pemberton 2000; Teece 2000; Klunge 2001; Sveiby 2002). This has been empirically shown in a study based on a stratified sample of 181 UK construction firms suggesting that double-loop learning and cooperative cultures have a positive effect on organizational performance. (Jashapara 2003). Another study indicated that a formalised learning system has a tendency to evolve in an organization as firms move from a lower-level to a higher-level learning style (Sadler-Smith 2001). The findings above appear to lend credence to the belief that a firm's competitive advantage can be increased as a result of competencies that are established from a learning culture.(Murray 2003)

However, the specific natures of the culture required and its applicability in different context have not been extensively explored in depth. This may be due to the divergence of views on what constitutes culture (Easterby-Smith 1997). Furthermore, attempts to define what is meant by a learning culture may be an exercise in futility. As Burgoyne (Burgoyne 1998) points out, a complete understanding of the ways that individuals learn or precisely what learning entails is not possible. As such, to pinpoint what cultural attributes are appropriate for organizational learning may not be feasible.

Senge (Senge 1990) identified team learning as one of the disciplines of a learning organization. This is because it is assumed that team learning encourages collaborative activity that will ultimately create a learning culture. However, studies have shown that team learning is hindered by a lack of organizational support and fear of losing power as well as fear of loss of status by the leader (Hodgkinson 2000). Furthermore, it has been indicated that it is not necessary to use teams to get collaboration in the work place (Schrage 1989,1995) as cited by Steiner (Steiner 1998). This suggests that practical realities on the ground are not conducive to developing a learning culture.

On a more conceptual level, it may be argued that a learning culture is essentially built through individuals who have chosen to grow into being mature learners (White 1994). For management to create conditions that encourage this is clearly a difficult undertaking, given that people's behaviour and organizational culture "cannot be realistically framed in a rational planning model" (Gooijer 2000).

Even if, it were possible to develop a "learning culture", such a culture may not be universally applicable (Camus 1994). Direct transfers of ideas and methods between different countries rarely work because of cultural and national differences (Lillrank 1995) as cited by Easterby-Smith (Easterby-Smith 1997).

Therefore, it is extremely difficult for management to develop and maintain a culture that facilitates organizational learning to emerge because of its complexity and difficulty in transferability.

Management related problems in organizational learning revolve around concerns that involve self-interest as an overriding factor. The free flow of information that is a crucial requirement for learning to take place is often thwarted by political behaviour through the distortion and suppression of information (Huber 1991). In addition, there is a tendency to assume that top management knowledge is privileged over others (Coopey 1994; Coopey 1995) in obtaining and retaining information. This leads to a preponderance of bureaucratic organizational structures that limit participative learning (Shrivastiva 1983).

6.5 Summary of problems faced in each subsystem and their impact on the organization.

Each subsystem that is analyzed has unique problems associated with it. The problems identified in each subsystem affect other sub systems and the organization as a whole. This is due to the high degree of interdependence sub systems have on each other. For example, the failure to develop a learning strategy affects managerial ability to garner commitment from employees to organizational learning. Here, a problem associated with the goal sub system manifests itself within the managerial subsystem and the human sub system.

Another example is a situation where problems associated with human subsystems detract employees from engaging in learning, thereby frustrating managerial attempts at setting clear and explicit goals for organizational learning. In this instance, a problem inherently in the human sub system affects

the managerial sub system, which ultimately leads to problems in the goal sub system.

Hence it appears that a problem associated with any of the subsystems have a tendency to creep into other subsystems and ultimately affect the overall ability of the organization to sustain efforts towards organizational learning.

7 Nature of problems faced in organizational learning

The resolutions of problems require a clearly defined problem statement identifying what it is. However, within the context of organizational learning, as indicated earlier, problems associated with one subsystem have far reaching implications on other subsystems. This underscores the complexity associated with defining them clearly, making the task almost impossible.

The problems associated with organizational learning differ considerably depending on the functional context within which it is undertaken. This is because organizational learning is being incorporated into a wide array of disciplines, each having unique requirements. Mark-Easterby Smith identified the need to distinguish between different disciplinary perspectives of Organizational Learning in order to take advantage of different contributions they lend to the field of organizational learning. These disciplines include management science, sociology and organizational theory, strategy, production management and cultural anthropology.(Easterby-Smith 1997). It is noteworthy that each of these functions poses context specific constraints that require complex judgments for their resolution.

From the goal subsystems perspective, organizational learning should be viewed more as a guiding vision and framework for action rather than a concrete prescription (Marsick 1999). As such, it is difficult to identify a "right" or a "wrong" way of sustaining efforts directed towards organizational learning. Different organizations need different approaches. These will depend on the size and organizational structure, culture as well as the external environmental factors they face. In addition, even if a 'right' approach has been identified in one location, it may not be applicable in another because of cultural and national differences (Lillrank 1995). This view is supported by the observation that the nature and process of learning in the American literature may not be appropriate for other cultures (Camus 1994) as cited by Easterby-Smith (Easterby-Smith 1997). The problem associated with sustaining efforts at organizational learning does not lend itself to a

clearly identifiable option that is correct, only one that could be marginally better or worse than the one before it.

One of the basic requirements for organizational learning is that effective and intentional management of knowledge outcomes exists (Marsick 1999). However, the issue of how to measure the success of a knowledge management approach is one that is still being explored by organizations, researchers and management consultants alike (Gooijer 2000). In the absence of bottom-line results, learning networks run the risk of being seen as luxuries or "extras" that are the first to be cut when profit margins shrink (Zell 2001). Although there have been calls for capitalizing intangible assets like intellectual capital, this has not been readily adopted because of the uncertainty of the anticipated benefits and the difficulty in deriving a valuation associated with capitalizing intangible assets. (Liebowitz 1999).

As a consequence of this, in most organizations, the knowledge outcome of learning is shrouded in mystery. The failure to develop a quantifiable measure of success results in the inability to ascertain whether a problem has been effectively resolved or whether it is still lurking in the dark.

The issues indicated above relate to difficulty in defining the concept of organizational learning, requiring complex judgments about the level of abstraction for problem definition, not having easily identifiable right or wrong solutions and not having an objective measure of success.

Such problems cannot be identified readily using techniques most organizations are accustomed to. They need to be reviewed. This is best done through a better understanding of the root causes of these problems at a more fundamental level. For this to be the case using a systems approach appears to be an attractive option.

11 Conclusion

Organizations that fail to learn are doomed to fail. Therefore there is a pressing need for organizations to continually engage in the process of learning, unlearning and relearning. This has to be done on a permanent basis and as a matter of routine. However this is seldom the case. This study set out to explore the reasons for the lack of a learning culture and propose strategies to initiate and sustain the momentum of learning in the work place.

Findings from this study re-emphasize the pivotal role systems thinking plays in organizational learning. From this study, the identification of practical problems associated from organizational learning may be readily identified. More importantly, it shows how problems associated with one sub system interact with other subsystems making the identification of the nature of the problem particularly obscure. The interacting and interdependency of subsystems and the associated linkages through which the problems are intertwined make the situation worse. This ultimately frustrates attempts at implementing and sustaining organizational learning.

In addition to this, a study on the inherent problems associated with encouraging action learning at the work place would provide clues to both researchers and practitioners on the need to identify root causes of the problems associated with organizational learning. The recognition that the interdependence of one subsystem with another may suggest that using a system based approach should be given preference over traditional linear problem solving techniques organizations are accustomed to.

References

- Allee, V. (1997). The Knowledge Evolution. Newton, M A, Butterworth-Heinemann.
- Amidon, M. (1997). Innovation Strategy for the Knowledge Economy : The Ken Awakening. Newton, MA, Butterworth-Heineman.
- Argyris, C., Schon, D (1996). Organizational learning II ; Theory, Method and Practice. Reading MA, Addison Wesley Publishing Co.
- Beer, M., Eisenstat, R, A.,Spector, B (1990). Why change programs don't produce change. The Learning Imperative ; Managing people for continuous innovation. R. Howard. Boston MA, Harvard Business Press.
- Beijerse, R., P. (1999). "Questions in Knowledge Management: Defining and Conceptualizing a phenomena." Journal of Knowledge Management 6(1): 94-109.
- Beijerse, R., P. (2000). "Knowledge Management in small and medium sized companies : Knowledge management for Entrepreneurs." Journal of Knowledge Management 4(2): 162-179.
- Bierly, A., Chakrabarti, C. (1996). "Generic Knowledge Strategies in the US pharmaceutical industry." Strategic Management Journal 17(Winter Special): 123-135.
- Buckley, P., J & Martin J Carter (2000). "Knowledge Management in Global Technology Markets." Long Range Planning 33(1): 55-71.
- Burgoyne, J. (1998). Learning; conceptual, practical and theoretical issues. British Academy of Management Conference, Nottingham University.
- Burgoyne, J., Reynolds, M (1997). Management Learning: Integrating Perspectives in Theory and Practice. London, Sage.
- Camus, B., E (1994).MA Dissertation, Lancaster University, Lancaster,.

- Carneiro, A. (2000). "How does Knowledge Management Influence innovation and competitiveness ?" Journal of Knowledge Management 4(2): 87-98.
- Cavaleri, S., Charalambides, I., Maguire, B, C., Hall, S (1996). Information pathways to organizational knowledge. Managing in organizations that learn. S. Cavaleri, Fearon, David. Cambridge, MA, Blackwell Publishers Inc.
- Child, J. (1972). "Organizational structure, environment and performance; The role of strategic choice." Sociology 6(1).
- Child, J. (1984). Organization: A Guide to Problems and Practice. London, Harper and Row.
- Coopery (1994). Power, politics and ideology. London, Mc Graw Hill.
- Coopery, J. (1995). "The learning organisation, Power, Politics and ideology." Management Learning 26(2): 193-214.
- De Goojier, J. (2000). "Designing a Knowledge Management Performance Framework." Journal of Knowledge Management 4(4): 303-310.
- De Green, K. B. (1982). The Adaptive Organization : Anticipating and Management of Crises. New York, John Wiley & Sons Inc.
- Demarest, M. (1997). "Understanding Knowledge Management." Long Range Planning 30(3): 374-384.
- Dilworth, R., L (1995). The DNA of the Learning Organization. Learning Organizations. Chawla, S., Renesch, J., Portland Oregon, Productivity Press.
- Dixon, N., M (1998). "Action Learning ; More than just a task force." Performance Improvement Quarterly 11(1): 44-58.
- Drucker, P., F (1993). The Post Capitalistic Society. New York, HarperCollins.
- Drucker, P., F (1998). The Coming of the New Organization. Harvard Business Review on Knowledge Management. Boston, Harvard Business School Publishing.
- Easterby-Smith, M. (1997). "Disciplines of organisational learning: contributions and critiques." Human Relations 50(9): 1085-1113.
- Elmes, M., B and Kassouf, C, J (1995). "Knowledge Workers and Organizational Learning; Narratives from Biotechnology." Management Learning 26(4): 403-422.

- Flood, R. L. (1999). Rethinking "The Fifth Discipline": Learning within the Unknowable. London, Routledge.
- Garvin, D., A (1998). Building a learning organization. Boston, MA, Harvard Business School Publishing.
- Goldstein, J. (1994). The Unshackled Organization : Facing the challenge of unpredictability through spontaneous reorganization. Portland, Oregon, Productivity Press Inc.
- Grant, R. M. (1996). "Toward a knowledge based theory of the firm." Strategic Management Journal **17**: 109-122.
- Green, F. (2000). "Barriers to organizational learning in the chartered surveying profession." Journal: Property Management **18**(2): 92 -- 113.
- Gunn, L. (1978). "Why is Implementation so Difficult ?" Management Services in Government **33**; pp 169-176 **November**.
- Hedlund, G., Nonaka, I (1993). Models of knowledge management in the West and Japan. in Lorenge, P., Chakravarthy, J., Roos, J., Van de Van., Implementing strategic processes, change, learning and cooperation, pp 117-144, Oxford, Basil Blackwell,.
- Hirschhorn, L., Gilmore, T (1992). The New Boundaries of the 'Boundaryless Company". The Learning Imperative ; Managing People for Continuous Innovation. R. Howard. Boston MA, Harvard Business School Press.
- Hodgkinson, M. (2000). "Managerial perceptions of barriers to becoming a "learning organization". " The Learning Organization **7**(3): 156-167.
- Hosmer, L. T. (1995). "Trust: the connecting link between organizational theory and philosophical ethics." Academy of Management Review **20**: 379–403.
- Huber, G. P. (1991). "Organizational Learning: The Contributing Processes and the Literature." Organization Science **2**(1): 88-115.
- Inkpen, A. C. (1995). "The management of knowledge in international joint ventures. Unpublished manuscript." Academy of Management Meetings.
- Jackson, M. C. (2000). Systems Approaches to Management. New York, Kluwer Academic/Plenum Publishers.
- James, C. R. (2003). "Designing Learning Organizations." Organizational Dynamics **32**(1): 46-61.

- Jashapara, A. (2003). "Cognition, culture and competition: an empirical test of the learning organization." The Learning Organization: An International Journal **10**(1): 31 -- 50.
- Kast, F., E., Rozenweig, J, E. (1985). Organization and Management: A Systems and Contingency Approach. New York, NY, Mc Graw Hill.
- Kidd, A. (1994). The marks are on the knowledge worker. ACM CHI '94 : Human Factors in Computing Systems, Boston, MA, ACM Press, New York.
- Kippenberger, T. (1997). "Getting down to the nitty-gritty of organizational learning." The Antidote **2**(7): 25 -- 27.
- Kluge, J., Stein, W., Licht, T. (2001). Knowledge Unplugged, Mc Kinsey and Company Global Survey on Knowledge Management, Palgrave, New York.
- Lang, J. C. (2001). "Managerial concerns in Knowledge Management." Journal of Knowledge Management **5**(1): 43-59.
- Levinthal, D. A. a. M., J.G., (1993). "The myopia of learning." Strategic Management Journal **14**(Winter): 95–112.
- Liebowitz, J. (1999). Knowledge Management Handbook. Florida, CRC Press LLC.
- Liebowitz, J., . Wright, Kathie (1999). A Look Towards Valuating Human Capital. Boca Raton, Florida, CRC Press.
- Lillrank, P. (1995). "The transfer of management innovations from Japan." Organization Studies **16**(6): 971-989.
- Lounamaa, P. H. a. M., JG (1987). "Adaptive coordination of a learning team." Management Science **33**(1): 107-123.
- Marquardt, M. J. (1999). Action learning in Action : Transforming problems and people for world class organizational learning. Palo Alto, California, Davies-Blackwell Publishing.
- Marsick, V., J., Watkins, K, E. (1999). Facilitating Learning Organizations : Making Learning Count. Hampshire, Gower Publishing Ltd.
- Matzdorf, F., Price, I., Green, M (2000). "Barriers to Organizational Learning in the chartered surveying profession." Property Management **18**(2): 92-113.
- Miner, J. B., Crane, D.P. and Vandenberg, R.J., (1994). "Congruence and fit in professional motivation theory." Organization Science **5**: 86–97.

- Mohrman, A., Susan, David Finegold and Janice A Klein (2002). "Designing the Knowledge Enterprise: Beyond Programs and Tools." Organizational Dynamics **31**(2): 134-150.
- Molleman, E., Broekhuis, Manda (2001). "Sociotechnical systems: towards an organizational learning approach." Journal of Engineering and Technology Management **18**(3-4): 271-294.
- Murray, K. D. P. (2003). "Empirical linkages between firm competencies and organisational learning." The Learning Organization: An International Journal **10**(1): 51 -- 62.
- Nonaka, I., Takeuchi, K. (1995). The Knowledge Creating Company: How Japanese Companies Create the Dynamics of Innovation. Oxford, Oxford University Press.
- Nordhaug, O. (1994). "Structural learning barriers in organizations." Scandinavian Journal of Educational Research **38**(3-4): 299-313.
- Pemberton, J. D., .Goerge H Stonehouse (2000). "Organizational Learning and Knowledge Assets -an essential partnership." The Learning Organization **7**(4): 184-194.
- Prahalad, C, K., Hamel, G. (1990). "The core competence of the corporation." Harvard Business Review: 79-91.
- Prigogine, I., Stengers, I. (1984). Order out of chaos : Man's new dialogue with nature. New York, Bantam.
- Prusak, L. (1996). "The Knowledge Advantage." Strategy and Leadership: March/April, pp 6-8.
- Quintas, P. L., .Geoff Jones (1997). "Knowledge management: A Strategic Agenda." Long Range Planning **30**(3): 385-391.
- Rahim, M. A. (1995). "Issues in organizational learning." International Journal of Organizational Analysis **3**(1): 5-9.
- Rittel, M. M. W. (1973). "Dilemmas in general theory of planning." Policy Sciences **4**: 155-169.
- Roth, A. V. (1996). "Achieving strategic agility through economies of knowledge." Strategy and Leadership **24**: 30-37.
- Roth, G. (1996). From individual and team learning to systems learning. Managing in organizations that learn. Cavaleri,S.,Fearon, D. Oxford, Blackwell Publishers Inc.

- Sadler-Smith, E., David P. Spicer and Ian Chaston (2001). "Learning Orientations and Growth in Smaller Firms." Long Range Planning **34**(2): 139-158.
- Sadler-Smith, Chaston, I., Badger, B. Mangles, T. (2001). "Organisational learning style, competencies and learning systems in small, UK manufacturing firms." International Journal of Operations & Production Management **21**(11): 1417 -- 1432.
- Schrage, M. (1989,1995). No more teams!- Mastering the art of Creative Collaboration. New York, Currency Doubleday.
- Schulz, M., . A Loyld (2001). "Codification and tacitness as knowledge management strategies: an empirical exploration." The Journal of High Technology Management Research **12**(1): 139-165.
- Senge (1990). The Fifth Discipline. New York, Doubleday.
- Senge, P. (1990). The Fifth Discipline: The Art and Practice of the Learning Organization. New York, Double Day Currency.
- Sharma, R. K. (2003). "Understanding Organizational Learning Through Knowledge Management." Journal of Information and Knowledge Management **2**(4): 1-10.
- Sharma, R. K. (2003b). "Managing Knowledge in Turbulent Business Environments." Malaysian Management Review.
- Shrivastiva, P. A. (1983). "A typology of organizational learning systems." Journal of Management Studies **20**(1): 7-28.
- Snell, R., Chac, A, M-KY (1998). "The learning organization: learning and empowerment for whom ?" Management Learning **29**(3): 337-364.
- Spender, J.-C. (1994). "Organizational knowledge, collective practice and Penrose rents." International Business Review **3**(4): 353-367.
- Stata, R. (1989). "Organizational learning -- the key to management innovation." Sloan Management Review **30**(3): 63-74.
- Steiner, L. (1998). "Organizational dilemmas as barriers to learning." The Learning Organization: An International Journal **5**(4): 193 -- 201.
- Stewart, T. (1998). Intellectual Capital : The New Wealth of Organizations, London, Nicholas Brealey.
- Sugarman, B. (2001). "A learning-based approach to organizational change:

- some results and guidelines." Organizational Dynamics **30**(1): 62-76.
- Sveiby, K., E.: Simons, R (2002). "Collaborative Climate and Effectiveness of Knowledge Work- an Empirical Study." Journal of Knowledge Management.**6**(5):420-433
- Szulanski, G. (1996). "Exploring internal stickiness: impediments to the transfer of best practices within the firm." Strategic Management Journal **17**: 27-43.
- Taudes, A., Trcka, M.,Lukanowicz, M. (2002). "Organizational Learning in production networks." Journal of Economic Behavior and Organization **47**(2): 141-163.
- Teece, D. J. (2000). "Strategies for managing knowledge assets; the role of the firm structure and industrial context." Long Range Planning **33**: 35-54.
- Tiwana, A. (2002). The Knowledge Management Toolkit. Upper Saddle River, NJ, Prentice Hall.
- Tucker, S. S. A. C. E. A. L. (2002). "When problem solving prevents organizational learning." Journal of Organizational Change Management **15**(2): 122 -- 137.
- Watson, T., J. (1986). Management Organization and Employment Strategy. London, Routledge and Kogan Page.
- White, M. G. (1994). "Creativity and the Learning Culture." The Learning Organization: An International Journal **1**(2): 4 -- 5.
- Wiggenhorn, W. (1990). Motorola U; When Training becomes Education. The Learning Imperative : Managing People for Continuous Innovation. R. Howard. Boston MA, Harvard Business School Press..
- Wise, R. E. (1996). Creating the Conditions for Learning. Managing Organizations that Learn. Cavaleri,S. , Fearon, D. Oxford, Blackwell Publishers Inc.
- Zack (1999). "Developing a knowledge strategy." California Management Review **41**(3): 125-146.
- Zell, D. (2001). "Overcoming barriers to work innovations lessons learned at Hewlett-Packard." Organizational Dynamics **30**(1): 77-86.

References

Allee, V. (1997). The Knowledge Evolution. Newton, M A, Butterworth-Heinemann.

Argyris, C., Schon, D (1996). Organizational learning II ; Theory, Method and Practice. Reading MA, Addison Wesley Publishing Co.

Beijerse, R., P. (1999). "Questions in Knowledge Management: Defining and Conceptualizing a phenomena." Journal of Knowledge Management 6(1): 94-109.

Beijerse, R., P. (2000). "Knowledge Management in small and medium sized companies : Knowledge management for Entrepreneurs." Journal of Knowledge Management 4(2): 162-179.

Bierly, A., . Chakrabarti, C. (1996). "Generic Knowledge Strategies in the US pharmaceutical industry." Strategic Management Journal 17(Winter Special): 123-135.

Buckley, P., J & Martin J Carter (2000). "Knowledge Management in Global Technology Markets." Long Range Planning 33(1): 55-71.

Burgoyne, J. (1998). Learning: conceptual, practical and theoretical issues. British Academy of Management Conference, Nottingham University.

Burgoyne, J., Reynolds, M (1997). Management Learning: Integrating Perspectives in Theory and Practice. London, Sage.

Camus, B., E (1994). MA Dissertation. Lancaster, Lancaster University.

Carneiro, A. (2000). "How does Knowledge Management Influence innovation and competitiveness ?" Journal of Knowledge Management 4(2): 87-98.

Cavaleri, S., Charalambides, I., Maguire, B, C., Hall, S (1996). Information pathways to organizational knowledge. Managing in organizations that learn. S. Cavaleri, Fearon, David. Cambridge, MA, Blackwell Publishers Inc.

Child, J. (1972). "Organizational structure, environment and performance; The role of strategic choice." Sociology 6(1).

Child, J. (1984). Organization: A Guide to Problems and Practice. London, Harper and Row.

Coopey (1994). Power, politics and ideology. London, Mc Graw Hill.

Coopey, J. (1995). "The learning organisation, Power, Politics and ideology." Management Learning 26(2): 193-214.

De Green, K. B. (1982). The Adaptive Organization : Anticipating and Management of Crises. New York, John Wiley & Sons Inc.

Demarest, M. (1997). "Understanding Knowledge Management." Long Range Planning **30**(3): 374-384.

Dilworth, R., L (1995). The DNA of the Learning Organization. Learning Organizations. S. Chawla, Renesch, J. Portland Oregon, Productivity Press.

Easterby-Smith, M. (1997). "Disciplines of organisational learning: contributions and critiques." Human Relations **50**(9): 1085-1113.

Elmes, M., B and Kassouf, C, J (1995). "Knowledge Workers and Organizational Learning; Narratives from Biotechnology." Management Learning **26**(4): 403-422.

Flood, R. L. (1999). Rethinking the Fifth Discipline ; Learning within the unknowable. London, Routhledge.

Garvin, D., A (1998). Building a learning organization. Boston, MA, Harvard Business School Publishing.

Garvin, D. A. (1998). Building a Learning Organization. Boston MA, Harvard Business School Publishing.

Goldstein, J. (1994). The Unshackled Organization : Facing the challenge of unpredictability through spontaneous reorganization. Portland, Oregon, Productivity Press Inc.

Gooijer, J. (2000). "Designing a Knowledge Management Performance Framework." Journal of Knowledge Management **4**(4): 303-310.

Grant, R. M. (1996). "Toward a knowledge based theory of the firm." Strategic Management Journal **17**: 109-122.

Green, F. M. I. P. M. (2000). "Barriers to organizational learning in the chartered surveying profession." Journal: Property Management **18**(2): 92 -- 113.

Gunn, L. (1978). "Why is Implementation so Difficult ?" Management Services in Government **November**.

Hedlund, G. (1993). Models of knowledge management in the West and Japan. Implementing strategic processes, change, learning and cooperation. P. Lorange, Chakravarthy,.,Roos,J.,Van D V. Oxford, Basil Blackwell: 117-144.

Hodgkinson, M. (2000). "Managerial perceptions of barriers to becoming a "learning organization"." The Learning Organization **7**(3): 156-167.

Hosmer, L. T. (1995). "Trust: the connecting link between organizational theory and philosophical ethics." Academy of Management Review **20**: 379–403.

Huber, G. P. (1991). "Organizational Learning: The Contributing Processes and the Literature." Organization Science **2**(1): 88-115.

Inkpen, A. C. (1995). "The management of knowledge in international joint ventures. Unpublished manuscript." Academy of Management Meetings.

Jackson, M. C. (2000). Systems Approaches to Management. New York, Kluwer Academic/Plenium Publishers.

James, C. R. (2003). "Designing Learning Organizations." Organizational Dynamics **32**(1): 46-61.

Jashapara, A. (2003). "Cognition, culture and competition: an empirical test of the learning organization." The Learning Organization: An International Journal **10**(1): 31 -- 50.

Kast, F., E., Rozenweig, J, E. (1985). Organization and Management: A Systems and Contingency Approach. New York, NY, Mc Graw Hill.

Kippenberger, T. (1997). "Getting down to the nitty-gritty of organizational learning." The Antidote **2**(7): 25 -- 27.

Klunge, J., Stein, W., Licht, T. (2001). Knowledge Unplugged, Mc Kinsey and Company Global Survey on Knowledge Management, Palgrave.

Lang, J. C. (2001). "Managerial concerns in Knowledge Management." Journal of Knowledge Management **5**(1): 43-59.

Levinthal, D. A. a. M., J.G., (1993). "The myopia of learning." Strategic Management Journal **14**(Winter): 95–112.

Liebowitz, J. (1999). Knowledge Management Handbook. Florida, CRC Press LLC.

Liebowitz, J., . Wright, Kathie (1999). A Look Towards Valuating Human Capital. Boca Raton, Florida, CRC Press.

Lillrank, P. (1995). "The transfer of management innovations from Japan." Organization Studies **16**(6): 971-989.

Lounamaa, P. H. a. M., JG (1987). "Adaptive coordination of a learning team." Management Science **33**(1): 107-123.

Marquardt, M. J. (1999). Action learning in Action : Transforming problems and people for world class organizational learning. Palo Alto, California, Davies-Blackwell Publishing.

Marsick, V., J., Watkins, K, E. (1999). Facilitating Learning Organizations : Making Learning Count. Hampshire, Gower Publishing Ltd.

Matzdorf, F., Price, I., Green, M (2000). "Barriers to Organizational Learning in the chartered surveying profession." Property Management **18**(2): 92-113.

Mohrman, A., Susan, David Finegold and Janice A Klein (2002). "Designing the Knowledge Enterprise: Beyond Programs and Tools." Organizational Dynamics **31**(2): 134-150.

Molleman, E., Broekhuis, Manda (2001). "Sociotechnical systems: towards an organizational learning approach." Journal of Engineering and Technology Management **18**(3-4): 271-294.

Murray, K. D. P. (2003). "Empirical linkages between firm competencies and organisational learning." The Learning Organization: An International Journal **10**(1): 51 - 62.

Nonaka, I., Takeuchi, H. (1995). The knowledge creating company. Oxford, Oxford University Press.

- Nordhaug, O. (1994). "Structural learning barriers in organizations." Scandinavian Journal of Educational Research **38**(3-4): 299-313.
- Pemberton, J. D., .Goerge H Stonehouse (2000). "Organizational Learning and Knowledge Assets -an essential partnership." The Learning Organization **7**(4): 184-194.
- Prahalad, C. K., Hamel,G. (1990). "The core competence of the corporation." Harvard Business Review **68**(3): 79-91.
- Prusak, L. (1996). "The Knowledge Advantage." Strategy and Leadership(March/April): 6-8.
- Quintas, P. L., .Geoff Jones (1997). "Knowledge management: A Strategic Agenda." Long Range Planning **30**(3): 385-391.
- Rahim, M. A. (1995). "Issues in organizational learning." International Journal of Organizational Analysis **3**(1): 5-9.
- Roth, A. V. (1996). "Achieving strategic agility through economies of knowledge." Strategy and Leadership **24**: 30-37.
- Roth, G. (1996). From individual and team learning to systems learning. Managing in organizations that learn. S. Cavaleri, Fearon,D. Oxford, Blackwell Publishers Inc.
- Sadler-Smith, E., David P. Spicer and Ian Chaston (2001). "Learning Orientations and Growth in Smaller Firms." Long Range Planning **34**(2): 139-158.

Sadler-Smith, I. C. B. B. T. M. E. (2001). "Organisational learning style, competencies and learning systems in small, UK manufacturing firms." International Journal of Operations & Production Management **21**(11): 1417 -- 1432.

Schrage, M. (1989,1995). No more teams!- Mastering the art of Creative Collaboration. New York, Currency Doubleday.

Schulz, M., . A Loyld (2001). "Codification and tacitness as knowledge management strategies: an empirical exploration." The Journal of High Technology Management Research **12**(1): 139-165.

Senge (1990). The Fifth Discipline. New York, Doubleday.

Senge, P. (1990). The Fifth Discipline; The Art and Practice of the Learning Organization. New York, Double Day Currency.

Sharma, R. K. (2003). "Understanding Organizational Learning Through Knowledge Management." Journal of Information and Knowledge Management **2**(4): 1-10.

Sharma, R. K. (2003b). "Managing Knowledge in Turbulent Business Environments." Malaysian Management Review.

Shrivastiva, P. A. (1983). "A typology of organizational learning systems." Journal of Management Studies **20**(1): 7-28.

Snell, R., Chac, A, M-KY (1998). "The learning organization: learning and empowerment for whom ?" Management Learning **29**(3): 337-364.

Spender, J.-C. (1994). "Organizational knowledge, collective practice and penrose rents." International Business Review **3**(4): 353-367.

Stata, R. (1989). "Organizational learning -- the key to management innovation." Sloan Management Review **30**(3): 63-74.

Steiner, L. (1998). "Organizational dilemmas as barriers to learning." Journal: The Learning Organization: An International Journal **5**(4): 193 -- 201.

Stewart, T. (1997). Intellectual Capital : The New Wealth of Organizations, Bantam Double day Bell Publishing.

Sugarman, B. (2001). "A learning-based approach to organizational change: some results and guidelines." Organizational Dynamics **30**(1): 62-76.

Sveiby, K., E.: Simons, R (2002). "Collaborative Climate and Effectiveness of Knowledge Work- an Empirical Study." Journal of Knowledge Management **6**(5): 420-433.

Sveiby, K. E. (2002). "Collaborative Climate and Effectiveness of Knowledge Work - an Empirical Study." Journal of Knowledge Management.

Szulanski, G. (1996). "Exploring internal stickiness: impediments to the transfer of best practices within the firm." Strategic Management Journal **17**: 27-43.

Taudes, A., Trecka, M.,Lukanowicz, M. (2002). "Organizational Learning in production networks." Journal of Economic Behavior and Organization **47**(2): 141-163.

Teece, D. J. (2000). "Strategies for managing knowledge assets; the role of the firm structure and industrial context." Long Range Planning **33**: 35-54.

Tiwana, A. (2002). The Knowledge Management Toolkit. Upper Saddle River, NJ, Prentice Hall.

Tucker, S. S. A. C. E. A. L. (2002). "When problem solving prevents organizational learning." Journal of Organizational Change Management **15**(2): 122 -- 137.

Watson, T., J. (1986). Management Organization and Employment Strategy. London, Routledge and Kogan Page.

White, M. G. (1994). "Creativity and the Learning Culture." The Learning Organization: An International Journal **1**(2): 4 -- 5.

Wise, R. E. (1996). Creating the Conditions for Learning. Managing Organizations that Learn. S. Cavaleri, Fearon, D. Oxford, Blackwell Publishers Inc.

Zack (1999). "Developing a knowledge strategy." California Management Review **41**(3): 125-146.

Zell, D. (2001). "Overcoming barriers to work innovations

lessons learned at Hewlett-Packard." Organizational Dynamics **30**(1): 77-86.