

*The Importance of Organizational Learning for Change in Higher Education Institutions*

Judith Mavodza, Zayed University - Abu Dhabi, UAE

The IAFOR International Conference on Education - Dubai 2015  
Official Conference Proceedings

**Abstract**

Many works have been written about different forms of organizational learning (OL), mostly in business environments. However, currently, academic environments are tapping into the same concepts in order to enhance performance that is driven by competition from other institutions that may have better strategies for student enrolment and retention, high caliber of faculty, more prominence and higher ranking. This presentation takes a librarian perspective and is based on literature review, and the author chooses to refer to a learning organization (LO) as an entity with a plan or proposal or agenda to change while OL refers to having a plan that includes comprehensive strategies or procedures for implementing change (actual actions taken). The same perception is expressed by Argyris (1977) who refers to OL as the process of “detection and correction of errors”. According to King (2009), OL is the goal and at the core of knowledge management (KM) in the sense that it is one of the important ways an organization can maximize use of knowledge. On the other hand, a LO is one that has a culture that supports individual learning, resulting in changes in the behavior of the organization itself. As such, a LO has the potential to operate proactively especially in the current dynamic globalized information environment, and recognize those who develop knowledge. With both OL and LO in mind, this presentation reflects on KM practices at institutions of higher learning.

**Keywords**

Learning organization, organizational learning, lean approach, knowledge management, institutional memory, library leadership, professional development, UAE

**iafor**

The International Academic Forum  
[www.iafor.org](http://www.iafor.org)

## **Introduction**

Learning is defined by the online *Encyclopedia Britannica* as the “alteration of behaviour as a result of individual experience”. The definition leads to addressing learning as it relates to changes in behavior. The focus of this paper is aligned to discussing behaviors that are indicative of the process taking or having taken place in educational institutions.

Reference is regularly made to academic libraries that belong to, and their functions are a reflection of, their value to their parent university or college. Several theories exist to explain and represent learning in a variety of contexts. Some of them can be divided into clusters that express similar perspectives. They demonstrate that there is no single fixed way of thinking about organizational learning (OL) due to several factors. On the other hand, this paper discusses the argument that a LO encourages and facilitates OL by transforming tacit knowledge into explicit knowledge and diffuses it throughout the organization.

In a research paper on OL theory in schools, Fauske and Raybould (2005) pose questions on how organizational learning is influenced by the nature of an organization's work, its core technology, and the degree to which that work is measurable; how the relative emphasis of the system-structures, interpretations or routines impact OL; and the extent to which theories of individual learning and social cognitive or behavioral theories apply to groups and organizations. Argote and Miron-Spektor (2011) suggest a theoretical framework for analyzing OL. To an extent, they clarify the proposals of earlier theories because of their focus on experience, organizational context, and knowledge.

## **Organizational learning (OL)**

The mainstream learning theories provide a basis for further studies in OL. For example, Fauske and Raybould (2005) suggest that the focus of an OL theory is the study of how organizational mental/ behavioral models and memories emerge and change. Argyris and Schön (1978) posit that OL can be characterized in terms of single, double, and triple learning. The learning loops model of Argyris and Schön (1978), and Argyris (1977) define OL as the process of "detection and correction of errors" with individuals acting as agents for organizations. Argyris and Schön (1978, p. 28) point out that “double-loop learning in organizational inquiry consists in the questioning, information-gathering, and reflection that get at second-order errors”.

A dependence on feedback and openness to corrections arising from errors made reflects a readiness to learn. “The individuals' learning activities, in turn, are facilitated or inhibited by an ecological system of factors that may be called an organizational learning system" (Argyris, 1977, p. 117). Huber (1991) considers four constructs as integrally linked to OL, viz: knowledge acquisition, information distribution, information interpretation, and organizational memory. He clarifies that learning need not be conscious or intentional, therefore does not always increase the learner's effectiveness, or potential effectiveness, and it need not result in observable changes in behavior. In fact, Easterby-Smith, Araujo, and Burgoyne (1999) advocate for social, political, cultural artifact perspective to OL in their interpretation of the work of Argyris (1977).

Behind all the explanations about change or transformation in this discussion is the tacit implication that everything that takes place leans on the strategic decisions of organizational leadership.

In organizations that encourage learning, individual members are continually engaged in attempting to know their workplace, and to develop a self-knowledge in that context. This is similar to the social learning perspectives of Bandura (1977), Vygotsky (1978), and Brown (2001). By looking at the way that people jointly construct maps in their minds, i.e., such as is mentioned in cognitive learning perspectives where learning is a mental process, it is possible to talk about OL (involving the detection and correction of error).

Direction from organizational leadership is important to the success of this process in the sense that OL minimally happens without management influence and support. What is complicated is how to measure tacit/ difficult-to-articulate knowledge, but perhaps when performance measures are put in place, the assumption could be that certain changes are realized only if individuals have acquired certain knowledge that is not otherwise readily obvious. That way, the economic benefits of OL are realized.

It may be the case that in OL, “individual learning occurs when people give a different response to the same stimulus, but OL occurs when groups of people give the same response to different stimuli” (Duncan & Weiss 1979). The implication is that individuals need not necessarily show the same changes in cognitions for OL to occur. It is successful leadership that enables member knowledge development and use for the enhancement of organizational goals.

For instance, in his *Lean Library Management* book, Huber (2011) consistently mentions that it is necessary for library leaders to promote learning and utilize the talents of their staff, eliminate job monotony, and increase staff retention. In fact, research over a six-year period on transformational leadership and stakeholder management in library change by Sucozhañay et. al.(2014, p. 76) concludes that “library managers should act as transformational leaders creating sustainable and trustful relationships not only with the library staff but also with other stakeholders to reach this goal”. Essentially, favorable outcomes are the product of collaborative approaches.

### **Learning Organization (LO)**

The book *The Fifth Discipline* Senge (1990) was one of the main contributors to the popularity of the term LO. He explained the organization from a systemic point of view and defined five disciplines which are essential in forming a LO. These are: personal mastery, i.e. developing the individual’s own personality; mental models, i.e. deeply ingrained assumptions, which have high impact on how we perceive our environment and how we act; a shared vision, i.e. the ability to create a common image of the future of the organization; team-learning, i.e. to engage in real corporate thinking and dialog; and systems thinking, i.e. the renunciation of linear cause-effect thinking (Senge, 1990, p. 5). McGill, Slocum, and Lei (1992) define the LO as "a company that can respond to new information by altering the very "programming" by which information is processed and evaluated", i.e. an organization that is able to

transform or change by programming and organizing learning for the benefits that it generates.

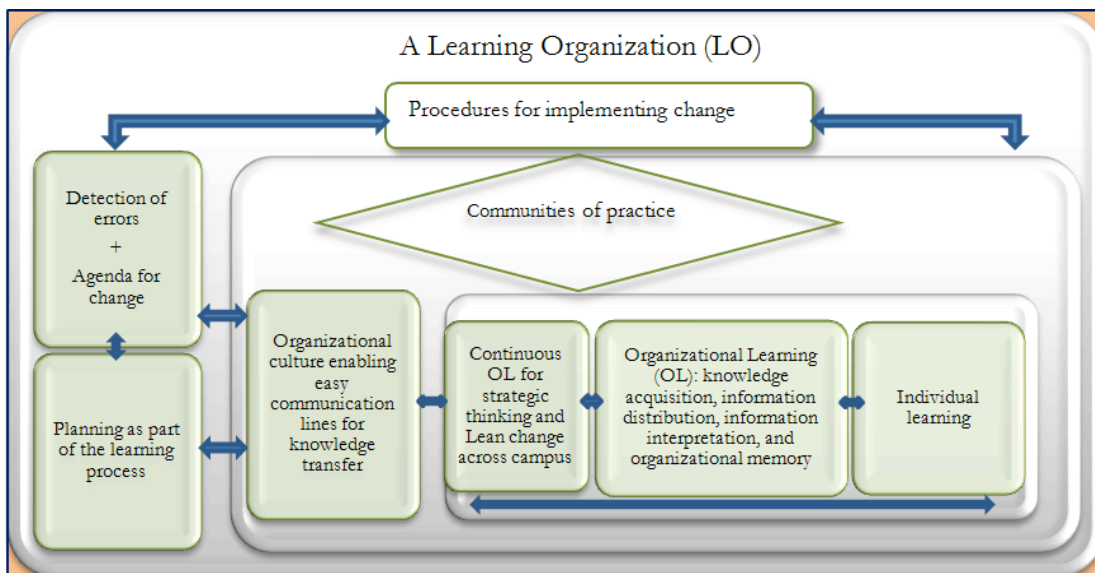
### Relationship between OL and LO

Ang and Joseph (1996) contrast OL and the LO in terms of process versus structure. McGill, Slocum, and Lei (1992) define OL as the ability of an organization to gain insight and understanding from experience through experimentation, observation, analysis, and a willingness to examine both successes and failures. The LO and OL are complete each other because the former is the entity engaged in a process to change/ transformation and the latter is having the process and strategies and implementing change throughout an organization. Tsang (1997, pp. 74-5) suggests that:

Organizational learning is a concept used to describe certain types of activity that take place in an organization while the learning organization refers to a particular type of organization in and of itself. Nevertheless, there is a simple relationship between the two – a learning organization is one, which is good at organizational learning.

The definition explains that one is the organization as an entity, the other is the action happening in it. The diagram demonstrates an integration of OL processes that are an expression of a LO.

**Figure 1:** The LO and OL



The key ingredient of the LO is in how managerial experiences are continuously processed rather than be bound by past experiences. In higher education institutions, the process of educating has to be accompanied by practices that encourage students in their learning endeavors, recognizing their varying learning styles, and rewarding effort and academic integrity skills.

In turn, the educators rely on openness, systemic thinking, creativity, a sense of efficacy, and understanding their students as they collaboratively work. OL and the LO are consequently the concern of the entire community in the educational

institution. It therefore becomes important for the leadership of a university or college to work towards the elimination of processes that inhibit progress so that it transforms into a LO. This is the principle of the Lean approach.

### **The Lean Approach in UAE higher education**

According to Dickenson (2010), universities and colleges are seeking greater efficiency in their academic programs and service delivery areas and are making decisions to prioritize key areas. The concept originates from the post-war Japanese Toyota car production system that sought to eliminate waste while focusing on value addition through customer service, good quality, efficiency, boosting staff morale, and improving internal communication and cooperation (Balzer, 2010).

As such, when applied to a higher education institution, it requires the involvement of all departments in an interconnected manner so that they can continuously improve their own processes. By their very nature, processes are organized hierarchically and each has a parent process which is clearly arranged to create it. The hierarchies can stand in the way of human potential if they are kept as independent silos which are averse to change or transformation. Thus, a systemic approach rather than a sketchy uncoordinated one works better.

A Google search for job openings in the UAE reflects that several places in the commercial sector are looking for individuals who have the capabilities to transform their business approach using Lean concepts. With a domestic program that aims to increasingly have vacancies occupied by UAE nationals, it is necessary for education institutions to re-align the way that they prepare graduands for this environment, including expertise in KM concepts that are the cornerstone of the Lean approach. But then, those institutions can do it better by example.

According to Emirates Competitiveness Council (2011), the UAE Vision 2021 specifies that “a diversified and flexible knowledge-based economy will be powered by skilled Emiratis and strengthened by world-class talent to ensure long-term prosperity for the UAE”. One of the key drivers for this is higher education and training. In that context, higher education institutions have to be knowledge driven and educate students for an efficient knowledge-driven economy.

From a continuous improvement perspective, Lean principles overlap with the Baldrige program (2014) criteria of excellence management and TQM initiatives (Gore, 1999) that are aimed at improving the quality of products and services in response to continuous feedback and refinements. Much like in Argyris’s feedback loops, the process depends on feedback, learning, and maximizing efficiencies. In this sense, Balzer (2010) suggests that the Lean approach can be applied to such high transaction areas as student enrolment, and changes in the campus physical development, but requires cultural sensitivity and cross-departmental involvement.

Other areas where it can be applied are in promotion and tenure (monitoring employee stability), admissions and credit transfer (standardization of qualifications), faculty involvement in university or college governance (Francis, 2014). However, it is important to educate employees about the Lean culture and its concepts so that they do not receive it as an imposition of esoteric notions. Education and learning starts

with the leaders to help them understand and become champions for the approach. As an example, the Sucozhañay et. al. (2014, p. 72) study proved that there is merit in training library managers to become change agents since those studied were found to lack that quality especially because “no analysis of leadership skills was performed before the appointment of library managers to their positions”. Training at various levels is therefore one of the methods of improving performance, whatever the preferred approach is.

### **The role of information systems (IS) in the LO for OL**

Central to LOs and OL is the role and design of information systems (IS). In the current fast-changing information overload environment, Huber (1991) notes that “it might be reasonable to conclude that more learning has occurred when more and more varied interpretations have been developed, because such development changes the range of the organization's potential behaviors...” (p. 102).

However, most contemporary ISs focus on the convergence of interpretation, and are not geared for multiple interpretations (Argyris, 1977). Sharing a similar perspective to that of Argyris (1977), Mason and Mitroff (1973) noted that designs of ISs are based on the convergence of interpretations. What is needed are inquiry systems for facilitating multiple interpretations. These systems also underlie the notion of “unlearning” (Argyris & Schön, 1978; Hedberg, 1981) which implies discarding of obsolete strategies and misleading knowledge. Argyris (1977) re-examines the debate around the implementation crisis in light of the theory of OL (the detection and correction of error).

His analysis suggests that many of the recommendations to overcome the difficulties may be inadequate and, in some cases, counterproductive. That is because ineffectiveness may be more related to organizational factors than to the underlying technology. For example, Sucozhañay, et. al.(2014, p.60) highlight instances where library managers display passive leadership behaviors, expecting librarians to solve problems on their own without their direct supervision as dysfunctional.

This in turn, implies that learning also requires the capacity to know when to identify and correct errors. In that sense, Argyris (1977) argues that the overwhelming amount of learning done in an organization is single-loop because the “underlying program is not questioned” as it is designed to identify and correct errors so that the job gets done but the action remains within stated policy guidelines. This is the reason that a number of universities and colleges are opting for the Lean approach.

### **Knowledge and KM in higher education institutions**

A LO essentially recognizes knowledge as a strategic resource. For that reason, KM is central to its operation. Many higher education environments possess explicit knowledge in the form of financial records necessary for meeting tax, payroll or accounting obligations, files of important historical documents, self-study documents, research articles, conference proceedings, as well as library databases.

Townley (2001) points out that research and scholarship are the tangible assets of an academic institution. In addition to these tangible explicit knowledge assets there are

the tacit or implied knowledge and human expertise of the people who work in the organization, as well as everything that is contained in the intranets.

KM facilitates the utilization and integration of tacit and explicit knowledge. It emphasizes “collaborative learning, the capture of tacit knowledge, and value-add obtained through best practices and data mining” (Gandhi 2004, p.373). Rowley (2003) and Singh (2007) highlight the fact that KM encompasses both the management of people and of information. On the other hand, Barquin (2001) describes KM as a process with phases and components, embedded in time. There is more than one approach to this process; it has different structures and architectures, and there are expected outcomes and performance to be measured.

Concurring with this view, Kok (2012) also points out the importance of identifying ownership and the source of knowledge, and providing mechanisms and incentives for sharing knowledge without possessiveness. The same point is expressed by Singh (2007, p.172) who is also of the view that KM “implies the process of transforming information and intellectual assets into enduring value”. In practice this leads to a process of the interpreting and utilizing of collective intelligence by communities of participants such as faculty, or librarians, or administrators, technicians, and so on. The condition that all involved can create value is when they share a common understanding of intended goals. A disconnect between managers/ supervisors and the rest of the employees does not enhance efficiency.

KM practices in higher education are actions aimed at improving the internal flow and use of information through knowledge acquisition and knowledge sharing for institutional effectiveness (Kidwell, Vander Linde & Johnson 2000). It is a process that enables an organization to improve its performance by enabling learning and innovation whilst solving its problems, acknowledging and resolving gaps in its operations, and recognizing knowledge (comprising people and information) as an organizational asset which has to be managed through enabling policies and institutional tools.

Marburger (2011) points out that innovativeness requires an “educational infrastructure that produces people with a global awareness and sufficient technical literacy to harvest the fruits of current technology”. Therefore the organizations that can identify, value, create, streamline, and evolve their knowledge assets are likely to be more successful than those that do not. Knowledge in a modern organization is an essential resource especially because it is not readily replicated by rivals. Jain (2007) and Senge (1994) point out the learning difficulties that some organizations have due to a failure to function as knowledge-based. It is important for an organization to have a clear understanding of what knowledge management (KM) means to its operations if it needs to consider using those KM practices that enhance efficiency and lend value to organizational knowledge. In this way knowledge becomes a strategic resource (Kok, 2012).

These practices include knowledge generation, which encompasses activities that bring to light all the knowledge that is new to a group or to an individual. Knowledge generation comprises the exploitation of existing knowledge to create new knowledge, as well as finding new knowledge through interacting and collaborating with other individuals or systems (Nonaka, 1991; Nonaka & Takeuchi, 1995; Nonaka & Teece,

2001). This process therefore involves the acquisition of knowledge if it is to be successful. The acquired knowledge is of limited value if it is not organized and stored for easy retrieval. Once it is available for retrieval, there is a need to have systems that enable its sharing and transfer. A process of knowledge retention results when an organization is able to facilitate the capture and transfer of both formal and informal knowledge through knowledge networking, thereby using the available intellectual capital for knowledge conversion to its advantage in a Lean fashion.

### **The knowledge conversion process**

KM literature on knowledge creation centers around four patterns of interaction in the name of the socialization-externalization-combination-internalization (SECI) model of Nonaka and Takeuchi (1995). They suggest that these concepts are based on information flow, with information management tools being a subset of KM tools. The creation of new knowledge as expressed by the SECI model is dependent on the interaction between tacit and explicit knowledge that Nonaka and Takeuchi (1995) present as modes of knowing.

Tacit knowledge is unwritten and resides in people's minds, often reflected as the skills or competencies that an individual possesses (Polanyi, 1962). Its contextual expression manifests itself as "know-how". Then again, explicit knowledge exists where guidance is available and predictable. The implication of this explanation is that explicit knowledge largely relies on being tacitly understood and applied in tasks or assignments at hand.

This can be a catalyst for creating new knowledge that is essential in innovation. In the context of the SECI model, socialization refers to the transformation of tacit or implicit knowledge to tacit knowledge; internalization refers to the transformation of tacit knowledge to explicit knowledge; combination refers to the transformation of explicit knowledge to explicit knowledge; and internalization is when explicit knowledge is being articulated and applied as tacit knowledge. The relevance of a knowledge creation process to the academe and vice versa lies in the importance of new knowledge and its value to the quality enhancement and competitiveness of academia.

Recognizing knowledge as an asset and using it creatively does not always occur in an obvious manner. Institutional strategic goals and values therefore need to be clearly defined for relevant knowledge to be tapped for relevant use. Nonaka and Takeuchi (1995) suggest that knowledge is transferred from one form to another because of a continuous process of interaction between tacit and explicit knowledge in an organization. The result is the ability to create new knowledge which has economic worth and is essential for innovation. For this to take place, a space called Ba (Nonaka & Konno 1998), where knowledge is created and shared through social media, is needed. According to Nonaka and Konno (1998):

Ba can be thought of as a shared space for emerging relationships. This space can be physical (e.g., office, dispersed business space), virtual (e.g., e-mail, teleconference), mental (e.g., shared experiences, ideas, ideals), or any combination of them. What differentiates Ba from ordinary human interaction is the concept of knowledge creation.



Ba provides a platform for advancing individual and/or collective knowledge. It is from such a platform that a transcendental perspective integrates all information needed. Ba may also be thought of as the recognition of the self in all. According to the theory of existentialism, Ba is a context which harbors meaning. Thus, we consider Ba to be a shared space that serves as a foundation for knowledge creation. (p. 40)

Identifying and using the spaces as well as consciously operating in the knowledge conversion mode supports the evolving needs of a typical educational establishment that benefits from its knowledge capital.

However, Chou and He (2004) point out that they do not find a comprehensive and feasible model that delineates the interrelationships between knowledge assets, and that knowledge creation processes are absent. It may well be that the concern raised by Chou and He (2004) will be resolved by means of systematic and repeated studies of actual practice. Instead of concentrating on theory formation, the Lean method utilizes such professional development (PD) methods as project work, various trainings and cross-trainings, and one-to-one work which may bridge that gap between knowledge assets and knowledge creation. The application of KM principles and tools is useful for the Lean approach.

In *The Fifth Discipline*, Senge (1990) points out that the weakness of many organizations which are unable to function on a knowledge basis is that they suffer from learning challenges. Jain (2007) echoes similar sentiments about the importance of a KM approach to a LO. Baskerville and Dulipovici (2006, p. 91) put emphasis on the same point by indicating that a “knowledge culture values learning and creativity”. Francis (2014) questions the absence of an alternative approach to Lean in post-secondary education environments.

However, the fast changing information environment and the expectations that society has on these organizations requires them to continuously re-focus. Successful practices include using Lean as an efficient learning process for stimulating innovation. As such, relevant theory will gradually be appropriately introduced, sometimes refuted, change over time, and is determined by the practitioners involved as they try to understand and explain the reality of OL and the LO.

## **Conclusion**

Any plan to use KM practices implies the need to understand the context that different types of knowledge requires, as well as organizing information (re-packaging it) in the manner most useful to the modern education institution’s community. Use of the Lean approach supports the application of KM principles and tools towards innovation in higher education.

It becomes possible to learn from previous experiences and situations, and be able to anticipate the specific requirements of the organization as indicated in double-loop learning.

In most institutions of higher learning, establishing and maintaining a strong technological base focusing on the intended teaching-learning environment and promoting research activities, and creating and organizing technology-based knowledge and knowledge-based networking are essential initiatives.

Additionally KM practices need to be tapped from institutional skills and the already existing intellectual capital with enabling policies and practices. A supportive institutional climate for OL can therefore bring systemic transformation to the LO.

## References

- Ang, S. & Joseph, D. (1996). *Organizational learning and learning organizations: Trigger events, processes, and structures*. Nanyang Technological University: Singapore.
- Argote, L. & Miron-Spektor, E. (2011). Organizational learning: From experience to knowledge. *Organization Science*, 22 , 1123–1137.
- Argyris, C., Schön, D.A. 1978. *Organizational Learning: a Theory of Action Perspective*. Reading, Mass.: Addison-Wesley
- Argyris, C. (1977). Organizational learning and management information systems. *Accounting, Organizations and Society*, 2(2), 113-123
- Baldrige Program (2014). Retrieved from <http://www.nist.gov/baldrige/>
- Balzer, W. K. (2010). *Lean higher education: Increasing the value and performance of university processes*. New York: Productivity.
- Bandura, A. (1977). *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), *Annals of child development*, 6. Six theories of child development (pp. 1-60). Greenwich, CT: JAI Press. Retrieved 26 November 2014 from <http://www.uky.edu/~eushe2/Bandura/Bandura1989ACD.pdf>
- Barquin, R. (2001). What is knowledge management? Knowledge and innovation. *Journal of the KMCI*, 1(2), 127-143.
- Baskerville, R. & Dulipovici, A. (2006). The theoretical foundations of knowledge management. *Knowledge Management Research & Practice*, 4(2), 83-105.
- Brown, J. S. (2001). Learning in the digital age. In *The Internet and the University: Forum* (pp. 71-72). Retrieved from <https://net.educause.edu/forum/ffpiu01w.asp?bhcp=1>
- Chou, S.W. & He, M.Y.(2004). *Facilitating knowledge creation by knowledge assets*. Retrieved from <http://dx.doi.org/10.1109/HICSS.2004.1265584>
- Dickeson, R. C. (2010). *Prioritizing academic programs and services: Reallocating resources to achieve strategic balance*. San Francisco: Jossey-Bass.
- Dixon, N. M. (1999). *The organizational learning cycle: How we can learn collectively*. Brookfield, Vt: Gower.
- Duncan, R. & Weiss, A. (1979). Organizational learning: Implications for organizational design. In B. Staw (Ed.), *Research in organizational behavior* (pp. 75-123). Greenwich, CT: JAI Press.

- Easterby-Smith, M., & Lyles, M. A. (2011). *Handbook of organizational learning and knowledge management*. Chichester: Wiley.
- Easterby-Smith, M., Araujo, L., & Burgoyne, J. (1999). *Organizational learning and the learning organization: Developments in theory and practice*. Thousand Oaks, Calif.: Sage Publications.
- Emirates Competitiveness Council (2011). *Policy in Action: The UAE in the Global Knowledge Economy - Fast-Forwarding the Nation*. Retrieved from [http://www.ecc.ae/docs/defaultsource/ecclibrary/ecc\\_policy\\_in\\_action\\_issue\\_01\\_knowledge\\_economy\\_jan\\_2011\\_english.pdf?sfvrsn=0](http://www.ecc.ae/docs/defaultsource/ecclibrary/ecc_policy_in_action_issue_01_knowledge_economy_jan_2011_english.pdf?sfvrsn=0)
- Encyclopaedia Britannica*. (2014). *Learning*. Retrieved from <http://academic.eb.com/EBchecked/topic/333978/learning>
- Fauske, J. R., & Raybould, R. (2005). Organizational learning theory in schools. *Journal of Educational Administration*, 43(1), 22-40.
- Francis, D. E. (2014). Lean and the learning organization. *Canadian Journal of Educational Administration and Policy*, 157. Retrieved from [http://www.umanitoba.ca/publications/cjeap/pdf\\_files/francis.pdf](http://www.umanitoba.ca/publications/cjeap/pdf_files/francis.pdf)
- Gandhi, S. (2004). Knowledge management and reference services. *The Journal of Academic Librarianship*, 30(5), 368-381.
- Gore, E. W. Jr. (1999). *Organizational culture, TQM, and business process reengineering: An empirical comparison*. WCOB Faculty Publications. Paper 218. Retrieved from [http://digitalcommons.sacredheart.edu/wcob\\_fac/218](http://digitalcommons.sacredheart.edu/wcob_fac/218)
- Hedberg, B. (1981) *How organizations learn and unlearn*. Handbook of Organizational Design. Oxford: Oxford University Press.
- Huber, G. P. (1991): Organizational Learning: The Contributing Process and the Literatures. *Organization Science*, 2 (1), 88-115.
- Huber, J. J. (2011). *Lean library management: Eleven strategies for reducing costs and improving services*. Chicago: ALA TechSource.
- Jain, P. (2007). An empirical study of knowledge management in academic libraries in East and Southern Africa. *Library Review*, 56(5), 377-392.
- Kidwell, J.J, Vander Linde, K.M & Johnson, S.L (2000). Applying corporate KM practices in higher education. *Educause Quarterly*, 4, 28-33
- King, W.R. (2009). *Knowledge management and organization learning: Annals of Information System*. New York: Springer Science Business Media.

Kok, J.A. (2012). *Knowledge management @ DoTPW*. Paper presented to the International Knowledge Conference at the University of Stellenbosch Business School, Stellenbosch, 16–18 January. Retrieved from [http://www.usb.ac.za/Common/Pdfs/KnowledgeManagementConference/JKok\\_Knowledge-Management\\_Department-of-Transport-and-Public-Works.pdf](http://www.usb.ac.za/Common/Pdfs/KnowledgeManagementConference/JKok_Knowledge-Management_Department-of-Transport-and-Public-Works.pdf)

Marburger III, J.H. (2011). *Science, technology and innovation in a 21<sup>st</sup> Century context*. Retrieved from [http://sciencepolicy.colorado.edu/publications/special/sip\\_marburger1.pdf](http://sciencepolicy.colorado.edu/publications/special/sip_marburger1.pdf)

McGill, M., Slocum, W. & Lei, D. (1992). Management Practice in Learning Organization. *Organizational Dynamics*, 21 (1), 5-17.

Mason, R.O. & Mitroff, I.I. (1973). A Program for Research on Management Information Systems. *Management Science* 19(5), 475-487.

Nonaka, I. & Konno, N. (1998). The concept of "Ba": building a foundation for knowledge creation. *California Management Review*, 40(3), 40-50.

Nonaka, I. & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York, N.Y: Oxford University Press.

Nonaka, I. & Teece, D.J. (2001). Research directions for knowledge management. In: Nonaka, I. & Teece, D.J. (Eds). *Managing industrial knowledge: Creation, transfer and utilization* (pp. 330-335). Sage: London.

Polanyi, M. (1962): *Personal knowledge: Towards a post-critical philosophy*. Chicago: University of Chicago Press.

Rowley, J. (2003). Knowledge management – the new librarianship? From custodians of history to gatekeepers to the future. *Library Management*, 24 (8/9), 433-440.

Senge, P. (1990). *The fifth discipline: The art and practice of the learning organization*. Sydney: Random House.

Sucozhañay, D., Siguenza-Guzman, L., Zhimnay, C., Cattrysse, D., Wyseure, G., De Witte, K., & Euwema, M. (2014). Transformational leadership and stakeholder management in library change. *LIBER Quarterly*, 24(2), 55-83.

Singh, S. P. (2007). What are we managing – knowledge or information? *VINE*, 37 (2), 169 – 179

Skinner, B. F. (1938). *The Behavior of Organisms: An Experimental Analysis*. Cambridge, Massachusetts: B.F. Skinner Foundation.

Skinner, B. F. (1935). *Classics in the History of Psychology*. Retrieved 26 November 2014 from <http://psychclassics.yorku.ca/Skinner/Twoypes/twoypes.htm>.

Stanford Encyclopedia of Philosophy (2010). *Behaviorism*. Retrieved 26 November 2014 from <http://plato.stanford.edu/entries/behaviorism/>

Townley, C.T. (2001). Knowledge management and academic libraries. *College & Research Libraries*, 62(1), 44-55.

Tsang, E. W. K. (1997). Organizational learning and the learning organization: a dichotomy between descriptive and prescriptive research. *Human Relations*, 50 (1), 73-89.

Vygotsky, L.S. (1978). *Mind in society*. Cambridge, M.A.: Harvard University Press.