A growing problem for learning institutions and organizations in North America is the ripple effect caused by the mass exodus of the Baby Boom generation from the workforce. Among the problems this exodus is generating is the loss of tacit knowledge and learned skills that retirees take with them as they make their final exit from the workplace. The conundrum facing organizations is how to deal with knowledge management issues while at the same time restructuring to remain competitive in the global marketplace. How can learning institutions and organizations maintain and increase their knowledge base as their skilled laborers and managers exit out of their organizations? Compounding the problem are the changes within company infrastructures and traditional methods of gathering and storing information that have been supplanted by advancing technology.

As part of the process in understanding knowledge transfer and retention, the learning process itself needs to be considered. Studies of generational convergence have identified challenges associated with various learning dynamics; among these are the collusions and complacencies derived from cultural practices in previous generations. Lifelong learning has become a mainstream phenomenon in the adult and higher education arena. Despite the presence of learning curves and knowledge to practice, these areas are often diminished and left out of the planning and implementation process while essential to the success of knowledge management in learning organizations. These are topics for discussion that administrators must address as learning institutions and organizations plan for their future. This paper will address, in part, the evolving relationship between knowledge management (KM), education, training and learning.

Knowledge is attained and disseminated through the cultural practices of the organization or institution. So how does an organization/institution process all this knowledge and how do they manage the knowledge that is communicated from multiple levels. Technology is helping the mass distribution of knowledge. With easy one stop access, people can acquire a wealth of information that they could not get (easily) through traditional methods. According to authors Lisa Petrides and Thad Nodine (2003, pp.10) several institutions have research in progress to implement KM practices: Cuyahoga Community College in Cleveland Ohio, Jackson State University in Jackson Mississippi, Foothill De Anza Community College District in Cupertino California and Model Secondary School Project (who received funding from Bill and Melinda Gates Foundation). Other Foundations in support of KM are David and Lucille Packard Foundation, W.K. Kellogg Foundation and The National Science Foundation. With growing support for KM and the ever widening and rapid growth of the technology age, it makes sense to consider and implement some form of KM practice. Organizations and learning institutions are part of a competitive market, seeking new and innovative ideas, and becoming part of the growing trends of the future.

Knowledge management affects learning institutions and organizations at all levels, from educators and front line workers, to the upper echelons of administration and
management. Petrides and Nodine (2003) describe KM practices and the effects on education. Among the milieu of social and political rhetoric in which administrators and faculty are immersed, information technology and information systems management add to the complexity of the continuing changes to the infrastructure of the institution. As the funding streams thin out in the education system, increase in faculty roles/responsibilities continues unabated.

**Knowledge management**

Knowledge management (KM) became the buzzword in the 1990s as a practice of identifying, managing, and sharing knowledge assets (Heyman, 2002, pp.4, Kim, 1999, pp.4). As widespread as KM is, there is still no definitive definition of KM or explanation of how it came about. Speculation into the antecedents of KM developed out of consultants’ needs to explain the declining revenues from the reengineering movement or the re-labeling of previous synonyms (Prusak, 2001, pp.1002). From the Southwest Educational Development Lab, KM is viewed as a process that ‘looks inward, seeking ways to improve the scope, utility, and efficiency of knowledge within the organization (2001, pp.6). Cairns defines KM as a ‘set of methodologies, approaches, processes or principles used to address a strategic objective where knowledge is a key asset’ (2006, pp.7). Palmer & Varner describes KM as the ‘process that is used to manage intellectual capital within and among organizations’ (2000, pp.19), while Doucette defines KM as a way to …‘put information into action in ways that strive to improve organizational performance’ (Doucette, 2000, pp.186; O’Dell, Grayson Jr. and Essaides, 1998). The basic consensus here is knowledge and how that knowledge is stored and retrieved as well as for what purpose.

While knowledge and management are not new, the concept and reasoning for managing knowledge is an emerging focus, which continues to draw strong support. Prusak identified three antecedents to how KM immerged: globalization, ubiquitous computing and knowledge-centric views (2001, pp.1002). Advanced technology has created new avenues of delivering knowledge and now there is a whirlwind of information available to us at the touch of a button. The global market is moving at a record pace with on-demand access and personalized interfaces. Southwest Educational Development Lab (SEDL) gave a multitude of ranges to KM systems, which can ‘range from elaborate conceptual models, multi-step procedures, and lengthy diagnostic tools to grouping KM teams according to personality types’. Additionally, these systems according to SEDL, in a study conducted by Davenport (n.d) involve some sort of ‘repository often broken down into categories: highly structured (white paper documents), less structured (discussion databases or less-learned systems), and pointers to knowledgeable personnel (corporate yellow pages)’ (2001, pp.31). Successful KM practices will garner a strong, effective, and therefore productive organizational infrastructure.
**Knowledge management movement**

Thirty years ago, the going trend for company training was limited at best and was only for the personnel that held management and executive positions. This was the Tayloristic approach to mass production. However, since then corporate America has undergone tremendous changes in the matrix of the internal organization. Consumer focus went from a production economy, to human relations management and now the era of knowledge economy (Pietersen, 2001). People, and particularly the knowledge they now possess, are more valuable to a company than the product that they are producing. It is the 'know how' and the 'where do we go from here?' mentality that lends itself to the frontier of surviving the information technology age. As production increased and technology advanced, people became the asset to the company's productivity and increased investments into education/re-education and training/re-training took on the primacy that once was second-class.

According to Yu-Yuang & Ya-Hui Lien, knowledge management, organizational learning, and total quality management are interrelated in the succession of a strong knowledge base that relies heavily on the part that process knowledge plays in the tripartite, and the four elements that are the main concept for KM: knowledge creation, knowledge access, knowledge transfer, and knowledge application. All are interwoven in KM, OL, and TQM (2005, pp.483). These concepts are unequivocally important in developing a strong knowledge base, thus, guarantee the survival of an organization. According to Doucette, human performance technology(ist) adopts a systems view of a performance gap. They systematically analyze both gap and system, and design cost-effective and efficient interventions that are based on analysis of data, scientific knowledge and documented precedents in order to close the gap in the most desirable manner (2000, pp.188; Stolovitch and Keeps, 1992).

The fast dispersion of KM initiatives and the KM movement brings to the forefront the equally rapid definitions of KM. While there is no clear definition has precluded the widespread concept of the KM conundrum, Patrick Sullivan maps out a brief history of how intellectual capital has given rise to what is now a melting pot of the KM movement. Sullivan’s depiction of early proponents of the Intellectual Capital Movement (ICM) started with Hiroyuki Itami (1980) who discovered the value of invisible assets within a corporation. Following, was David Teece’s (1986) article on *Profiting from Technological Innovation* in collaboration with work from academic researchers and economists resulted in the illumination of the commercializing technology. Brian Hall, a proponent of human values, developed in collaboration with Benjamin Tonna, a hierarchy of human values. Hall was the founder of the Omega Associates, now Values Technology, and a firm that works to assist other firms in identifying, analyzing and improving the company from within. Karl-Erik Sveiby, founding father of *Swedish Movement in knowledge management and intellectual capital*, authored a book on managing knowledge in companies with no traditional production, only the knowledge and creativity of their employees. His theory for measuring knowledge capital was later adopted by the Swedish Council of Service Industries as the standard recommendation for annual reports. Hubert St. Onge was responsible for developing a model *customer capital* that would strengthen a firm’s in longevity the financial capital (2000, pp.3).

Similarly, Herman J. Pietersen’s critical analysis of IC/KM movement from a human systems point of view the very nature that IC/KM have mutually added to the confusion of the knowledge era. In his observance, IC/KM is the basic framework for human, customer, and organizational capital. Furthermore, he pinpoints three problematic areas associated with IC/KM initiatives: first, that broadly focus topic and categories are not mutually exclusive or theoretically sound; second, other management and organizational disciplines
are too narrowly focused; and third, that the concept is primarily business and management thinking rather than a human systems approach (2001, pp.2-4). According to Pietersen, increasing the awareness of the person from a holistic, spiritual, sociological as well as psychological basis, will assist KM to have an impact on the overall change of the organization. The piecemeal approach that is so prevalent in corporations is limited in their application and retention rate.

Prusak’s analysis of the KM movement was the result of three contributing practices: Information Management, Quality Movement, and Human Capital. Information Management (IM), developed during the 70s and 80s…A body of thought and cases that focuses on how information is managed, independent of the technologies that house and manipulate it…generally means documents, data and structured messages. The quality movement focused significantly on internal customers, overt processes, and shared transparent goals, while the focus of human capital was the financial advantage to states and firms investing in individuals; mainly through education and training. Human capital focuses on the individual, whereas most KM work is concerned with groups, communities, and networks (2001, pp.1005). Similarly, F. Javier Carrillo Gamboa believes that KM is a result of awareness of the competency base of an organization; the need for intellectual capital; the necessities of coping with massive information overload; social awareness (human capital); and the convergence of sciences and technology (1999, pp.2).

Southwest Educational Development Lab believes KM systems attempt to reap benefits from two broad types of knowledge residing within an organization: explicit and tacit knowledge. Further, they believe that the challenge is to find ways to capture and share knowledge with others who need it (2001, pp.30). The varying learning dynamics contribute to the breadth and depth of knowledge that is both harnessed and extrapolated within an organization.

In many Taylorists companies, the trail of training documentations will be limited and/or outdated and the knowledge that is transferred has been diluted from the disintegrating instructions over time. Through the decades of having to educate and train on limited resources, there is no doubt front-line workers have devised short cuts to make things easier on themselves. Supply and demand makes it necessary for them to develop a system that will enable them to do their task unencumbered. Another contributing factor to the lack of learning for the participant is their fear of being displaced (Billett, 2002; Lave & Wenger, 1991, pp.43) will likely deter from giving support to those that may have the power to displace them. Additionally, engagement in participation according to Billett is ‘…co-participative—an interaction between how the workplace affords participation and how individuals participate in that social practice’ (2002, pp.44).

**Relationship between KM, education, training and learning**

Discussions on transference of knowledge into practice are a common theme among educators and trainers, particularly now with the Baby Boom generation moving out of the labor market and taking with them their knowledge and skills. Learning institutions and organizations are fast approaching a new delivery system that will encourage the diverse learning experiences that have converged. Traditional learning modalities have evolved to include web-based and computer-based courses. Technology has increased the level and interest of participation in a monumental way. Computer-based courses allow learners, who would normally be too reclusive to participate in a face-to-face learning environment, to become active learners without the fears normally associated with traditional forms of learning. Furthermore, web-based and computer-based learning creates a virtual environment involving infinite numbers of learners from many different worlds. The
learning experience becomes exponential when factoring the knowledge not only of the subject matter, but additionally, technological know how, navigational knowledge of the computer and software, as well as new social skills being learned. The advantages to technologically advanced learning systems are not limited to just the learners, but also to the learning institutions and organizations from the top down. The benefits can be cost-effective since it requires less equipment and instructors, in addition to the cost of traveling and accommodations that are accrued for bringing in visiting facilitators and trainers. It is also environmentally friendly since the bulk of the course requires interacting on the computer or viewer screen. A greater benefit is the collectivism and unity that is created both for the learners and the facilitators as it creates a forum for people to openly express their views and opinions and share ideas that would normally take time to deliver, digest and retain.

While technology brings with it vast opportunities and capabilities, the downside to technology is the disadvantages it has for those with disabilities. For example, the use of a mouse to navigate through screens can hinder those that cannot easily grasp the electronic devices. Additionally, those that are visually impaired may have difficulties seeing the images if the screens and images are fixed. Other issues to consider apropos to implementing KM practices is the ability of the user interface to understand, comprehend, and articulate the workings of electronic database warehouses. Further, what are the proprietary issues software infringement, compatibility issues, and the quality and reliability of information (SEDL, 2001) that come about.

Strategic elements that influence the effectiveness of KM strategies according to SEDL are support from senior management (clarity of objectives and language); strong focus on motivating workers to share and use knowledge; and creating an organized infrastructure (2001). Implementing KM in organizations according to Petrides & Nodine is more difficult when non-collaboration is the norm or when data and information infrastructures are under-funded or otherwise have a diminished capacity (2003, pp.24). Currently, there are five countries offering KM education according to Chaudhry: Australia (4 schools); Canada (4 schools); Singapore (1 school); United Kingdom (9 schools); and the United States (19 schools) (2001, pp.5).

**Knowledge management initiatives**

There are many avenues to developing a knowledge management program, depending on the systemic structure of the organization, departmental involvements, available software and hardware, and how extensive of a program is desired. For a general guideline, Cairns developed some common KM initiatives to assist in developing a KM program, which include the following:

- Content and document management (electronic document and records management EDRM): email; correspondence; web information; drawings.
- Communities of practice (CoP), bringing together likeminded people to discuss common issues and problems and to share knowledge on relevant topics: coffee room chats; discussion forums; web casting or wikis.
- Tacit knowledge captures and transfer: questionnaires, interviews, and workshops.
- Yellow pages: in conjunction with intranet to provide details of the skills and competencies of technical experts in the organization.
- Intranet development
- Knowledge mapping and knowledge audits; mapping done at start of km initiative to understand gaps, opportunities, collaboration practices etc.; audits are ongoing and focuses on conformances and compliance issues.
- E learning: found mainly in training through intranet (can be accessed by staff and measures the results for individuals or groups) (2006, n.p).

Technology is a portent in the development of a knowledge warehouse, yet the process of implementing a successful knowledge management program is more challenging than just incorporating software to manage data and information. KM requires a humanistic approach, people-centered and articulation into and about the knowledge being contained. More importantly, it requires a collaborative effort and a big chunk of time, which many companies are not, equipped or afforded the luxury of assigning personnel to spearhead such a project. Moreover, it requires the cooperation of many departmental personnel, and software and hardware availability. Before attempting to implement a KM practice, experts in the field emphasize the necessity to conduct a knowledge mapping to determine where the gaps, areas of collaboration, and types of knowledge are that should be included.

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