The Role of Knowledge Management in Higher Education Institutions: A Case Study from Tanzania

George Lawrence Kinyata

Stefano Moshi Memorial University College, Tanzania

The aim of the paper was to investigate the role of knowledge management in higher education institutions. The case study was based on the Stefano Moshi Memorial University College (SMMUCo). The study relied on both secondary and primary data; primary data was obtained mainly through a questionnaire, observations, as well as short interviews/discussions with students and lecturers, since the researcher is a lecturer at SMMUCo. The findings show that the current University website and the general state of IT infrastructure is not adequate in supporting the knowledge management activities, for example both students and lecturers pointed out a lack of an information system where they could login to access specific information (e.g. individual course results, lecture notes, news bulletins and updates from the management). The paper concludes by highlighting the development of the knowledge management model, which SMMUCo could implement in order to achieve effective knowledge management. The model suggests that in order to build the knowledge management capabilities, the university should effectively align its key resources, namely: (a) Employees (both academic and administrative staff), (b) University content (e.g. lecture notes, programs, policies etc.), and (c) ICT infrastructure. The use of relevant technologies is highly recommended, since technology is viewed as a resource that can improve knowledge management.

Keywords: information; knowledge; knowledge management; higher learning institutions; information technology

Introduction

One of the current challenges facing the newly established university colleges in Tanzania is the question of how to establish the competencies for knowledge management. Stefano Moshi Memorial University College (SMMUCo) was established in 2007 by the Northern Diocese of Evangelical Lutheran Church of Tanzania (ELCT) as a constituent college of Tumaini University. The College has three campuses, each located in a different area i.e. Masoka, Mwika, and Moshi town. SMMUCo is named in memory and honour of Stefano Moshi who served as the first Bishop of the Evangelical Lutheran Church of Tanzania (ELCT) between 1963 and to 1976.

In the first academic year, which was in 2007/2008, the college had 326

students attending certificate and diploma programs. Since then, SMMUCo gradually increased the number of the offered academic programs, as well as the number of enrolled students. Today, it has more than 2000 students pursuing a variety of certificate, diploma, and degree programs. Given the gradual increase in the number of academic programs and the number of students, the information and knowledge management challenges were inevitable.

One of the ways of effectively managing information and knowledge is by using information systems/technology. However, during the research it was established that the current university website is static in nature i.e. not dynamic, and thus unable to provide specific answers to its users, such as individual student results, real-time news bulletins and updates from the management to mention a few. This can potentially limit the university's ability to meet information and knowledge needs of its stakeholders and above all it can potentially limit the university's competitiveness within the industry. Therefore, in order to effectively compete, the university should effectively leverage information and knowledge across all of its campuses. It is vital to note that reputable universities, such as Oxford and Cambridge have invested heavily in the information and knowledge management systems aimed at improving their ability to generate, capture, and disseminate educational knowledge.

Many authors including Stata (1990), Kim (1993), Davenport and Prusak (1998) agree that carefully managed intellectual resources (especially knowledge) enable companies to develop and maintain sustainable competitive advantage. However, this requires effective use of information and knowledge across the organisational functional units. This fact is emphasized by Buckley and Carter (2000) and Mudambi (2002), who state that knowledge is a resource that enables organisations to deal with uncertainty. Therefore, exploring the concept of knowledge management within SMMUCo and understanding the various existing knowledge perspectives, such as knowledge as a state of mind (mainly evident among lecturers and other executive staff), knowledge as an object (i.e. university documents, reports, etc.), will enable the researcher in developing a tailored methodology of how to effectively leverage a university wide knowledge. Thus, the research sets out the mechanisms and approaches regarding effective leveraging and managing of information and knowledge in higher education institutions, such as SMMUCO.

Research Methodology

Both desk and case study approach were used. Namely, secondary data, such as data from reports, books, and academic journals was used together with primary data, which was obtained primarily via a questionnaire, via ob-

servations, and short interviews/discussions with students and lectures. The use of 'desk and case study approach' had various advantages, for example it enabled the researcher to study real-life events, such as organisational and managerial processes, as well as life cycles, while retaining the holistic and meaningful characteristics of these events. Likewise, the use of a case study provided the researcher with the opportunity to deal with a full variety of evidence, for example the researcher was able to review various documents, make observations, and interviews while at work. The case study approach enabled the researcher to highlight the link between the secondary data and the facts gathered via interviews, observations, and discussions with students and lecturers, which provided a coherent approach leading to the research conclusions.

Examining the Concepts of Knowledge, Management, and Knowledge Management

In order to shade light on the significance of knowledge management, it is vital to discuss knowledge and management as separate concepts, before exploring the meaning of knowledge management.

The Concept of Knowledge

Various authors, including Fahey and Prusak (1998), Dreske (1999), and Vance (1997), define knowledge by differentiating it from data and information. Data is typically defined as raw material or facts and figures, while information is data that has been processed in order to provide a meaning to the user, while knowledge is information that is put to productive use. Nonaka and Nishiguchi (2001), Jordan and Jones (1997), Schubert et al. (1998) have defined knowledge as a justified belief that increases an individual's or an entity's capacity for effective action. The analysis of these definitions implies that knowledge is personalized information related to facts, ideas, interpretation, and judgment or information embedded in the mind of individuals. They also imply that knowledge is unique and context-specific, and is often intangible and elusive. Therefore, given its nature, knowledge should be managed carefully. Knowledge can be classified in different ways, for example, Schubert et al (1998) argue that knowledge is a *state of mind;* in this case, the focus is on enabling the individuals to expand their personal knowledge and apply it to the organization's needs, while knowledge as a *process* is when it is applied to the organisational tasks in order to achieve specific goals. In this case, Schubert puts more emphasis on the organizational processes, because they have the ability to create and add value to organizational activities. However, Carlsson, El Sawy, Eriksson, and Raven (1996) argue that knowledge is more fluid when classified as an *object,* because it is envisaged as 'things' which can be

stored and manipulated according to the needs of the user, while knowledge as a *capability* is described by Carlsson as one with the potential for influencing future actions.

McQueen (1998) classified Knowledge as a *condition of access to information;* this implies the need for the organizational knowledge to be organized in order to enable effective access and retrieval of organisational wide content. This could be argued as an extension of knowledge, as an *object,* because it highlights the need for accessing knowledge objects. Given the different views, i.e. classifications of knowledge, this will inevitably lead to different approaches of managing knowledge; for instance, if knowledge is perceived as an *object* or as a *condition of access to information,* then knowledge management should focus on building and managing knowledge stocks. However, if knowledge is seen as *a process,* then the focus should be on the knowledge flow and on the process of creating, sharing, and distributing knowledge.

Knowledge as a *capability* suggests a knowledge management approach focused on building core competencies, on understanding the strategic know-how advantage, and on creating intellectual capital. Within the university, knowledge can be seen as intellectual capital, this includes human intellect, which includes the technical know-how, trouble shouting capacity, imagination, and managerial skills, which are embedded in the employees of the organisation. Zack (1999) identified three different perspectives of knowledge, namely core knowledge, advanced knowledge, and innovative knowledge. Core knowledge includes the necessary understanding that the organization has, and needs, within the industry in order to remain competitive, while advanced knowledge is defined as knowledge possessed by the knowledge workers. Innovative knowledge is defined as knowledge, which leads to creativity, thus enabling a person to think in a dynamic way in order to achieve the organizational goals and objectives. Zack argues that advanced knowledge leads to the differentiation of firms within industries. However, an organization with both innovative and advanced knowledge can robustly influence the dynamics within an industry; this is due to the fact that they are able to develop new innovative products and services, thus maintaining their market position/share while competitors struggle to adapt.

Nonaka and Takuechi (1995) argue that justified belief and commitment are the essential characteristics of knowledge. In this case, Nonaka and Takeuchi see knowledge creation as being driven by the flow of information, in relation to the beliefs and commitment of the holder. Their main proposition is that knowledge is related to human action and behaviour. This led Nonaka and Takuechi to develop a knowledge topology referred to as tacit and explicit knowledge. Tacit knowledge is regarded as the knowledge or

know-how that people carry in their heads. It includes skills, experience, insight, intuition, and judgment. This knowledge is difficult to articulate or write down within organisations; therefore, it tends to be shared among the employees through discussions and personal interactions.

While explicit knowledge is knowledge that can be encoded and made available to others, since it is easily articulated and is transferable from one person to another. In doing so, the recipients add to their stock of tacit knowledge. Therefore, explicit knowledge can be expressed in a form of documentation, such as books, journals, and reports or it can be tracked in databases.

The importance of knowledge cannot be underestimated, as rightly argued by Davenport and Prusak (1998), as strategic resource, which should be carefully cultivated, natured, and managed. Davenport argues that we are living in an era in which traditional factors (i.e. land, agriculture, manufacturing, etc.) are no longer the key factors of economic growth. This new era has been defined by Davenport and Beck (2002) as the knowledge based economy, where knowledge is the vital force for economic growth and the source for gaining the competitive advantage

Drucker (1999) describes the companies working in the knowledge based economy as composed of specialists who direct and discipline their own performance through organised feedback from their colleagues, customers, and line managers. Drucker asserts the notion that we live in a knowledge based society where knowledge is the source of power.

The Concept of Management

Brech (1975) describes management as a social process that holds the responsibility for effective economic planning and regulation of the enterprise with the fulfilment of given goals/objectives. However, Stewart (1986) describes management as deciding what needs to be done and then getting other people to do it. To a large extent, management addresses people rather than technical issues, it is more geared to addressing the behavioural and mindset issues of the employees. However, the success of the management activities often depends on the ability to delegate tasks to subordinates, which requires someone who takes the responsibility of the manager. Thus, the role of managers is not to do all the work themselves, but to ensure the people with the skills to carry out the work. Mintzberg (1989) argued that the role of a manager is to plan, organise, co-ordinate, and control organisational activities, while Taylor (1947) depicts the manager as the scientifically trained designer of work. Taylor argued that managerial activities should focus on the design and supervision of the work processes that minimise the effort and skills necessary for an employee to perform his or her work.

The Concept of Knowledge Management

The concept of 'knowledge management' is a recent phenomenon when compared to the concepts of knowledge and management. The idea of combining the two can be traced back to Hansen (2002) who discussed the emergence of communication technologies that create access to computerised networks, which allow real-time communications despite the physical distance. He argued that technologies such as the internet, intranet, email, and the World Wide Web make it feasible for knowledge and management to be combined, thus enabling the concept of knowledge management.

However, over the last two decades, researchers and academics have failed to universally agree on a commonly accepted definition of what knowledge management is, likewise some are not convinced about the practicalities of managing knowledge. Hull (2000) argues that the concept of knowledge management is not merely a passing fad, but is in the process of establishing itself as a new aspect of management. Table 1 illustrates the various perspectives (definitions) of different authors regarding what knowledge management is.

From this analysis, it is clear that the concept of KM has not reached the maturity stage, given that there is no clear or consistent definition from the literature; this goes to show the different approach that exists in relation to the exploitation and managing of knowledge. However, it was worth noting that most of the definitions concentrate on a number of key aspects of managing knowledge, for instance most definitions emphasize the creation of a learning environment, re-usage of knowledge, providing the knowledge for decision making; furthermore, to some extent, they view KM as a set of organisational and operational design principles. Whatever the difference in the various definitions, the majority of authors agree that KM processes enable organisations to capture, store, transfer, and leverage knowledge throughout the organisation and, when aligned with the business objectives, it has the ability to enhance the employee and organisation performance.

The Yard Stick for Measuring Knowledge Management

In order to measure KM at SMMUCo, the researcher used the knowledge management value chain (KMVC) as a yard stick, which was developed by Nonaka and Takeuchi (Morey, Maybury, & Thuraisingham, 2002). The KMVC illustrates the identified knowledge management activities (i.e. knowledge creation, storage, distribution, and application) and how they can contribute toward creating and exploiting knowledge within an organisation. Below is a discussion regarding each of the KMVC activities and how they can be used to enhance, accumulate, and leverage the stocks of knowledge within the university college.

Table 1 Knowledge Management Perspectives

Author	Year	Knowledge Management Perspectives
Nonaka	1994	Knowledge management is the effective use of techniques and tools available to capture, store, transfer, and disseminate the expertise and know-how of individuals and groups within an organisation.
Leonard-Barton	1995	Knowledge management constitute the necessary activities required within a given environment in which people are invited and facilitated to develop, share, combine, consolidate, and apply relevant knowledge.
Ruggles	1998	KM is anything from organisational learning to database management. [From this definition it can be argued that KM refers to the processes of adding or creating value by actively leveraging the know-how, experience, and judgement resident within and outside the organisation.]
Blake	1998	Knowledge management is the process of capturing a company's collective expertise where it resides - in databases, on paper, or in people's heads, and distributing it to where it can help produce the biggest payoff
Cross	1998	Knowledge management is the discipline of creating a thriving work and learning environment that fosters the continuous creation, aggregation, use and re-use of both organisational and personal knowledge in the pursuit of new business value.
Teece	1998	Knowledge management is the systematic process for creating, acquiring, capturing, assembly, sharing, integration, leveraging, and exploitation (using) of knowledge to retain competitive advantage and achieve the organizational goals.
Hansen, Nohria, and Tierney	1999	Knowledge management is getting the right knowledge to the right people at the right time so they can make the best decision.
Earl	2001	Knowledge management is an emerging set of organisational design and operational principles, processes, organisational structures, applications, and technologies that helps knowledge workers dramatically leverage their creativity and ability to deliver business value.
Mertins, Heisig, and Vorbeck	2001	Knowledge management describes all methods, instruments and tools that, in a holistic approach, contribute to the promotion of core knowledge process – to generate knowledge, to store knowledge, to distribute knowledge, and to apply knowledge supported by the definition of knowledge goals and the identification of knowledge – in all areas and levels of the organisation.
Malhotra	2001	Knowledge management embodies the organisational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creativity and innovative capacity of human beings.
Quintas	2002	Knowledge management is the process of continually managing knowledge of all kinds to meet the existing and emerging needs, to identify and exploit the existing and acquired knowledge assets and to develop new opportunities.
Chaffey and Wood	2005	The capabilities by which communities within an organization capture the knowledge that is critical to them, constantly improve it, and make it available in the most effective manner to those who need it, so they can exploit it creatively to add value as part of their work.

Knowledge Creation

The ability to create knowledge has paramount importance in meeting the university's needs. The formalised methods for knowledge creation should be emphasized, for instance the knowledge from past student projects, examination results, past papers, and course materials should be stored in databases for future use by the students and the lecturers. It is vital to note that Choo (1998) argues that knowledge creation begins with an individual in the form of tacit knowledge (knowledge that cannot be easily articulated), thus the university should attempt to codify individual knowledge, thus making it available to others.

Knowledge Storage

The full potential of knowledge within the university can only be realised through the process of capturing, storage, and articulation of data and information, thus making it available to an individual or university wider use. Boisot (1998) argues that the storage of knowledge is vital in the implementation of the full value of knowledge. This is due to the fact that stored knowledge, which is often codified, can be easily transferred within an organisation. Thus, stored knowledge will be able to be used in the teaching and the curriculum development processes, hence adding value to the process of teaching and learning.

However, the challenge lies in capturing relevant, reliable, and valuable knowledge for the performance of specific activities. It is thus vital that, during the knowledge capture and storage process, an evaluation of knowledge is constantly performed in order to assess whether relevant and reliable knowledge is being captured for the required purpose.

Knowledge Distribution

Despite knowledge creation and storage, it would be unthinkable to imagine how the university can leverage knowledge without knowledge distribution. Thus, new knowledge will need to be distributed or shared among individuals with the intention of utilising it. Shared or distributed knowledge could include the following: knowledge about students, subjects, programmes, or lecture notes. Szulanski (2003) highlights a number of factors, which might hinder the effective distribution or sharing of knowledge, some of these include uncertainty concerning the source of knowledge, a culture of intolerance, a lack of trust among the employees, and weak channel(s) of communication

These and other factors highlight the need for the university to create an environment where effective knowledge sharing and distribution can become the norm at all levels. Consequently, the university requires relevant

social and ICT infrastructure, for example a web database, which can be accessed at anytime from anywhere by the students and the employees.

Knowledge Application

So far, the discussed knowledge activities do not necessarily lead to effective leveraging of knowledge; however, effective application or exploitation of knowledge does. In fact, the performance of an organisation depends on the ability to exploit knowledge and resources in order to create products and services.

Pfeffer and Sutton (2002) emphasize the gaps in organisations between what they know and what they do. Namely, despite the fact that they can access and assimilate knowledge, they sometimes do not apply it. Thus, even though they have a relevant system that stores various knowledge objects, there is no guarantee that they will be put to productive use; for this to happen, the management needs to cultivate a knowledge management culture.

Given the KMVC discussed above, it may appear that the knowledge management activities take place in a linear form, but that is not necessarily true. For the sake of simplicity and clarity, the flow of knowledge is depicted as going from one state to another. However, it is possible that some of the activities take place in parallel with each other; consequently, there will be several iterations between different types of knowledge management activities on some occasions.

Summary of Findings & Discussion

Demographic Information of Participants

Table 2 summarizes the demographic information of the participants. A total of 225 responses were received of which 40.44% were female and 59.56% male. The participants were chosen from the 3rd (final) year students' who had recently completed their studies after 3 years of study at SMMUCo. The participants were chosen from various departments, namely the education department (100 students, 44.4%), business studies (40 students, 17.78%), and public administration & management (40 students, 17.78%), among others.

User Trends of SMMUCo University Website among the Respondents

The participants were asked if they ever used the university website and for what reasons. The majority of participants (88.89%) used the SMMUCo website for checking their final exam results at the end of each semester once they have been uploaded in pdf format, this was the only reason cited by the participants, see Table 3.

Table 2 Demographic Information of Participants

Category		Number	Percentage
Gender	Female	91	40.44
	Male	134	59.56
	Total	225	100
Department	Information Technology	15	6.67
	Tourism	10	4.44
	Business studies	40	17.78
	Accounting	20	8.89
	Public administration & management	40	17.78
	Education	100	44.44
	Total	225	100

Table 3 Website Use by the Participants

Reason	Number	Percentage
Download lecture notes/assignment	0	0
Group discussion	0	0
Read SUMMCo news	0	0
Check exam results	200	88.89
Read announcements	0	0
Contact staff/management	0	0

Table 4 Suggested Services by the Participants

Reason	Number	Percentage
Staff finder	50	22.22
Intranet/blackboard	194	86.22
Discussion board	30	13.33
LAN among the SMMUCo campuses	12	5.33
Staff e-mail	30	13.33

Most of the participants pointed to the fact that the university's website has limited data/information, for instance the website has no services where students can download lectures notes, read SMMUCo news and announcements from staff and management. The students often struggle to extract valuable insights from the sea of data available on the website.

The participants were given a list of services/technologies and asked to choose which services they would prefer on the university website. The majority of the participants (86.22%) expressed the desire to have intranet/blackboard services. Given the current advances in the information and communication technology, technologies such as 'staff finder,' 'intranet/blackboard,' and 'discussion board' could help students and employees to share and manage knowledge effectively. For instance, the 'staff

finder' might have information such as names, email addresses, phone numbers and home addresses, job expertise's, and interests. This would encourage the staff to publish their interests and expertise, thus making it easy for the staff to share information. Intranet/blackboard technology could be used to store past papers and lecture notes, thus enabling students to download and store content whenever needed.

Such technologies would not only aid in connecting the employees, but would also help in the delivery of information updates, which would help in speeding up the decision making and effective knowledge leverage across the university.

The Awareness of Knowledge Management Strategy

For effective knowledge management, it is necessary that the knowledge management program is a part of the university strategy. During the research, the researcher was unable to come across SMMUCo literature regarding its knowledge management strategy. Apostolou and Mentzas (1999) emphasize that knowledge management strategy should contain at least some of the following elements:

- Creating a culture of knowledge sharing and learning;
- Leveraging technology for collaboration and knowledge sharing;
- Infrastructure and processes for creating and sharing knowledge;
- Linking intellectual capital with company strategy.

If knowledge management is to become a part of the university strategy, the first step is the need to have a clearly defined KM strategy with its goals and objectives. There should be the desire and the mechanism for leveraging knowledge across the various departments, faculties, and campuses. An emphasis on the role of the 'knowledge community' will also help to increase the level of knowledge sharing, since such informal networks can help in creating a sense of 'togetherness.'

Thus, by precisely stating what knowledge management means in a given work environment, the university can then begin to cultivate a work environment where knowledge and experience can easily be shared.

The Awareness and Understanding of IT by the Staff Members

Most of the staff members in SMMUCo have limited level of awareness and understanding of the use of the information and communication technology. Consequently, such technical aspect inevitably shortens the KM application. This weakness is compounded by the fact that the university has a relatively high number of employees who are not computer literate. Thus, there is a need for the management to take an active role in educating the staff
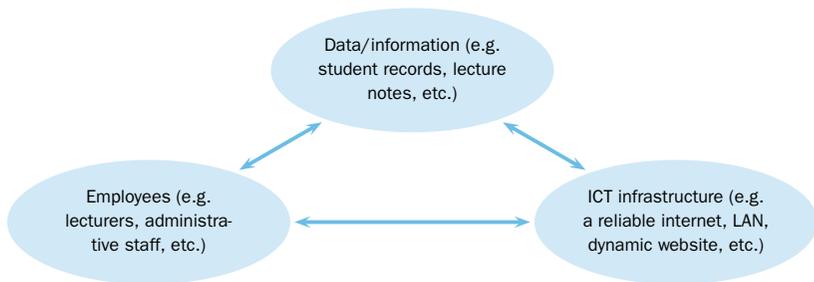
Figure 1 Proposed KM Model

and making them aware about the vital role that computers, together with employees, play in the knowledge management (KM) process within the university.

The Development of a Model for Knowledge Management

Given the above findings, the researcher has proposed a model for knowledge management, which can be applied in SMMUCo. Paramount to the model is the need to achieve compliance of the key resources within the university. For the beginning, the researcher has identified the following three key resources: *Employees* (lecturers/administrative staff), *Data/Information* (student records, lecture notes, etc.), and *ICT infrastructure.* If well aligned, these resources have the ability to effectively leverage information and knowledge across the University campuses. Figure 1 shows the proposed KM model.

   The above model is favoured, because the identified resources can be aligned together. Such an approach will enable effective access to the available information and knowledge within the university. For instance, the lecturers within the university will be able to quickly and easily find information e.g. student records, management reports, etc., while students will be able to search for past papers, notes, and other course materials posted by their respective lecturers. This is made possible by the use of relevant ICT infrastructure, for example by having a shared intranet and web databases. The web database can be used for storing various knowledge objects, such as lecture notes, past paper, student records, and exam results. Shared intranet is vital for the dissemination of data/information, thus enabling the stakeholders to have timely access to specific information. Likewise, the use of relevant information technologies will enable the stakeholders (employees, students etc.) to capture, store, and codify tacit knowledge that would otherwise be difficult to capture and store; thus in doing so, it will be possible to share and transfer information and knowledge across the university campuses.

   While conducting the research, the lack of information technology was

one of key barriers to knowledge management (KM). For instance, due to the weak internet connection most lecturers were unable to share information via email or download teaching resources from the internet. Therefore, having modern technologies not only will help in connecting the employees, but will also help in the delivery of updated data/information, which will in turn help enhance the quality of teaching and research. Furthermore, the decision making process will also be enhanced/quicker.

If deployed, technologies, such as the intranet/blackboard, 'discussion board,' staff finder' to mention a few, can help the employees and the students to share and manage knowledge effectively. For instance, the 'staff finder' might contain information such as the lecturer name, email addresses, phone numbers and home address, job expertise and interests, among others. This would encourage the employees to publish their interests and expertise, thus making it easy for the employees to share information. Intranet technology could be used to store past papers, lecture notes, and post announcements for the students. Thus, the use of information technology will provide the tools and infrastructure for information access, communication, task management; this will greatly promote the collaboration activities within the university.

Conclusion

Given the demographic information of participants, it is vital to note that both female and male participants value the idea of knowledge management and the implied benefits to their academic studies. This was evidenced due to the fact that the margin of female to male participants was minor. The study also highlighted the need for having a dynamic website capable of providing a diversity of information services to the students, since most of the respondents expressed the need of having the ability to download lecture notes, participate in web group discussions, read news/announcements, contact staff, and, above all, check for individual exam results.

The participants also expressed the desire to have intranet/blackboard services. If deployed, this would greatly help the students and the employees to effectively share and manage knowledge. It is vital to note that the technologies for developing intranet/blackboard services are widely available, thus no longer only available to a few elite universities. Furthermore, given the development of the information technologies, the cost of deploying such technology i.e. buying 'off the shelf' or designing one from scratch is much cheaper when compared to 10 or 15 years ago. Thus, given the nature of knowledge management, it would be a positive start by initially having intranet/blackboard technologies, mainly for sharing and disseminating information.

Although the research was restricted to SMMUCo, a broad perspective

was studied when analysing the concepts of knowledge and knowledge management, and how these can be applied to higher education institutions, especially newly founded institutions. Thus, the results for this study do not provide the answers for knowledge management challenges in all higher education institutions; however, it provides a strong and sound basis for further investigations regarding the dissemination of knowledge in higher education institutions. Likewise, it is suggested that additional research should be performed regarding the application of the proposed model for knowledge management, which should take into account the privacy, ethical, and cultural issues with regards to the concept of knowledge management.

References

Apostolou, D., & Mentzas, G. (1999). Managing corporate knowledge: A comparative analysis of experience in consulting firms; Part 1. *Knowledge and Process Management, 6*(3), 129–138.

Boisot, M. H. (1998). *Knowledge assets-securing competitive advantage in the information economy.* New York, NY: Oxford University Press.

Blake, P. (1998). The knowledge management expansion. *Information Today, 15*(1), 12–14.

Brech, E. F. L. (1975). *Principles and practice of management.* New York, NY: Longman.

Buckley, P. J., & Carter, M. J. (2000). Knowledge management in global technology markets: Applying theory to practice. *Long Range Planning, 33*(1), 55–71.

Carlsson, S. A., El Sawy, O. A., Eriksson, I., & Raven, A. (1996). Gaining competitive advantage through shared knowledge creation: In search of new design theory for strategic information systems. In J. Dias Coelho, T. Jelassi, W. Konig, H. Krcmar, R. O'Callaghan, & M. Saaksjarvi (Eds.), *Proceedings of the Fourth European Conference on Information Systems* (pp. 1065–1075). Lisbon, Portugal: ECIS.

Chaffey, D., & Woods, S. (2005). *Business information management: Improving performance using information systems.* Harlow, England: Prentice Hall.

Choo, C. W. (1998). *The knowing organisation: How organisations use information to construct meaning, create knowledge, and make decisions.* New York, NY: Oxford University Press.

Cross, R. (1998). Managing for knowledge: Managing for growth. *Knowledge Management, 1*(3), 9–13.

Davenport, T. H., & Beck, J. C. (2002). *The attention economy: Understanding the new currency of business.* Boston, MA.: Harvard Business School Press.

Davenport, T. H., & Prusak, L. (1998). *Working knowledge: How organisation manage what they know.* Boston, MA: Harvard Business School Press.

Dretske, F. (1999). *Knowledge and the flow of information.* Stanford, CA: Center for the study of languages and information.

Drucker, P. (1999). *Management challenges of the 21st century.* Oxford, England: Butterworth Heineman.

Earl, M. (2001). Knowledge management strategies: Towards a taxonomy. *Journal of Management Information Systems, 18*(1), 215–233.

Fahey, L., & Prusak, L. (1998). The eleven deadliest sins of knowledge management. *California Management Review, 40*(3), 265–276.

Hansen, M. T. (2002). Knowledge networks: Explaining effective knowledge sharing in multiunit companies. *Organisational Science, 13*(3), 232–248.

Hansen, M. T., Nohria, N., & Tierney, T. (1999). What is your strategy for managing knowledge? *Harvard Business Review, 77*(2), 106–116.

Hull, R. (2000). *Knowledge management and the conduct of expert labour* (49–68). In C. Pritchard, R. Hull, M. Chumer, & H. Willmott (Eds.), *Managing knowledge.* London, England: Macmillan.

Jordan, J., & Jones P. (1997). Assessing your company's knowledge management style. *Long Range Planning, 30*(3), 392–398.

Kim, D. H. (1993). The link between individual and organisational learning. *Sloan Management Review, 35*(1), 37–50.

Leonard-Barton, D. (1995). *Wellspring of knowledge: Building and sustaining the source of innovation.* Boston, MA: Harvard Business School Press.

Malhotra, Y. (2001). *Knowledge management and business model innovation.* Hershey, PA: Idea Group Publishing.

McQueen, R. (1998). Four views of knowledge and knowledge management. In E. Hoadley & I. Benbasat (Eds.), *Proceedings of the Fourth Americas Conference on Information Systems* (pp. 609–611). Baltimore, MD: ACIS.

Mertins, K., Heisig, P., & Vorbeck, J. (2001). *Knowledge management: Best practice in Europe.* Heidelberg, Germany: Springer-Verlag.

Mintzberg, H. (1989). *Mintzberg on management.* New York, NY: The Free Press.

Morey, D., Maybury, M., & Thuraisingham, B. (2002). *Knowledge management: Classic and contemporary works.* Cambridge, MA: The MIT Press.

Mudambi, R. (2002). Knowledge management in multinational firms. *Journal of International Management, 8*(1), 1–9.

Nonaka, I. (1994). A dynamic theory of organisational knowledge creation. *Organisation Science, 5*(1), 14–37.

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

Pfeffer, J., & Sutton R. I. (2000). *The knowledge-doing gap: How smart companies turn knowledge into action.* Cambridge, MA: Harvard Business School Press.

Quintas, P. (2002). *Managing knowledge in new century.* London: England: Sage.

Ruggles, R. (1998). The state of the notion: Knowledge management in practice. *California Management Review, 40*(3), 80–89.

Schubert, F., Sharma, R., & Chua, A. (2007). *Knowledge management: Tools and techniques* (2nd ed.). Upper Saddle River, NY: Prentice Hall.

Stata, R. (1990). Organisational learning: The key to management innovation. *Sloan Management Review, 30*(3), 63–74.

Stewart, R. (1986). *The reality of management.* London, England: Pan Books.

Szulanski, G. (2003). *Sticky knowledge: Barriers to knowing in the firm.* London, England: Sage.

Taylor, F. W. (1947). *The principles of scientific management.* London, England: Harper and Row.

Teece, D. J. (1998). Capturing value from knowledge assets: The new economy, markets for know-how, and intangible assets. *California Management Review, 40*(3), 55–79.

Vance, D. M. (1997, August). *Information, knowledge and wisdom: The epistemic hierarchy and computer-based information system.* Paper presented at the Third Americas Conference on Information Systems, Indianapolis, IN.

Zack, M. (1999). Developing a knowledge strategy. *California Management Review, 41*(3), 125–145.

George Kinyata has a Master of Science Degree in Information Systems Management and a BSc (Hons) Degree in Business Information Technology all from London South Bank University (UK). Prior to joining Stefano Moshi Memorial University College the author worked as lecturer (Computer Science/IT) at London School of Accountancy & Management, and Boston College of London (UK). His teaching fields include Systems Analysis/Design, Information/Knowledge Management, Management Information systems, Implementation of Database system (Oracle, MYSQL etc), Artificial Intelligence, Software Engineering, Computer programming (C++, PhP, JavaScript etc), Dynamic Website Design and IT Project management. *gkinyata@yahoo.co.uk*