Knowledge Sharing Among Communities of Practice in Public Universities in Kenya

Nancy Mueni Kimile, Harrison Bii, Kibiwott Kurgat & Jotham Wasike

Knowledge Sharing Among Communities of Practice in Public Universities in Kenya

[1*]**Nancy Mueni Kimile, [2]Harrison Bii, [3]Kibiwott Kurgat & [4]Jotham Wasike**

[1*]**The Faculty of Information Sciences and Technology, Kisii University**

[2]**Kabianga University**

[3]**Kisii University**

[4]**Kirinyaga University**

Email of the corresponding author: kimilenancy@gmail.com

Abstract

Knowledge as the fourth factor of production is significant in the knowledge economy. In particular, it can be asserted that Knowledge sharing through Communities of Practice (CoPs) creates a competitive advantage for Universities. The purpose of this study was to analyze knowledge sharing among communities of practice in selected public universities in Kenya. The study was guided by Wenger's Communities of Practice Theory.The paper used a desk-top research strategy where appropriate empirical literature were reviewed to provide insights to the main themes on knowledge sharing among CoPs. The reviewed literature indicates that universities are not regular to allow for meaningful KS and socialization. Most universities lack a KS policy to front the process. Both personal and institutional motivators were found to encourage staff to share their knowledge among CoPs. These include monetary and non-monetary incentives. Numerous inhibitors to knowledge sharing were identified as: lack of time and inconsistent incentives. It is recommended that: universities increase the number of opportunities (both formal and informal) that will make it possible for members of academia to interact, share knowledge and socialize to enhance bonding relationships which help create trust critical for the formation of CoPs. The strategic approach to KS requires instituting the pre-requisite policy which is core in ensuring successful knowledge sharing among CoPs. Such a policy would have an impact on the motivation of staff and in supporting the development of a KS culture. Identified inhibitors should be mitigated by university managements to ensure effective knowledge sharing among CoPs. Generally, universities must provide a conducive working environment with both formal and informal meeting spaces in addition to an appropriate ICT infrastructure for ease of staff interaction.

Keywords: *Knowledge Sharing, Communities of Practice, Public Universities & Kenya*

1.0 Introduction

Knowledge is a key strategic factor of production, after land, labor and capital (Nassuora, 2011). Knowledge sharing (KS) is one of the major processes of Knowledge Management (KM) among capture, creation, application and reuse (Dalkir, 2011). KM is a business strategy that facilitates transfer of knowledge and best practices, management of intellectual capital, innovations and knowledge generation which are anchored on KS.

Any KS initiative strongly depends on the individual knowledge sharing for effectiveness (Wang & Noe, 2010).Wood (2007) emphasize on the collaboration of individuals though the utilization of technology in a social system to enhance KS. Dalkir (2011) asserts that, both, face to face interactions and the integration of technology can be blended together in social exchanges for the success of KS. However, this blending would elicit some debate in the case of cross border or multinationa organizations who may utilize technology entirely for KS. In KS there is a giver and receiver of knowledge with the main goal of ensuring knowledge flows around the organization. The process focuses on the exchange of intellectual capital through the interaction of employees either through face to face social interaction or utilization of information technology (IT).

CoPs have become a major focus in KM. First, CoPs were used as a theory of learning. Later on, they have become an integral part of KM (Ribeiro, Kimble & Cairns, 2010). The term CoPs is a quite a new concept formulated in the 1990's. CoPs have been defined as people who share a concern, problems, have a passion on a topic, and share their knowledge and expertise by interacting regularly (Wenger, McDermott & Snyder, 2002). Based on the above definition, a CoP is a community where for instance, in an educational research environment exists teachers in schools and lecturers in universities who share concerns on research, funding agencies, local communities, education bureaucrats and ministers and other specialists. CoPs emphasis is on the broad community which consists of smaller, more focused CoPs.

In CoPs, learning is located in relationships that are built over time (Chapman, 2008). A CoP can be formal, informal or a virtual group where membership can be derived from within or outside an organization (Wenger *et al*., 2002).Various terms have been used for CoPs such as: expert networks or peer networks in a particular discipline (Janus, 2016); learning networks, thematic groups or expert clubs (Wenger & Wenger, 2015); work practitioner (Wenger *et al*., 2002; Cox, 2005). CoPs differ from other communities like a leisure activity such as a game, community of interest or a fan club (Cox, 2005; Gray, 2005).

Tacit knowledge sharing especially universities has not received its rightful share of attention so far (Stewart, 2012; Kim & Ju, 2008). Universities are service oriented and knowledge abundant institutions however, KS is still uncoordinated and not systematic (Kim and Ju, 2008). Swart and Kennie (2003) observe that knowledge sharing in universities is very important as it ensures the organization gains from the knowledge of their staff and can help them effectively compete in the global knowledge economy. Hence, adoption KM processes are inevitable in universities if they have they have to attract customers.

University employees can utilize CoPs as an effective tool to drive KS and to harness the power of knowledge (Jain *et al*., 2007; Cheng *et al.,* 2009a). The existence of the CoPs is associated with excellent information exchange which builds up on KS. Rowley and Delbridge (2013)

revealed that 11 UK Universities were positive towards KS by publishing their academic work. The Universities lacked an embedded KS culture instead depicted a self-seeking culture. This finding exposes the fact that, many universities around the world are yet to embrace CoPs as a knowledge sharing concept or as a conscious strategy for managing knowledge. In Africa, the utilization of CoPs provides a potential tool for enhancing KS, but generally lack guiding a policies. Initiating and installing CoPs has a potential to enhance KS positively in a university (Maponya, 2005; Hussein & Nassuora, 2011).

In Kenya, knowledge sharing takes the form of seminars, conferences and workshops (Kahinga, 2014). Key concerns were: enabling KS policies, appropriate IT infrastructure, and conducive environment for socialization (Cheruiyot, Jagogo & Owino, 2012; Kimile, 2012; Murumba, Kilei & Nakitare, 2014; Wamitu, 2015). Based on these reviewed studies, there are pertinent issues or gaps in KS that call for strategic approach. This approach ultimately requires a concious integration of CoPs to guide the overall implementation of KS in universities.

1.2 Objectives of the Study

The study objective was to examine the knowledge sharing among communities of practice in public universities in Kenya.

1.3 Research Question

What is the extent of knowledge sharing among communities of practice in public universities in Kenya?

2.0 Literature Review

The study sought to analyze the knowledge sharing among communities of practice in public universities in Kenya. The paper used a desk-top research review strategy where appropriate empirical literature was reviewed to recognize main themes. The critical revieware guided by the study themes geared towards knowledge sharing among communities of practice.

2.1 Theoretical Framework

2.1.1 Wenger's Communities of Practice Theory (CoPT)

CoPs is a term grounded in a social constructivist approach to learning and it is applicable to the management of organisational knowledge. CoPs have become a major focus of attention as a theory of learning and as part of KM (Ribeiro, Kimble and Cairns, 2010). The CoPs theory provides a crucial foundation for both, the social and cultural approaches to learning (Lave & Wenger. 1991; Wenger, 1998). Hence, learning occurs through social interactions where apprenticeship is prominent. In the social context learning replaces teaching (Bouchamma & Michard, 2011).

CoPT provides three core aspects that include: domain, membership and practice. Domain is not a club of friends or a network of individuals with similar interest (Lamontagne, 2005) but, it is a shared domain of interest which is differs from membership to any other kind of group (Cox, 2005). To be part of a domain requires competence in the same discipline or related disciplines and commitment to participation such as mathematicians, pharmacists or a discipline can take either interdisciplinary or multidisciplinary approach. Membership to the domain requires knowledge, identification of needs and an approach of tackling them. Finally practice encompasses specialists in a particular area of interest. CoPT theory was found to provide the pre-requisite foundation to inform CoPs in an academic environment. CoPs ensure members of a

domain interact on a regular basis to share their knowledge, expertise, experience and tackle any problems to improve their profession (Wenger et al, 2002; Wenger, 2004). Generally, CoPs are dominant catalysts for sharing knowledge, problem solving, knowledge creation, hence providing competitive advantage for an organization. The CoPT was found relevant and informs this study appropriately. As the study unearths key insights concerning KS among CoPs, available literature clearly indicates, the subject under study has not been adequately researched in universities specifically in Kenya.

2.2 Conceptualization of Knowledge Sharing

Knowledge sharing (KS) has been defined variously by different authors such as: knowledge transfer (Al-Kurdi et al., 2018); exchange between people (Frappalo, 2006; Wilem, 2003); sharing between two or more people (Tuomi, 2000; Savita, 2012); collecting and donating(Van der Hoof & De Ridder, 2004). KS therefore, depend on individual interactions through socialization for success (Wang & Noe, 2010).Knowledge in universities is shared in different ways such as: face to face interactions, collaboration among experts, explicit knowledge, correspondences, documents among others (Cummings, 2004). Knowledge is also be effectively shared in CoPs. Mansor (2015) focusing on an academic environment, refers to academia as experts who posses key tacit knowledge gained through their experience in their different fields of specialization. In further support, Wamitu (2015), asserts that tacit knowledge has not received the attention it deserves in organizations. Universities which are by nature amenable to KS hence, the formation of CoPs should be the norm.

Knowledge which is shared, it grows by incorporating new ideas through KS (Adamseyed & Hong, 2018). For instance, research done collaboratively is richer and of high quality as comparison to research done by an individual. Collaborations among experts produce new knowledge and individual knowledge is also enhanced through KS. In summary, KS leads to enhanced generation of new knowledge, quality, well educated and productive graduates which provides an institution a competitive edge over her competitors (Adamseyed & Hong, 2018).

IHL's are more inclined to KS as they constantly producing knowledge on a regular basis. However, Koppi*et al*. (1998) argues that academics focus more on individual scholarly achievements and not those of their organizations (Hodakinson-Williams, Slay & Sieborger, 2008)**.** This means, there is an inclination towards individual success (publish or perish) which naturally creates a culture of competition and not focused on common organizational goals (Koppi *et al*., 1998,). Notwithstanding, academics are key players in the KBE and it is important that, academics work together in CoPs or via some form of socialization process for competitive advantage in universities. CoPs can be either small or large but they provide key opportunities for learning. KS endeavours ensure core knowledge is shared leading to a competitive advantage (Bamigboye *et al*., 2008).

Ali (2011) provides the benefits of KS as: lower cost of a product or service, organizational success and the production of innovations. In further support of innovations, Iqbal *et al.* (2011) found that, KS leads to innovations in universities and should be enhanced.

Available literature suggests that, more research on KS has been done in the business sector where emphasis on profits and attainment of a competitive advantage in their organizations (Hou *et al*., 2009, Liebowitz, 2007). On the contrary, there are a few visible studies on knowledge sharing in educational institutions (Hou*et al.*, 2009; Kim & Ju, 2008; Fullwood, Rowley & Delbridge, 2013) among others.

Generally, knowledge sharing has two dimensions: First, the management of explicit knowledge through knowledge repositories and secondly, adequately managing the various KM processes such as acquisition, creation, distribution, sharing and application (Stenmark, 2001). Effective KS emphasises on tacit knowledge sharing in universities to enhance productivity in the knowledge-based economy. Mayekiso (2013) asserts that, proactive managers and motivated staff, guided by appropriate strategies can create a culture of knowledge sharing in IHL. Further, Nonaka and Takeuchi (1995) insist on providing opportunities for academia to interact and share knowledge thus enhancing a culture of knowledge creation and sharing in the organization. Particularly referring to tacit knowledge Mahmood *et al.* (2011) advices that, it can be utilized as a vital resource for the production of quality services/goods in an organization.

Universities can easily form CoPs as they are in the business of knowledge creation. Denning (2001) provides the benefits of CoPs as able to: enhance interactions among members; provide a base for a learning organization; help create new knowledge and helps to identify experts in a particular area of specialization from whom they can tap into their skill, know-how and experiences. CoPs exist for either short or long periods (Wenger, 1998, Wenger et al., 2002). However, it is always important to ensure knowledge creation and reification for future access and utilization for the benefit of the entire organization. According to Wenger et al. (2002) CoPs membership can either be focused on learning or learning can be a product of participation and interactions in CoPs. KS among CoPs is motivated by self-evaluation (Yaakub, Panatik & Rahman, 2013); intrinsic or extrinsic rewards (Robbin & Judge, 2005; Wasko & Faraj, 2005; Alhawary, Abu-Ruman & Alshamadeh, 2017); recognition (Van den Hoof et al, 2004; Olje et al, 2011) and vicarious learning (Cabrera et al., 2006) among others

Knowledge sharing can take the form of face to face interactions where employees easily interact and learn from each other (Bates, 2006). However, it is not always possible to share knowledge physically (Tsui *et al.*, 2006). This is because physical interactions are challenging as they require time and space (Tsui *et al.*, 2006). Hence, the integration of Information technology (IT) in KS is has become the norm. Therefore, CoPs collaborations can either be physical or online. Hence, CoPs can either be co-located, online or an integration of the two which facilitates collaborations and learning (Wenger et al., 2002). IT facilitates interaction between individuals irrespective of time or distance. Riege (2005) asserts that, IT is a significant leverage of knowledge sharing. Further, Tsui *et al.* (2006) adds that integration of IT in KS is twofold: the establishment of a repository for knowledge storage and the application of internet collaborative tools for KS. This infers IT can adequately be used for both, the capture and sharing of knowledge. IT facilitates the transformation of the organization into a knowledge sharing culture.

CoPs interactions in universities and other organizations are faced with numerous inhibitors which need to be identified and surmounted. The identified inhibitors include: Competition among staff (Koppi*et al.*, 1998); lack of policies and strategies (Awade *et al.*, 2004 Maiga, 2017); limited time to share (Wanzala, 2013; Kalanzo, 2016); lack of a knowledge sharing culture (Jasphara, 2010; Santosh & Panda, 2016), Lack of recognition by management (Santosh & Panda, 2016), and inadequate technology (De Long & Fahey, 2000; Yusuf and Wanjau (2014) among others. Appropriate mitigation measures in addressing these challenges will ensure the success of any KS strategy (Riege, 2005). Some of the approaches used in alleviating these challenges include: emphasis on group work, motivation of staff through incentives, application collaborative technology in KS (Adamseyed and Hong, 2018); administrative support and

appropriate ICT infrastructure (Riege, 2005; Bekele and Abebe, 2011; Yusuf and Wanjau, 2014), in addition to allocation of time for KS (Kalanzo, 2016)

2.3 Empirical Review

Generally, research reveals there are limited visible research on KM, KS and CoPs, with the majority of these studies in the private sector (Al-Kurdi, El-Haddadeh and Eldabi, 2018; Lee, 2018). Most of these studies have addressed various aspects of KM. Specifically, a limited number of studies focus on CoPs in IHL in both developed and developing countries.Al-Kurdi, El-Haddadeh and Eldabi (2018) found limited research had been done in this sector. They proposed further research in universities addressing application of IT, organizational culture and behavioural aspects of KS. Guevara (2016) researched on the effects of a CoP on university teachers in Colombia. The findings revealed utilization of IT in CoPs led to the improvement in the profession, enhanced empowerment and collaborative problem solving in teaching.

Fullwood, Rowley and McLean (2018) in a study on KS in universities in the United Kingdom revealed that trust, was a prominent factor in KS while failure to assign responsibilities to academics was a hindrance to KS. Mallasi and Ainin (2015) found that, pleasure of helping others, self-efficacy and trust had a significant effect on KS. Santosh and Panda (2016) pursued a research on KS in a Mega Open University in India. Their findings indicated that, KS was not common in networks while publishing of research articles was the most preferred KS approach. Specifically, learning materials were mostly shared while the main source of information and knowledge was online. Lack of recognition and a KS culture were found to be significant challenges.

Lee (2018) found that the most the prominent factors of KS as: improved quality of work and creativity. Abbas (2017) identified workshops, seminars and conferences as key KS fora. They recommended utilization of IT in creating of awareness and collaboration. Wahid and Mustamil (2014) conducted a desk-top research on CoPs, spirituality at work, and KS in Malaysia. They developed a conceptual paper that provided a background to the current study. Bekele and Abebe (2011) recommended key strategies of alleviating KS barriers as utilization of ICTs KS. They also proposed the formation of CoPs to enhance KS in universities. Maiga (2017) identified seminars, conferences and public lectures as significant in promoting a KS culture. IHL lacked formal organizational structures and conscious strategies for the promotion of KS.

Yusuf and Wanjau (2014) in Kenya focused on the public sector found the lack of organizational structures and inadequate computer skills as major inhibitors to KS. They proposed flexible organizational structures to facilitate flow of knowledge, a strong KS culture, an investment in IT infrastructure to ensure sustainable KM. Kahinga (2014) identified seminars, conferences and workshops as major ways of KS. Kalanzo (2016) in a study on CoPs in the private sector in Kenya revealed CoPs are well established and were significant for KS. The major impediments were a lack of well-trained CoPs leaders and time. The study proposed training of CoPs leaders and the allocation of time for staff to interact and share knowledge during working hours. Mugalavai and Muleke (2016) investigated on CoPs in IHL in Kenya. Their findings indicated CoPs as non- existent as the universities lacked the pre-requisite KS framework. The study also revealed universities produced a lot of knowledge but knowledge hoarding was rampant. Based on the review of empirical studies, it is evident limited studies exist in literature on CoPs in universities and that the current study attempts to contribute in the filing this gap.

3.0 Research Methodology

The paper used a desk-top research review strategy where appropriate empirical literature were reviewed as guided by the main themes. The study derived the conclusions and recommendations from the reviewed literature.

4.0 Discussion of findings

The reviewed literature indicates that CoPs provide a significant role in KS such as, face to face, written or virtual interactions (Sharrat & Usoro, 2003). Significant benefits of working in CoPs are: quality decision making, creativity and innovations (Mahmood et al., 2011). The review this revealed that CoPs (informal) were cultivated, nurtured or coached based on the following factors: commitment, trust and respect, focused leadership, facilitation either internally or externally, determination for promotion guided by the popular slogan "Publish or Perish'' especially if a publication is an outcome(Amin *et al*.,2007; Hildreth and Kimble, 2008). These factors concur with informal or wild CoPs whose survival depends on their passion to achieve a goal (Ribeiro *et al.,* 2010). The only drawback is, the organization may not benefit from these CoPs (Chanal & Kimble, 2010).

While it can be a positive attempt to formalize CoPs, the discourse arises as to how management can control informal CoPs which are mainly voluntary for maximum benefit for the organization. Chanal and Kimble (2010) warn that, any kind of management may lead to CoPs that hide, wither, die or hibernate in need of revival (Gongla & Rizzuto, 2004, Kimble and Cairns, 2010). Wild CoPs can be successful on their own and the organization can benefit from reifications. On the role of management in managing CoPs, Ramchard and Pan (2012) advices that management can provide facilitation and not control. Knowledge can be distributed via interaction among members and to some extent convert some of the shared knowledge into explicit form or codification. Wenger at al. (2000) in support of the discourse suggests that, management can provide an environment or space where staff can meet and talk during breaks. In addition, managers can capture knowledge, ensure trust and cohesiveness by creating a KS culture that for the benefit of the organization.

Wenger, McDermott and Snyder (2002) from a managerial point of view assert that, a manager should foster informal horizontal groups across the organization. This will facilitate formation of CoPs who would naturally share their knowledge. CoPs do not require direct management but leadership (Roberts, 2006). Leadership is a prominent factor that enhances the nurture of CoPs leading to their survival. Leader ensure and active participation, training and recruitment of new members (Zboralski, 2009). In particular Kalanzo (2016) found in her study that untrained CoPs leaders was a major impediment in the success of CoPs and recommended their training. Leaders act as champions for their CoPs and ensure on-going synergy in for their success. Generally, CoPs play an important role as they provide an opportunity to share knowledge and experience (Amin *et al*., 2007) either physically or online (Sharrat & Usoro, 2003).

Both monetary and non-monetary incentives were found to be crucial motivators in knowledge sharing among CoPs. It was argued that, non-monetary motivators were more prominent (Osteroh & Frey, 2000) while monetary rewards tended to put employees into competition (Bock & Kim, 2002). Hence, in order to meet the varied behavioural needs, a blend of the two would ensure knowledge is sufficiently shared among staff and in turn benefit the organization (Janus,

2016). Barriers to KS were found to range from personal, institutional to technological inhibitors as articulated by Riege (2005), Santos et al. (2012) and Santosh and Panda (2016) inter-alia. These challenges can be addressed by encouraging group collaborations, improved motivation, enhanced communication skills, utilization of collaborative ICTs, top management support and finding time to share knowledge either online or physically (Adamseyed and Hong, 2018)

Information Technology is a key factor in online communication and collaboration in CoPs. However, technology alone cannot facilitate a successful CoP (Wenger *et al*., 2005; Smith *et al*., 2017). Therefore, it requires a positive attitude to be effectively utilized in CoPs (Adamseyed & Hong, 2018). Abbas (2017) and Riege (2005) recommend the integration of IT as a key leverage which ejects synergy in knowledge sharing.

5.0 Conclusion and Recommendations

The reviewed literature indicates that universities lack regular opportunities for meaningful KS and socialization. It is imperative for universities to increase the number of opportunities (both formal and informal) that will enable academics to interact, share knowledge and socialize to enhance bonding. Regular interactions create trust critical for success in CoPs. The prominent opportunities include face to face meetings, workshops and seminars, social events such as team building, informal meeting places like cafeterias with close proximity to lecturers' offices, workshops, and seminars among other knowledge sharing fora. Management support in all the above would ensure utmost success of CoPs.

The study finds that a knowledge sharing policy would provide a significant guide in ensuring successful CoPs. The policy also impacts on the motivation of staff and provides a means to mitigate barriers and focuses on the development of a KS culture. A KS policy should be continually improved to incorporate any emerging issues. A policy serves as a stamp of support by top management that recognizes the existence of CoPs and provides measures of ensuring their survival. The KS policy covers: funding for collaborative work, incentives (monetary and non-monetary) for KS, in order to motivate staff to share and create new knowledge. This is an important step towards creating a knowledge sharing culture. The study recommends identified inhibitors should be mitigated by university managements to ensure effective knowledge sharing among CoPs. Moreover, university managements should provide a conducive learning environment and put in place, an appropriate ICT infrastructure is in place to enhance KS among CoPs.

References

Abbas, K. D. (2017). Knowledge Sharing and Dissemination among Academics in Nigerian Universities: Patterns and Trends. *Journal of Balkan Libraries Union,* 5, (1), 21-27.

Ali, M. B. (2011). Academic staff knowledge sharing intentions and university innovation capability. *African Journal of Business Management*, *5*(27), 11051-11059.

Bamigboye, F. B., Olawuyi, O. F., &Bamigboye, O. O. (2017). The Effectiveness of Traditional Media as a Tool for Communication in Rural Development in Arigbajo Town, IFO Local Government, Ogun State Nigeria. *Journal of Communication*, *8*(2), 128-135.

Bekele, R., & Abebe, E. (2011). Prospects of Knowledge Sharing Among Ethiopian Institutions of Higher Learning. *Electronic journal of Special issue on Knowledge Exchange*, *3*(2), 20-35.

Carroll, J. M., Choo, C. W., Dunlap, D. R., Isenhour, P. L., Kerr, S. T., MacLean, A., & Rosson, M. B. (2003). Knowledge management support for teachers. *Educational Technology Research and Development*, *51*(4), 42-64.

Chanal, V., & Kimble, C. (2010). Born to be wild: using communities of practice as a tool for knowledge management. *arXiv preprint arXiv:1004.4909*.

Chapman, R. N., Kimble, C., & Charlotte, H. P. (2008). The reflective mentor model: Growing communities of practice for teacher development in informal learning environments. *Communities of practice: Creating learning environments for educators*, *1*, 36-64.

Cheruiyot C., K, Owino, E. O., & Jagongo, A. (2012). Institutionalization of knowledge management in manufacturing enterprises in Kenya: A case of selected enterprises, International Journal of Business & social Science, 3(19), 127-138

Chikono, A. N. (2018). Knowledge sharing practices amongst academics at the Zimbabwe Open University (Master's Thesis, University of Western cape, South Africa)

Corcoran, N. & Duane, A. (2018). Using Social media to enable staff Knowledge Sharing in Higher Educational Institutions, *Australian Journal of Information systems*, 22

Cox, A. (2005). What are communities of practice? A comparative review of four seminal works. *Journal of information science*, *31*(6), 527-540.

Cummings, J. N. (2004). Work groups, structural diversity, and knowledge sharing in a global organization. *Management science*, *50*(3), 352-364.

Dalkir, K., & Liebowitz, J. (2011). Knowledge Management in Theory and Practice. 2nd ed. Cambridge, Mass. : MIT Press

Dee, J., & Leisyte, L. (2017). Knowledge sharing and organizational change in higher education. *The Learning Organization*, 24(5)

Denning, S. (2001). *Knowledge sharing: methods, meetings and tools.* New York: National Health Service.

Ellaway, R., Dewhurst, D., & McLeod, H. (2004). Evaluating a virtual learning environment in the context of its community of practice. Research in learning technology, 12(2)

Fullwood, R., Rowley, J., & McLean, J. (2018). Exploring the factors that influence knowledge sharing between academics. *Journal of Further and Higher Education*, *43*(8), 1051-1063.

Gongla, P., & Rizzuto, C. R. (2004). Where Did That Community Go? Communities of Practice That" Disappear". In *Knowledge networks: Innovation through communities of practice* (pp. 295-307). IGI Global.

Gray, B. (2005). Informal learning in an online community of practice. *International Journal of E-Learning & Distance Education/Revue internationale du e-learning et la formation à distance*, *19*(1).

Gudo, C. O., Olel, M. A. and Oanda, T. O. (2011). University expansion in Kenya issues of quality Education: Challenges and opportunities*, IJBSS*, 2(1): 203 -214

Guevara, N. O. (2016). Communities of Practice: professional development opportunities for EFL regional teachers (Masters Thesis, Universidad De Antoquia Medellin, Colombia)

Hodgkinson-Williams, C, Slay H., & Siebörger, I., (2008). The use of interactive whiteboards to support the creation, capture and sharing of knowledge in South African Schools. In *IFIP World Computer Congress, TC 3* (pp. 19-26). Boston, MA: Springer

Hussein, A. R. H., & Nassuora, A. B. (2011). Jordanian student's attitudes and perceptions towards knowledge sharing in institutions of higher education. *International Journal of Academic Research*, *3*(4).

Iqbal, S., Toulson, P., & Tweed, D. (2011). HRM Practices and individual knowledge-sharing: an empirical study of higher education institutions in Pakistan. In *Trabajopresentado en 8th International Conference on Intellectual Capital, Knowledge Management &Organisational Learning–ICICKM*.

Jain, P. (2007). An empirical study of knowledge management in academic libraries in East and Southern Africa. *Library review*. 56(5), 377-392

Janus, S. S. (2016). *Becoming a knowledge sharing organization: a handbook for scaling up solutions through capturing and sharing,* Washington, DC: international book for reconstruction and Development. Available at: www.worldbank.org

Kahinga, E. W. (2014). *Knowledge sharing practices among crop researchers at the Kenya agricultural research institute* (Masters Thesis, University of Nairobi, Kenya).

Kim, S. & Ju B. (2008). An analysis of faculty perceptions: Attitudes toward knowledge sharing and collaboration in an academic institution. *Lib. Inform. Sci. Res.,* 30: 282-290.

Kimile, N. (2012). *Knowledge Management Practices: Moi University, Eldoret Kenya*. LAP LAMBERT Academic Publishing.

Lamontagne, M. (2005). Communities of Practice in an Arabic Culture: Wenger's Model and the United Arab Emirates Implications for Online Learning. *Online Submission*, *6*(3).

Lave, J. & Wenger, E. (1991). *Situated Learning. Legitimate peripheral participation.* Cambridge: Cambridge University Press.

Lee, J. N. (2001). The impact of knowledge sharing organizational capability and partnership quality on its out sourcing success. *Information and management,* 38(5), 323 – 35.

Ling, C. W., Sandhu, M. S. & Kamal, K. J. (2009). Knowledge sharing in an American multinational company based in Malaysia. *Journal of Workplace Learning,* 21(2), 125-142.174.

Maiga, Z. B. (2017). *Knowledge Sharing Among Academics in Selected Universities in Tanzania.* PhD document. University of KwaZulu-Natal, Pietermaritzburg campus-South Africa

Maithya, P. M., Mukolwe, N. A. & Waka, M. (2019). *Research methodology: Concepts, Procedures and Practice,* Limuru, Kenya: Franciscan Kolbe Press

Mallasi, H., & Ainin, S. (2015). Investigating knowledge sharing behaviour in academic environment. *Journal of Organizational Knowledge Management*, 1-19.

Mansor, Z. D., Mustaffa, M., & Salleh, L. M. (2015). Motivation and willingness to participate in knowledge sharing activities among academics in a public university. *Procedia Economics and Finance*, *31*(15), 286-293.

Maponya, P. M. (2005). Fostering the culture of knowledge sharing in higher education. *South African journal of higher education*, *19*(5), 900-911.

Massaro, M., Dumay, J. & Garlatti, A. (2015), Public Sector Knowledge Management: A structured Literature Review, *Journal of Knowledge management*, 19(3)

Mugalavai, A. K. & Muleke, V. (2016). Communities of Practice in Selected Public Universities in Kenya, Journal of Information and Knowledge Management, 6(8), 61-66

Murumba, J. W., Kilei, N. & Nakitare, J. W. (2014). Knowledge Management Catalyst for Development of University Libraries in Kenya, *African Journal of Education, Science & Technology,* 2(1), 149-153.

Nassuora, A. B. (2011). Knowledge sharing in institutions of higher learning, *International Journal of Economics and Management Science,* 1(3), 29-36.

Nonaka, I. and Konno, (1998). The concept of `BA' ± building a foundation for knowledge creation", *California Management Review,* 40 (3), 40-54.

Ribeiro, R. D. (2011). Recurrent cops (RCoPs) and Transient Core Members (TCM), PhD, University of York

Ribeiro, R., Kimble, C., & Cairns, P. (2010). Quantum phenomena in Communities of Practice, *International Journal of Information Management,* 30(1), 21 - 27.

Riege, A. (2005). Three-dozen knowledge-sharing barriers managers must consider. *Journal of Knowledge Management*, 9(1), 18–35.

Roberts, J. (2006). Limits to CoPs. *Journal of management studies,* 43(3), 623-639

Rowley, J., & Delbridge, R. (2013). Knowledge sharing amongst academics in UK universities. *Journal of knowledge management*, 17(1)

Santosh, S., & Panda, S. (2016). Sharing of knowledge among faculty in a Mega Open University. Open Praxis, 8(3), 247-264.

Sharratt, M., & Usoro, A. (2003). Understanding knowledge-sharing in online communities of practice. *Electronic Journal on Knowledge Management*, *1*(2), 187-196.

Smith, S. U., Hayes, S. & Shea, P. (2007). A critical Review of the use of Wenger's Community of Practice (CoP), the theoretical Framework in Online and Blended learning Research, 2000-2014, *Online Learning*. 21(1), 209-237, doi: 10.24059/olj.v2/il.963

Stenmark, D. (2001). Leverage tacit organizational knowledge. *Journal of Management Information Systems,* 5(3), 9-24.

Stewart, D., Solberg, S. M., Warner, G., MacDonald, J. A., McPherson, C., & Seaman, P. (2012). Understanding the role of communities of practice in evidence-informed decision making in public health. *Qualitative health research*, *22*(6), 723-739.

Swart, J., & Kinnie, N. (2003). Sharing knowledge in knowledge-intensive firms. *Human resource management journal*, *13*(2), 60-75.

Wagstaff, D. (2013). What do we know about collaboration and partnerships in higher Education? Leadership foundation for higher Education

Wahid, N. K. A., & Mustamil, N. M. (2014). Communities of Practice, Workplace Spirituality and Knowledge Sharing: The mind of the soul. *International Journal of Technology and Business Management*, *13*(4), 117-128.

Wamitu, S.N.(2015). Tacit Knowledge Sharing in Public Sector Departments in Kenya. *Open Journal of Business and Management*, 3, 109-118. Doi 10.4236/ojbm.2015.31011

Wang, S. & Noe, R. A. (2010). Knowledge sharing: a review and directions for the future, *Human Resource Management Review,*20: 115-131

Wanzala, W. (2013). Quest for Quality and Relevant Higher Education, Training and Learning in Kenya: an overview, *Education journal*, 2 (2): 36-49

Wasko, M. M., & Faraj, S. (2005). Why should I share? Examining social capital and knowledge contribution in electronic networks of practice. *MIS Quarterly*, 9(2), 35-57.

Wenger, E., McDermont, R., & Snyder, W. M. (2002).*Cultivating communities of practice.* Boston, MA: Harvard Business School Press.

Wiersma, W. (1995). *Research Methods in Education (6ᵗʰ ed.),* Boston: Allyn Bacon

Wilson_Mah, R. & Walinga, J. (2017). The people in the room: convening interdisciplinary communities of practice in an institution of Higher Education: papers on post-secondary learning and teaching: *proceedings of the University of Calgary conference on learning and teaching*, 2, 24-33.

Wood, S. A., Johnson, I., Luke, C. G., Mansell, A., & Cope, M. (2007). *U.S. Patent No. 7,239,671*. Washington, DC: U.S. Patent and Trademark Office.

Yusuf, M. M., & Wanjau, K. (2014). Factors affecting implementation of knowledge management practices in state corporations in the national treasury in Kenya. *International Journal of Management Technology*, *2*(2), 9-18.