
UNDERSTANDING KNOWLEDGE MANAGEMENT IN ACADEMIC UNITS: A FRAMEWORK FOR THEORY AND RESEARCH

Veli Denizhan Kalkan

*Department of Management, Faculty of Political Sciences
Istanbul Medeniyet University, Istanbul, Turkey*

ABSTRACT

Knowledge management (KM) is an important process for universities as well as business organizations. However, literature fails to reflect common and reliable understandings of university knowledge management (UKM). A systematic, comprehensive, and explanatory view of UKM is strongly needed. This study aims to conceptualize the UKM process based on an extensive literature review. It reveals the basic distinctive features of the process and identifies five major areas to be further investigated. It is asserted that the UKM process should be researched through systematic analyses which focus on cooperation, tacit knowledge, knowledge continuity management, dominating power relationships, and social knowledge management throughout the investigated organizations. Understanding KM is expected to contribute to a better understanding of contemporary university problems in a world increasingly characterized by VUCA.

Keywords: Knowledge management (KM), university knowledge management (UKM), cooperation, tacit knowledge, knowledge continuity management, power relationships, social knowledge management (SKM)

1. Introduction

Contemporary universities happen to exist in a world increasingly characterized by VUCA -volatility, uncertainty, complexity, and ambiguity (Bennett and Lemoine, 2014). They are faced with increasing challenges and effective knowledge management (KM) has been recognized as a promising tool for dealing with these challenges (Petrides and Nguyen, 2006; Arntzen et al., 2009; Omerzel et al., 2011). This study is motivated by a lack of understanding about how knowledge is managed within academic units such as university departments; a gap consistently addressed by the relevant literature (Serban and Luan, 2002; Geng et al., 2005; Pither, 2009; Ramachandran et al., 2013; Masa'deh et al., 2017). It aims to contribute to the understanding of KM in universities via conceptualizing the basic aspects of the process through a careful synthesis derived from an extensive analysis of the literature. For this; universities -as organizations experiencing a global change and faced by various challenges- will be discussed first. Then, literature regarding organizational KM processes and their reflections in universities will be reviewed. The main characteristics, problems, and prospects of university knowledge management (UKM) process will be examined. Problems and gaps in UKM practice and research will be identified. Based on a review of the literature on complex social processes involved in UKM; key points of UKM will be pinpointed, a potentially useful UKM framework will be developed, and implications for future research and university applications will be discussed. The overall objective of the study is to offer an integrated view of KM that lends itself to the creation of a viable UKM model useful for research and theory development.

2. Universities: problems and prospects

Universities have been considered as vital organizations since the Middle Ages (Bok, 2003; Pither, 2009). Having goals and features differing from those of private companies (Rego et al., 2009), they have played important roles in “*creating and transmitting scientific knowledge, which is the fundamental source and driver for societal progress and development*” (Tian et al., 2009, p. 77). Universities have lost their monopoly on the production and legitimation of knowledge long before -due to emergence of new and powerful knowledge-creating actors after the Second World War- (Garrick et al., 2004; Deem et al., 2007); however they still carry significant roles in knowledge generation and transmission. Indeed; according to some researchers, the role of the university has become even more important (Conceição et al., 1998; Salavisa and Vali, 2012). New or rejuvenated roles and tasks are now on the agenda of the university: The university is expected to play an enhanced role in innovation systems as implied by the metaphor of a Triple Helix of university, industry, and government (Etzkowitz and Leydesdorff, 2000). New tasks of the contemporary university include tasks such as critically examining the longer-term implications of knowledge constructed in the world of work (Garrick et al., 2004, p. 337-8). Universities are also expected to become new forms of public communication; institutions concerned with future cultural directions using the potential of new modes of knowledge production; organizations developing models of culture which can exploit the democratic potential of knowledge transformation; and entities embracing learning, teaching, and research in synergistic ways (Delanty, 2001; Deem et al., 2007).

Enriched role expectations come with challenges: Contemporary universities are faced with increasing internal and external pressures for quality assurance, accreditation, accountability, strategic planning,

more MOOCs (massive open online courses), excellence, and flexibility (Deem et al., 2007; Al-Bastaki and Shajera, 2012; Bonk et al., 2015). Competing pressures on public purse have financially challenged universities in many countries (Deem et al., 2007; University of Oxford, 2015). In short, universities are challenged with the task of “*retaining their place as a vital part of the social fabric*” (Garrick et al., 2004, p. 329). To cope with the overwhelming demands and achieve the goals associated with the rejuvenated roles, universities are in a continuous search of vital techniques and philosophies. A notably promising and strong one of such is KM (Petrides and Nguyen, 2006; Arntzen et al., 2009). It is highly relevant, because universities are regarded as “*knowledge systems par excellence*” (Alexandropoulou et al., 2008, p. 416). Most of the challenges faced by universities are knowledge-related challenges. Consequently; effective KM has been proposed as a key to the solution of significant university problems (Omerzel et al., 2011, p. 112).

3. KM and universities

3.1. Knowledge management: a complex process

As one researcher stated; “*Organizations have always managed knowledge, even without noticing it*” (De La Vega, 2010, p. 279). A large and highly credible literature has explicitly emphasized the importance of knowledge processes in organizations since 1990’s (Badaracco, 1991; Wiig, 1993; Blackler, 1995; Nonaka and Takeuchi, 1995; Davenport and Prusak, 1997; Boisot, 1998; Alavi and Leidner, 2001; Dalkir, 2005). Managing knowledge is regarded as a process of increasing intellectual capital (Coukos-Semmel, 2002). Increasing intellectual capital is a complicated task; therefore, though dealing with information, organizational knowledge management is a complex system extending well beyond the information-centric aspect of any system. Beyond anything else, it is important to manage knowledge in a conscious and systematic way to leverage intellectual capital to improve organizational performance and become more competitive (De La Vega, 2010, p. 279). In other words, reaping the benefits associated with KM is based on conscious implementation. Furthermore, KM systems and KM-related activities have also many unintended consequences which have impacts on organizational life (Sommer, 2006; Wagoner, 2006). The problematic nature of tacit knowledge may create barriers to knowledge management (Kakabadse et al., 2001). Not only the accomplished KM tasks but also some seemingly unsuccessful KM projects may lead to organizational changes and consequences that matter; e.g. outcomes altering power structures (Wagoner, 2006). In summary, KM is a complex process with many challenging aspects and potentially unforeseen outcomes.

3.2. Knowledge processes in universities

In addition to knowledge and KM systems per se, university-knowledge relationship is also complex. Universities can be seen as a collection of knowledge workers (Blackman and Kennedy, 2009, p. 554). Diverse sets of knowledge exist in universities. In addition to classical academic knowledge, Coukos-Semmel (2002) focuses on “*non-academic organizational knowledge found in administrative units and applied to university operations*” (p. 10-11). Universities, like all other organizations with strategic intent, need to develop a thorough understanding of their all knowledge and its role in their development (Blackman and Kennedy, 2009, p. 560). In universities, knowledge should be managed in a systemic and institutional way (Cranfield and Taylor, 2008). A system perspective defining a dynamic order of

elements and processes in mutual interaction with each other (Von Bertalanffy, 1968) has to be adopted to appropriately deal with knowledge. Representing truth and offering a reliable basis for action, knowledge will enhance university's effectiveness (Adhikari, 2010, p. 95). Strategic success of the university depends on the functionality of knowledge processes (Blackman and Kennedy, 2009, p. 548).

3.3. University knowledge management: benefits and expectations

A wide range of benefits exist in case of thorough UKM application. Advanced KM systems and activities may help universities to develop and update the modern educational content, enhance and leverage the effectiveness of scientific research and its innovation, and leverage the relevance in matching educational objects to the specific features of individual learners (Tikhomirova et al., 2010, p. 157-8). Systematic KM practices in the university can simultaneously enable continuous learning at the organization level and engage in promoting continuous learning for the students (Petrides and Nguyen, 2006, p. 32). KM initiatives are likely to enhance cooperation between students and staff, and create environments that efficiently support the cross-organizational learning and knowledge-sharing processes (Arntzen et al., 2009). KM and a vital knowledge creation process can also enable effective governance in the university (Blackman and Kennedy, 2009). Other significant benefits of KM to the university are benefits such as allowing the organization to preserve tacit knowledge base of people as they near the retirement age, retain critical expertise, and build an organizational memory by preventing critical knowledge loss due to downsizing or employee attrition (Coukos-Semmel, 2002; Gill, 2009). KM is also expected to lead to a better decision-making capability, improve academic services, and reduce costs especially by the help of effective IT utilization and institutional restructuring (Kidwell et al., 2000; Metcalfe, 2006).

Managing the university knowledge includes managing the knowledge environment which points to interactions and interconnected systems formed by other higher education institutions (HEIs), firms, industry, regional stakeholders, and government (Mason et al., 2005; Perry, 2014). KM systems can help to enhance learning derived from all those interactions (Witt et al., 2007). The university may act as a key knowledge infrastructure in regional innovation systems (Charles, 2006). KM conceptualized as a systematic organizational process may facilitate this. KM helps universities to become more competitive and transparent as imposed by new concerns such as The Bologna Process (Alexandrapoulou et al., 2008). A challenge to academics and practitioners is co-producing knowledge interactively in order to reduce the gap between knowledge and action. At that point, KM becomes crucial again. KM practices can also facilitate a better understanding of universities' own weaknesses and strengths (Petrides and Nguyen, 2006, p. 31). Consequently, KM can play an important role in business continuity planning at universities (Zaghab, 2011). Literature reveals that trying to manage educational institutions without appropriate KM initiatives -which succeed to manage both social and technical aspects of knowledge- can bring their downfall (Adhikari, 2010).

3.4.UKM: how?

Potential benefits of effective UKM have been clearly identified in the literature. Moreover, knowledge management has been described as a phenomenon about leadership and commitment that enables management in “*a complex, ambiguous, anarchist milieu as a university department*” (Moensted, 2002, p. 17). So, KM emerges as a phenomenon related to university mission and -at the same time- a holistic tool to realize university vision. However, both KM and the university environment demonstrate a dynamic confusion of various powers and influences. So the essential question emerges: How is knowledge actually managed within the university? To shed a light on the actual state of UKM practice and research, previous literature has to be analyzed.

4. UKM research and practice: main findings, problems, and gaps

4.1.Findings: main points revealed and emphasized

Viewing knowledge as an asset and creation of a knowledge environment were advised in the early phases of UKM studies (Hafstad, 1997; Rowley, 2000). Recognizing the relationship between knowledge and power, realizing significant changes in culture and values, and managing the knowledge embedded in networks were some other points noted in the early UKM literature (Rowley, 2000). Later; leadership, learning, technology, and organization have been proposed as pillars of KM (Calabrese, 2010). Throughout the history of UKM studies, there have been considerable efforts for furthering the understanding of IT-related aspects of KM in various settings (Piccoli et al., 2000; Borchers, 2006; Smith, 2006; Wang and Paper, 2006). Factors such as identifying core competencies, cultural change, strategic leadership, community partnerships, reward and recognition, knowledge infrastructure, and technology are proposed as crucial elements playing significant roles in the UKM processes (Gill, 2009, p. 609-11). Literature has pointed to the fact that key strategic KM enablers are the precursors to the KM practices (Ramachandran et al., 2013). Encouraging enablers and introducing facilitators is not enough though. Removing barriers to KM is also important in university settings (Rego et al., 2009).

In addition to general studies, another stream of research has focused on maturity and readiness levels of universities for KM (Al-Bastaki and Shajera, 2012; Wijetunge, 2012). Knowledge maps, interpersonal relations, cooperation, individual and collective creativity, power structure, and political relationships dominating the KM environment are suggested as important factors to understand UKM (Metcalfe, 2006; Farkas and Király, 2009). In the literature, it has been stated that measurement and comparisons of KM are important. However, measurement and comparisons of KM in university settings have been realized in a limited fashion (Geng et al., 2005; Chen et al., 2009).

4.2.Problems and gaps in UKM practice

Higher education settings are assumed to have great opportunities for practicing knowledge management tools and -consequently- taking advantage of KM processes (Kidwell et al., 2000; Farkas and Király, 2009). However, literature reveals that KM initiatives are not well -or to most researchers even satisfactorily- developed within the universities (Kidwell et al., 2000; Cranfield and Taylor, 2008; Arntzen et al., 2009; Pither, 2009; Wijetunge, 2012). KM has been regarded as “*not internalized in most universities*” (Perry, 2014, p. 750). Absence of KM principles in HEIs is regarded as “*a striking*

oversight" (Serban and Luan, 2002, p. 13). Additionally, universities' lack of organized KM systems that could allow them to optimize institutional decision-making has been evaluated as "*a great irony*" (Santos, 2006, p. 96).

Literature reveals that, in universities, interpretation of knowledge processes such as knowledge exchange is more limited than that of organizations that have fully conceptualized managing knowledge (Pither, 2009, p. 278-9). Purely IT-centered approach has led a lot of organizations into failure (Ribiere and Arntzen, 2010). Hence, human issues must be considered seriously. Detrimental effects of isolation and lack of teamwork have been pointed out in the UKM literature (Moss et al., 2007). Research also points to the absence of a common understanding of managing knowledge strategically in universities (Cranfield and Taylor, 2008; Pither, 2009). Due to lack of effective knowledge management, universities are often engaged in huge duplication of efforts (Robson et al., 2003; Arntzen et al., 2009). Some early applications of KM show that, in at least some of universities, KM has been implemented unsystematically; therefore functioned just as a management fad (Wagoner, 2006). Additionally, some universities are challenged with being surrounded by non-knowledge activities (Adhikari, 2010, p. 99). Most universities also face a knowledge continuity challenge in practice; leave of faculty have detrimental impacts on academic units and ultimately the institution (Cranfield and Taylor, 2008; Gill, 2009; Rhoads, 2010).

4.3. Problems and gaps in UKM research

As well as with UKM applications, there are problems with the progress of UKM research (Ramachandran et al., 2013). UKM has been studied either without university-specific adjustments -as if it were in the classical business sectors- or focusing only on IT applications (Alexandropoulou et al., 2008, p. 420). Previous UKM literature is loaded with IT systems studies. Technology has not been regarded as a complete solution in KM though (Green, 2010). Pure technology-centered approach may lead to serious problems (Metcalf, 2006). Indeed, in the previous UKM literature, there are some -generally- overlooked issues such as culture (Ramachandran et al., 2013, p. 89). In a broader sense, it is claimed that social aspects of UKM are largely ignored in the literature (Metcalf, 2006).

KM is certainly relevant to universities; however, research points to the difference between business and academia with respect to knowledge management and creation (Tian et al., 2009). KM implementations are mostly developed within the business context; therefore, universities feel the need to develop university-specific KM conceptualizations. But the field still lacks a helpful, comprehensive framework. Literature fails to include some of the very basic concerns. Even the pioneering studies have serious limitations such as incorporating solely explicit knowledge (e.g. Geng et al., 2005). In case of UKM; discussions to date have been partial, some are just commentary views. Valuable -however fragmented- qualitative and quantitative data have been accumulated up to now, which make it hard to reach a shared comprehension of UKM. Due to all these factors, the field of UKM has been described as an area that is "*limited to abstract concepts, ideas, frameworks, models, and anecdotes*" (Ramachandran et al., 2013, p. 77). Literature fails to reflect common and reliable understandings of UKM.

5. Discussion: essential points and the way forward

Reflecting the unsystematic and fragmented view of KM, most of the present UKM efforts are concentrated on technical issues such as developing information systems for library resources and improving curriculum development (Gill, 2009, p. 206). In fact; universities can benefit from an understanding of knowledge management as an integrity relating to all aspects of organizational life and including data, information, all types of knowledge, and action (Petrides and Nguyen, 2006). A systematic, comprehensive, and explanatory view of KM is needed.

A systematic view will primarily stem from an evaluation of the current processes and practices of KM. It is very important for all KM initiatives and a must starting point for KM-related change (Petrides and Nguyen, 2006, p. 31). In other words, analyzing past and actual initiatives is an important part in exploring and conceptualizing KM in universities (Arntzen et al., 2009, p. 130). As Pareto's Law -which states that "*most of the results in any context are raised by a small number of causes*" (Illes-Seifert and Paech, 2009, p. 151)- suggests; based on the relevant literature, a few essential points have to be identified to better investigate and conceptualize UKM. Those very few points will offer a solid, simple yet comprehensive base for theory and research development:

[1] Cooperation is an important factor that can obviously enhance KM performance (Davenport and Prusak, 1997). Especially in scientific knowledge management, it has been identified as a weak point that must be reinforced and improved (Tian et al., 2009). Cooperation should be considered at inter-organizational and intra-organizational levels. Both loose relations and organized frames may support cooperation (Farkas and Király, 2009). Cooperation tools and models used are important to understand UKM; they will give ideas about organizational environment and knowledge processes (Allarakhia et al., 2007; Arntzen et al., 2009). So, cooperation should be included in the UKM research framework.

[2] Another important factor is tacit knowledge. It has been evaluated as an inimitable competitive advantage (Lubit, 2001). Actually, the emphasis of UKM in practice is on explicit knowledge rather than the tacit knowledge (Pither, 2009). In fact, literature points to the importance of relations where tacit knowledge is embedded for KM performance (Cross et al., 2003; Farkas and Király, 2009). A multi-dimensional view of knowledge encompassing the tacit dimension is better for capturing the complex phenomena of knowledge in contemporary organizations (Ein-Dor, 2006), undoubtedly including HEIs. Therefore, tacit knowledge should be integrated into the UKM research framework.

[3] Knowledge continuity is the third factor to be considered. Transferring best operational practices to new generations is crucial (Rhoads and Ribiere, 2010). Consequently; retaining knowledge, especially critical operational knowledge, is important for all types of organizations. A stream in KM literature points to this challenge as "*knowledge continuity management*" (Beazley et al., 2003; Kalkan, 2006; Levy, 2011; Biron and Hanuka, 2015). Also, UKM literature calls attention to problems related to knowledge continuity (Coukos-Semmel, 2002; Cranfield and Taylor, 2008; Gill, 2009). KM in HEIs is regarded as a way to retain and manage knowledge products (Diaz and McGee, 2006, p. 148). As a result, knowledge continuity should be incorporated into the UKM research framework.

[4] Power relationships represent another basic factor to be considered. Power and its consequences had been mentioned even in the early phases of UKM research (Rowley, 2000; Wagoner, 2006). Power structures have positive and negative impacts on all knowledge processes; such as inhibiting or encouraging knowledge sharing, limiting or enhancing knowledge acquisition, weakening or developing

the ability of KM systems to respond quickly to external influences, and creating or restricting KM development opportunities in the organization (Baskerville and Dulipovici, 2006; Cranfield and Taylor, 2008; Aidemark, 2009). So, power relationships have to be encompassed in the UKM research framework.

[5] Emerging issue of *social knowledge management (SKM)* is also important. KM is expected to be seriously influenced by the potential of social media/software. By promoting interactivity; social media/software is expected to enrich knowledge processes, especially the new organizational knowledge creation process. Besides; it is expected to promote connectivity and networking, and create a much more conversational and collaborative KM (Costa et al., 2009; Garcia et al., 2011; Von Krogh, 2012; Pirkkalainen and Pawlowski, 2014; Sigala and Chalkiti, 2015). SKM may have impacts on not only communication patterns and cooperation types but also power relationships. Thus, it can change the nature of KM. For these reasons, it should be included in the UKM research framework.

Figure 1: Building Blocks of University Knowledge Management (UKM)



Figure 1 outlines the essential points put forward by the study. In summary; UKM should be researched through systematic analyses which focus on cooperation, tacit knowledge, knowledge continuity management, dominating power relationships, and social knowledge management throughout the investigated organizations. The researchers should identify how various features related to these factors influence knowledge processes such as knowledge creation, identification, acquisition, development, storing, sharing, application, and assessment. This framework can provide the basis for a search of context-specific and in-depth UKM knowledge that will lead to a better understanding of KM processes in universities.

6. Concluding remarks: implications for research and practice

This paper has reviewed the literature on UKM and identified five critical issues which offer a base for a holistic view of UKM in academic settings. The comprehensive framework proposed can serve both academic and practical interests, such as offering a model for further scientific studies and functioning as an implementation facilitator for practitioners. Research questions can be derived from the framework proposed. Combined by research methodologies capable of handling the issues and concerns raised by the framework, future investigations may enhance our understanding of UKM. A better understanding of KM in an underdeveloped domain, HEIs -in the sense of KM-, is beneficial for the KM literature. So, consecutive research should focus on gathering -longitudinal as well as cross-sectional- rich data explicating the complex social processes involved in UKM. This study is expected to contribute to the formation of a prospective cumulative tradition of research on university knowledge management.

The perspective offered by the study is also expected to be helpful for HEIs involved in various KM projects or considering a KM initiative. Expected contributions include a better understanding of issues surrounding the knowledge management systems of universities. A potential benefit brought about by specific KM studies is facilitating more robust prescriptions for KM interventions in all environments including HEIs (Geng et al., 2005, p. 1041). An indirect benefit will be the contribution to the cumulative knowledge of university management and governance which has been an important issue of interest since recent times (Bok, 2003; Deem et al., 2007). KM studies will also contribute to a better understanding of universities' existential problems in an age of transition characterized by VUCA.

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