Some Thoughts on the Trends, Issues, Challenges and Opportunities of Information and Knowledge Management Teaching and Research in South Africa. An Overview

1. Introduction

The pioneering work of Polanyi (1962) and seminal works of Ikujiro Nonaka, Hirotaka Takeuchi (1965, 1995) and Choo (1998), among others, have shed light for exploration and understanding of tacit and explicit knowledge, assuming that information would be represented in explicit knowledge. Understandably, knowledge is human driven - what the knowledge holder knows, so to speak (knowingly or unknowingly, what Polanyi terms “we know more than what we can tell”), while information is largely a product of knowledge. One may also say that knowledge is a product of information. Not so long ago data management (DM), information management (IM) and information resource management (IRM) became...
prominent domains of intensive debate largely to determine where they converge or diverge and for what I would call territorial demarcation for ownership and control of research domains by individuals and institutions. Knowledge management (KM) has become the latest entrant into this debate and justifiably so also invited more debates. Despite this there are more shared research approaches/methodologies, processes, strategies, technologies, content, concepts and know how between KM and IM than can be imagined and that often blurs their distinction. How these diverging views helps the development of IM and KM research, curriculum development and teaching is quite mysterious. There are several models and orientations depending on the size of the programmes and courses as well as their location and the human capital to offer them in the country, culminating in admirably rich programmes and content to quite inadequate offerings. The separation of information management from knowledge management or pitching one within or separate from the other does occur. The purpose of this presentation is to enable debates and discussions on the understanding of information and knowledge management for developing appropriate research, curriculum and teaching in the i-schools in South Africa. The paper is divided into four parts. The first part conceptualises information and knowledge management in order to create better understanding. This is followed by contextualisation of IM and KM in South Africa i-environment focusing on research, curricula and teaching in the second part. Part three unearths its broader challenges and opportunities within South African i-schools context

Data, information, knowledge and wisdom revisited

Data, information, knowledge and wisdom are inseparable. One common way to explain their relationship is by using a knowledge pyramid as illustrated in figure one.

![Knowledge Pyramid](image)

**Figure One: Knowledge Pyramid**

Knowledge pyramid describe hierarchical relationship between data, information, knowledge and wisdom in form of a pyramid. In this context, data is viewed to be – “discrete, objective facts such as who, what, when, where’, how much, how long. Information – ‘linking of who, what, when and where to tell a story’; Knowledge – ‘information that is culturally understood, such that it explains the how and the why about something or provides insight and understanding while Wisdom – places ‘knowledge in a framework to allow it to be applied to different situations’(Ackoff 1989). Thus, the four components- data, information, knowledge and wisdom- are interdependent. Several models arise for defining such relationship with knowledge pyramid (Ackoff 1989) being the most popular (see figure 1) for explaining the interdependability. It could be possible also to view this relationship through other models. Taken further, knowledge is considered to be an intellectual capital held and processed within human brain or mind for sharing tangibly (explicit) and intangibly (explicit) largely for the fulfilment of a purpose. Knowledge can also be viewed as “that which is objectively known, an intellectual property, attached to a name or a group of names and certified by copyright or some other form of social recognition (e.g. publication)” as Bell (1973:176) put it. Attaching knowledge to ‘copyright or some other forms of social recognition’ should not limit the dimension of knowledge to modern/exogenous knowledge only. Davenport and Prusak view knowledge to be “a fluid mix of framed experience, values, contextual information, and expert insight that
provides a framework for evaluating and incorporating new experiences and information” (Davenport and Prusak 1998:5). Knowledge is largely divided into tacit (intangible) and explicit (tangible) knowledge. Although the pioneering work of Polanyi (1962) is linked to the origination of the typology of knowledge into tacit and explicit, the seminal works of scholars like Ikujiro Nonaka, Hirotaka Takeuchi (1995) are highly recognised for the development of the two concepts. They (Nonaka and Takeuchi (1995:58) are of the opinion that while “information is a flow of messages, knowledge is created by that very flow of information anchored in the beliefs and commitments of its holder” [the knower]. Nonaka and Takeuchi (1995:62), on one hand, define intangible knowledge as personal knowledge that is created through individual experiences and embedded within the culture and traditions of individuals or communities often action –based, entrained in practice and therefore difficult to explain or describe. It is what the knowledge holder - 'knower', so to speak – knowingly or unknowingly knows- or as Polanyi (1962) terms it “we know more than what we can tell” and therefore disputes (Polanyi) – alongside Nonaka and Takeuchi, s critics (e.g. Mclean n.d) - any possible management of tacit knowledge. Thus, we cannot manage what we do not know. Tangible/explicit knowledge, on the other hand, they explain, is recorded, documented or codified knowledge, widely conveyed through formal language (mostly through printed text or electronically). The manner in which this type of knowledge is processed and presented has made its creation, identification, codification, processing, storage, conveyance and sharing extremely easy, and its popularization overwhelming. However, Nonaka and Takeuchi caution that tangible and intangible knowledge are not entirely two separate entities - they supplement each other. Knowledge, according to the two authors (Nonaka and Takeuchi), is created and extended through the social interaction between tangible and intangible knowledge, and may follow four basic patterns that are already widely known: Firstly, intangible to intangible (socialization) – where individuals share intangible knowledge through personal contact. Secondly, intangible to tangible (externalization) – where the knowledge base is extended by the codification of experience, insight and judgement so that it may be utilized by others. Thirdly, tangible to tangible (combination) – where individuals combine the tangible knowledge of others to create a new whole and lastly, tangible to intangible (internalization) – where individuals use the codified knowledge of others to broaden their own intangible knowledge(see figure 2) normally moving in a spiral form.

Figure 1. Spiral of organizational knowledge creation (Nonaka and Takeuchi 1995)

2. Understanding information management (IM) and knowledge management (KM)

We have echoed the fact that there are more shared research approaches /methodologies /paradigms, processes, strategies, technologies, content, concepts and know how between KM and IM than can be imagined and that often blurs their distinction (see Onyancha and Ocholla 2009). Even most definitions accorded the two concepts tend to converge rather than diverge. Out of a myriad of definitions of the IM
and KM, it is possible to identify the following from the Web: “Knowledge management (KM) comprises a range of strategies and practices used in an organization to identify, create, represent, distribute, and enable adoption of insights and experiences”\(^1\); “The creation, storage and collaborative sharing of employee information within the business environment”\(^2\); “The way a company stores, organizes and accesses internal and external information”\(^3\); “The process of capturing, organizing, and storing information and experiences of workers and groups within an organization and making it available to others”\(^4\); “A system or framework for managing the organizational processes that create, store and distribute knowledge, as defined by its collective data, information and body of experience”\(^5\) and “Managing tacit knowledge (held in an individual's brain in the form of know-how and experience) and explicit knowledge (recorded independently of humans)”\(^6\). Let us compare these definitions with those suggested for IM. According to Wikipedia, Information management (IM) is the collection and management of information from one or more sources and the distribution of that information to one or more audiences\(^7\). The sources referred to here can be physical such as print and/or electronic/digital that is increasingly delivered to multiple users through multiple channels for multiple purposes. I assume that human sources are represented through proxy (explicit knowledge – print or electronic) but not directly as that would mean also tacit knowledge that is beyond the domain of IM per se. Most definitions to IM share the following processes with KM: capture, process, preserve, store and deliver appropriate information to the appropriate recipient/user in an organisation. For example, Choo, s (1998), process model of IM consists of five steps: identification of information needs, information acquisition, information organisation and storage, information distribution and information use. This compares favourably well with the knowledge management process represented in Table 1.

Table 1: Knowledge Management Process (http://informationr.net/ir/8-1/paper141.html)

The visible omission in IM process that is included in the KM process is “creation of new knowledge”. I find France Bouthillier and Kathleen Shaerer (2002) paper entitled “Understanding knowledge management and information management: the need for an empirical perspective” quite enlightening and the first question in their abstract ‘Is knowledge management (KM) an emerging discipline or just a new label for information management (IM)?’ very appropriate for unravelling these two closely related

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1. en.wikipedia.org/wiki/Knowledge_management
3. ccs.mit.edu/21c/okey.html
4. www3.imperial.ac.uk/ict/services/teachingandresearchservices/elearning/abouteclearing/elearningglossary
5. www.bridgefieldgroup.com/bridgefieldgroup/glos5.htm
6. www.curaconsortium.co.uk/glosary.htm
concepts, disciplines and activities. In their paper, they note the following statements: “there is no consensus regarding the claim that KM is a new field with its own research base” (citing Koenig 1997), “firms and information professionals have been practicing for years KM-related activities” (citing Broadbent 1998, Streatfield and Wilson 1999), “KM practices focus mainly on knowledge representations not on knowledge per se, making the distinction between KM and IM even more blurred” (citing Gourlay 2000), “One way to distinguish between KM and IM is to identify the processes or steps involved in both fields” (citing Place and Hyslop 1982). I think that Choo’s (1998), process model alluded to provides useful dimension for comparing IM and KM processes. Even here the distinction is blurred. In their conclusion, Bouthillier and Shearer (2002) presents what would be the uniqueness of KM to be in its intangibility/tacit base and sharing of tacit knowledge that goes beyond explicit knowledge. They claim that “the ontological and epistemological aspects of knowledge are ill defined and poorly understood that KM cannot be an emergent discipline”. Our recent study (Onyancha and Ocholla 2009) entitled “Conceptualising ‘knowledge management’ in the context of library and information science using core/periphery model” also gives a new dimension for understanding KM in relation to IM and other related areas. In that paper we showed the development of terms describing KM literature 1981–2007 but noted extensive growth during last seven years. In our concluding remarks, we define KM to be a discipline focusing “on IRM (information resource management – also means IM), its major functions are people and documents/records management oriented; and it largely involves IR (information retrieval) processes while the resources and systems managed are overwhelmingly IT (conduit, content, networks etc) oriented”. These activities, we noted (in the conclusion), are closely linked to what Skyme (1998) and Gu (2004) suggest KM to be about such as managing information – explicit/recorded knowledge; managing processes – embedded knowledge; managing people – tacit knowledge; managing innovation – knowledge conversion and managing assets – intellectual capital. We notice extensive growth of knowledge management multidisciplinarity with new subject domains, processes, organisations, ICT, emerging suggesting disciplines or subjects that have to be considered in the research and teaching of KM as well as showing a strong link between KM and IM or Information Resource Management (IRM).

3. Challenges and opportunities of KM Research and Education

Knowledge management and information management research and education in South Africa are developing quite fast. But there are still challenges to be overcome. Among the challenges are:

Research.
Studies by Jacobs (2004), Onyancha and Ocholla (2006) and Onyancha and Ocholla (2009) offer a strong starting point for mapping and auditing research activities in this field. The studies have enabled knowledge of the quantity and quality of research going on in the domain for possible intervention. For example, we have observed through these studies that most of the top academics in KM in the country are about to retire, no longer conducting research in KM or have retired. We do not see through the lens of ‘Informetrics radar’ emerging researchers to replace the old guards. Therefore research capacity building and retention of the newly qualified graduates in the academia is a major challenge. In other words, there should be a pro-active succession plan underway in i-Schools.

Curriculum Development and KM education.
I found the study conducted by Okemwa and Majanja (2006) insightful as it addresses fundamental issues relating to KM and IM education in South Africa. Among the challenges they raise in their study that most of us experience is the lack of preparedness of students to learn KM at undergraduate level. This means that basic or fundamental management courses must be taught or made prerequisite before students graduate to learning core KM courses. Secondly, the issue of KM faculty/lecturers came out to be an issue that is challenging. There are contradicting opinions on whether we do have sufficient KM teaching capacity or not? What I do know is that i–schools always complain of lacking qualified teaching staff for their qualification programmes and KM is not excluded. Lack of qualified teaching staff, preferably those with management academic background, could have contributed to different scope, depth, stages and levels of offer age as well as absence of KM some i–schools in the country as observed in Okemwa and Majanja’s study. There are instances where KM and its related courses have stalled because of lack of
teaching staff. We do have though, quite sound KM teaching environments in South Africa largely within L/IS schools in large cities as they can augment their KM teaching with relevant specialist from the industry. Our challenge still lies in planning for staffing that also include capacity building. I also wonder if allowing or enabling non L/IS staff from other departments within our universities to support our teaching would cause any harm. I do know though, is that interdisciplinary or interdepartmental teaching can be quite daunting even when there is proper policy in place.

Opportunities

Basing my observation from the quantity of research in KM as reflected in most international databases such as WoS (SCI, SSCI and AHCI), Scopus and Google Scholar and local databases such SABINET hosted ISAP, C&CR and UT7Ds that I alluded to earlier as well as its presence in the curriculum of i-schools and management/business schools, I believe that KM is one of the most popularised discipline and research field in i-schools and management schools in the world. This enables research, networking, collaboration, sharing and capacity building to take place if/when we tap into that stream of academic and social network. For example, even in South Africa, there are already many qualifications programmes (Okemwa and Majanja) being offered in the field, the number of quality scholarly journals in the domain is growing and there is a cohort of admirably strong academics/faculty teaching and conducting research in this area globally and also in South Africa as identified in Jacobs (2004) and Ocholla and Onyancha (2005) study. There is also strong evidence of the growth of the discipline into a formidable multidisciplinary field (Onyancha and Ocholla 2009). We have observed in recent years that KM jobs are increasing among the jobs that are advertised in South Africa newspapers (Ndwanwwe and Onyancha 2011). Such jobs increasingly demonstrate the multidisciplinary nature of KM that brings on board information, management, ICT, business, librarianship, computer science and communication and media knowledge and skills.

Earlier studies (e.g. Onyancha and Ocholla 2005) recommended the development of repositories for thesis and dissertations in South Africa to extend the KM management research visibility and access. It is admirable that ‘dream’ has come true as most South African Universities have created institutional repositories (see Ocholla 2010). For instance, at the moment, South Africa has 14 out of 22 Institutional Repositories in Africa majority of them based within its universities. Research thesis and dissertations constitute the largest collection.

Conclusions

Discourse on the relationship between data, information, knowledge and wisdom on one hand and information management and knowledge management on the other hand are healthy if they help to create and develop the understanding of how interdependent they are. Knowledge management should be seen to be an extension of IM or information resource management in space and time. A model that provides better understanding of the relationship between KM, IM, IRM and DM can be proposed as reflected in Figure 2. Other KM sub –fields such records management would form part of the broader KM field.
More work need to be done to address the challenges and opportunities of – some of which are highlighted – information management and knowledge management teaching and research.

References


