Positioning organisational culture in knowledge management research

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Abstract

Purpose – *The purpose of this paper is to propose a conceptual model for understanding the impact of organisational culture on knowledge management processes and their link with organisational performance. It is suggested that organisational culture should be assessed as a multi-level construct comprising artefacts, espoused beliefs and values and underlying assumptions. A holistic view of organisational culture and knowledge management processes, and their link with organisational performance, is presented.*

Design/methodology/approach – *A comprehensive review of previous literature was undertaken in the development of the conceptual model. Taken together, the literature and the proposed model reveal possible relationships between organisational culture, knowledge management processes and organisational performance.*

Findings – *Potential implications of organisational culture levels for the creation, sharing and application of knowledge are elaborated. In addition, the paper offers possible new insight into the impact of organisational culture on various knowledge management processes and their link with organisational performance.*

Research limitations/implications – *A number of possible relationships between organisational culture factors, knowledge management processes and their link with organisational performance were used to examine such relationships.*

Practical implications – *The research model highlights the multi-level components of organisational culture. These are: the artefacts, the espoused beliefs and values and the underlying assumptions. Through a conceptualisation of the relationships between organisational culture, knowledge management processes and organisational performance, the study provides practical guidance for practitioners during the implementation of knowledge management processes.*

Originality/value – *The focus of previous research on knowledge management has been on understanding organisational culture from the limited perspective of promoting knowledge creation and sharing. This paper proposes a more comprehensive approach to understanding organisational culture in that it draws on artefacts, espoused beliefs and values and underlying assumptions, and reveals their impact on the creation, sharing and application of knowledge which can affect the overall organisational performance.*

Keywords *Organizational culture, Knowledge management, Organizational performance*

Paper type *Research paper*

1. Introduction

The primary goal of this research is to propose a relationship between organisational culture and knowledge management processes. Its second goal is to put forward the idea that there is a relationship between the creation, sharing and application of knowledge and organisational performance. Both the business and academic spheres argue that, by implementing knowledge management, an organisation can maintain its long-term competitive advantages (Gonzalez-Padron *et al.*, 2010; Liu and Lai, 2011), sustain high performance (Pina *et al.*, 2013; Theriou and Chatzoglou, 2009) and become more innovative (Gonzalez-Padron *et al.*, 2010; He and Abdous, 2013), especially in the current business environment, which is conceived of as a knowledge-driven economy

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"Although there is considerable research on organizational culture, there is little consistency in defining and conceptualizing the term."

(Zhou and Fink, 2003). Thus, managing knowledge becomes a requirement for organisations wishing to survive in competitive marketplaces (Matusik and Hill, 1998).

Definitions of knowledge have been discussed broadly in the knowledge management literature. Knowledge can be defined as "a fluid mix of framed experience, values, contextual information and expert insight that provide a framework for information" (Davenport and Prusak, 2000, p. 5). Delong and Fahey (2000), Martin (2000), McDermott and O'Dell (2001) and Ribiere and Sitar (2003) believe that organisational culture has the most significant input into the effective management of knowledge in an organisation. Knowledge management aims to add value for customers through the creation, sharing and application of any aspect of knowledge relevant to the organisation (Martin, 2000).

The arrival of the knowledge economy has seen a decline in the relative significance of tangible resources and made requisite a paradigm shift towards reliance on knowledge and intellectual capital (Guthrie, 2001). The ownership of intellectual property is increasingly seen as knowledge not of low-cost production methods or human resource-intensive productions processes, but of methods to create, protect and further develop value (Lange, 2006). Within companies, knowledge resources are fast becoming crucial intellectual assets that define a firm's competitive advantage. As the global economy becomes more knowledge-based in nature, there is a pressing need for all kinds of organisations to manage knowledge more effectively and efficiently, thereby enabling them to gain value (Burstein *et al.*, 2002). Just as knowledge management is significant to an organisation's competitive advantage, organisational culture too is crucial to an organisation's definition and execution of its business strategy. Hence, knowledge management cannot be effectively dealt with without addressing organisational culture. Subsequently, researching the proposition that there exists a relationship between organisational culture and knowledge management processes will be helpful for individuals and organisations and better enable them to receive the benefits that can be expected from the implementation of knowledge management processes.

A review of previous research reveals that there is a great deal of academic literature on organisational culture and knowledge management, and that some of these studies have emphasised knowledge management in a cross-cultural business context (i.e. Liu and Fellows, 2008; Nazari *et al.*, 2011). Nevertheless, the relationship between organisational culture and knowledge management processes, and their link with organisational performance, has been ignored in previous knowledge management research. Evidence of such a relationship could, however, provide further explanation of the three factors of organisational culture – artefacts, espoused beliefs and values and underlying assumptions – and their link with knowledge management processes and organisational performance.

This paper begins by illustrating the research methodology. Following that, discussing organizational culture as a multi-level construct is presented. Second, a conceptual model depicting the linkages between organisational culture, knowledge management processes and organisational performance is proposed. Next, the paper further elaborates on the multi-level and multi-factor characteristics of organisational culture and knowledge management processes. This section is followed by discussion of the implications of organisational culture with regard to the distinctive processes of the creation, sharing and application of knowledge. Thereafter, the link between knowledge management processes

and organisational performance is proposed. The paper then concludes by suggesting possible implications of organisational culture for knowledge management and outlining possible, future research in the area.

2. Methodology

This research study uses an integrated approach grounded in a literature review of the core themes related to organisational culture, knowledge management processes and organisational performance. Using the Hisn A'Shmookk Library Access System, which compromises 350 interlinked scholarly and practical databases, the author initially conducted an electronic keywords search for published research articles on three main areas; the keywords for this search were: organisational culture, knowledge management processes and organisational performance. Second, the author used the sub-primary terms theory of reasoned action (TRA) and organisational culture with the same electronic search engines. From the roughly 318 search findings, subject-related articles were chosen; 200 relevant articles were then reviewed, and, finally, 116 articles were chosen for this study. The following criteria were considered:

- articles with reliable resources from peer-reviewed forums;
- subject relevance to the research objectives; and
- a 24-year timeframe, with the exception of the TRA articles.

In addition, the author searched for books and book chapters which had in their titles the terms organisational culture, knowledge management processes and organisational performance, again using the Hisn A'Shmookk Library Access System and a commercial retail website. Initially, around 45 relevant books and book chapters were identified, and from those, 36 were reviewed and chosen for this research. While the process for reviewing the related literatures was intended to be comprehensive, it may not have been exhaustive.

The significant antecedents associated with organisational culture and knowledge management processes were analysed. To construct a genuinely integrated linkage amongst the various perspectives, the subsequent core themes were scrutinised as follows:

- as a multi-level construct, organisational culture should incorporate analysis in relation to three conceptual levels – those of artefacts, espoused beliefs and values and basic underlying assumptions (Schein, 2004);
- artefacts can be defined as visible expressions of culture, including organisational aspects such as structures, technology and language;
- examples of espoused beliefs and values are those favouring creativity, problem-solving and working with others; and
- the link between knowledge management processes and organisational performance was identified.

In addition, the researcher decided to focus on three of the activities related to knowledge management; these are the creation, sharing and application of knowledge.

"In this research, three levels of organizational culture have been explored: artefacts, espoused beliefs and values, and basic underlying assumptions."

> **"Organizations that take their specific organizational culture type into consideration can plan strategically and make informed decisions on the type of knowledge management initiatives to carry out."**

3. Understanding the organisational culture concept

Although there is considerable research on organisational culture, there is little consistency in defining and conceptualising the term. This lack of consistency may arise because organisational culture comprises a complex, interrelated, comprehensive and an ambiguous set of factors (Cameron and Quinn, 1999). Cameron and Quinn also state that the open-ended nature of this concept has led researchers to offer a proliferation of ways to explain social behaviours (Alavi *et al.*, 2005/2006). Organisational culture can, however, be effectively defined as a complex entity of values, beliefs, behaviour norms, meanings and practices shared by personnel within an establishment (Robbin, 2004).

Unfortunately, previous literature tends to discuss only a fraction of these organisational culture aspects and fails to provide a comprehensive representation of the construct. Alavi *et al.* (2005/2006) mentioned that organisational culture is a broad term and thus inclusive in scope. Morgan (2006) mentions that there are two methods for defining organisational culture. These are: the anthropological definition, which illustrates that organisations have cultures; and, the sociological definition, which illustrates that organisations are cultures. Morgan also reveals that people from surrounding communities who become members of organisations bring their culture with them; however, that does not mean organisations do not have their own culture that shapes the behaviours that their employees need to have. Although, according to Cameron and Quinn (1999), organisations have a tendency to improve a significant organisational culture over time as the organisation adapts and deals with obstacles and changes in the environment, Yu and Wu (2009) pointed out that, at any given time, there are also expected to be trade-offs between the criteria .

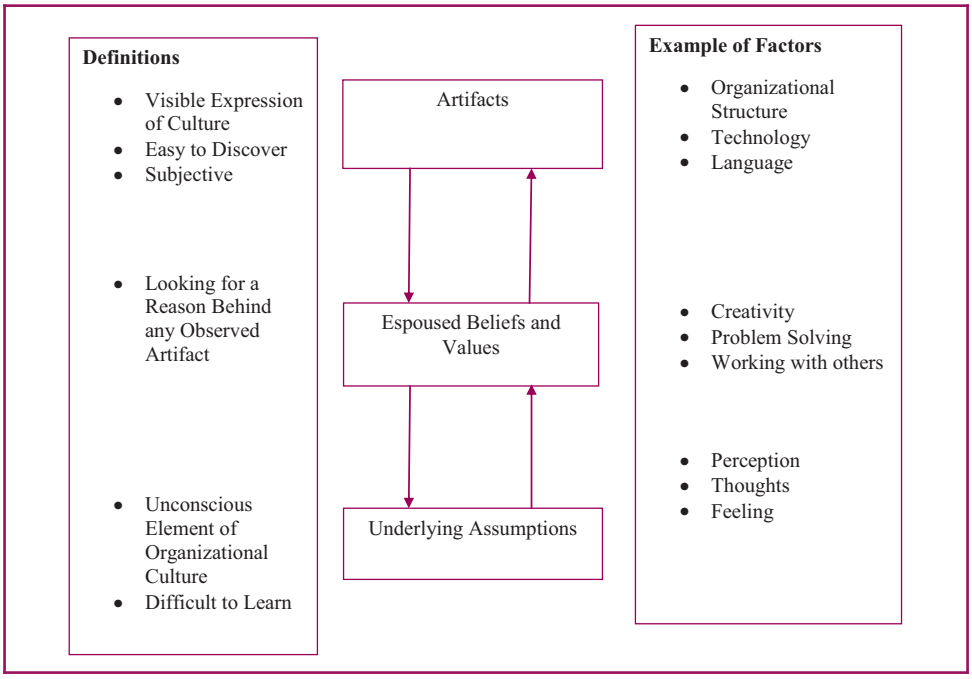
As a multi-level construct, organisational culture should incorporate analysis in relation to three conceptual levels – those of artefacts, espoused beliefs and values, and basic underlying assumptions (Schein, 2004). These levels are illustrated in Figure 1 and further elaborated on in the following sections. This paper discusses the multi-level characteristics of organisational culture as suggested by Schein (2004), and proposes a conceptual model for understanding the impact of organisational culture on knowledge management processes, and their link with organisational performance.

4. Multi-level characteristics of organisational culture

4.1 The artefacts level of organisational culture

Artefacts can be defined as visible expressions of culture, including organisational aspects such as structures, practices and processes, rituals, technology, manner of dress and language. Collectively, these visible components of the organisation are the artefacts of its culture and comprise all things that can be seen, heard and felt when an individual, unfamiliar with the culture, enters into a new group or organisation (Barrios, 2013). They are easy to discover and acknowledge, but their explanation remains difficult, subjective and ambiguous. The initial level of organisational culture might denote what individuals within an organisation are doing, but not necessarily why they are doing it (Boggs, 2002). To comprehend the meaning of these artefacts, there is a need to dig deeper and reach the second level of culture, that of espoused beliefs and values.

Figure 1 Organisational culture levels



4.2 The espoused beliefs and values level of organisational culture

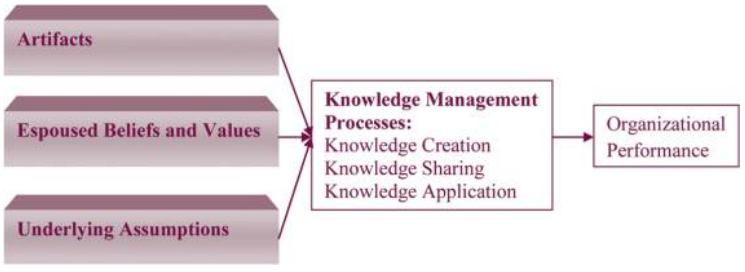
At the level of espoused beliefs and values, Schein (2004) suggests looking for a reason behind any observed artefact. Examples of espoused beliefs and values are those favouring creativity, problem-solving and working with others. In line with the previously given definition, Hibbard (1998) and White (1998) have emphasised values in defining organisational culture. However, while values are significant components of organisational culture, research has illustrated that organisations have shown more variety within themselves in practice than in values (Hofstede, 2001). The converse of these findings is that Hofstede deciphered them according to the fact that values are typically not directly visible for workers. Core values are commonly not communicated through orientation programmes, but through how the accomplished organisational employees act, speak and interpret the organisation around them (McDermott and O'Dell, 2001). For instance, in a company that strongly values technical work, people routinely have a chance to illustrate their perspectives, critique-specific methods, modify specific techniques, improve ideas and ask each other about dealing with problems (Al Saifi, 2014). Espoused values do not determine identical behaviour and working styles on every occasion, so, to comprehend the "big picture" of a culture, a close examination of the deepest cultural layer, namely, *basic underlying assumptions*, is needed.

4.3 The underlying assumptions level of organisational culture

Underlying assumptions are an unconscious element of organisational culture that comprise elements such as perceptions, thoughts and feelings, and these assumptions are extremely difficult to change (Schein, 1990). This part of organisational culture can be presented by general and abstract statements that express specific ideas and truths about human beings. This level of culture is the most difficult to relearn and change.

These elements of organisational culture and knowledge management processes and their link with organisational performance are depicted in Figure 2.

Figure 2 Conceptual model of the relationships between organisational culture levels, knowledge management processes and organisational performance



5. Knowledge management processes

In the literature, knowledge management concepts differ mainly in terms of the enumeration and labelling of processes rather than in terms of the underlying concepts themselves (Alavi and Leidner, 2001). This diversity may come about because organisations vary in their understanding of what a knowledge management effort involves. To some, a knowledge management effort is completely about information technology capabilities. To others, it is about successfully capturing and distributing internal and external knowledge. In addition, knowledge management effort is about supporting an environment where knowledge is created, disseminated and capitalised on (Barreto, 2003). This paper concentrates on the exploration of organisational culture in influencing three basic processes of knowledge management: knowledge creation, knowledge sharing and knowledge application. It is worthwhile to illustrate them in more detail.

5.1 Knowledge creation

Nonaka *et al.* (2000) defined knowledge creation as an organisational, social and collaborative dynamic process of interactions between explicit and tacit knowledge, rather than a process of tacit or explicit knowledge alone. Ang (2006) believes that knowledge creation is the activity of developing new understanding. Schulz (2001) defined three kinds of knowledge-creation processes: first, encoding existing knowledge in forms suitable for transmission – in this process, the goal is to simplify difficult cause and effect knowledge – secondly, combining existing knowledge – here, the goal is to capture current information and use it with a historical context – and, thirdly, production of new knowledge, with the goal of providing current information that provides new insights into the organisation.

5.2 Knowledge sharing

Knowledge sharing can be defined as "the act of making knowledge available to others within the organisation" (Ipe, 2003, p. 341). Similarly, Davenport and Prusak (2000) propose that knowledge sharing means providing others with one's knowledge and receiving knowledge from others. This definition signifies that every knowledge-sharing behaviours constitutes both donating or bringing knowledge together and collecting or receiving it. Knowledge sharing can also be defined as a culture of social interaction, denoting the exchange of people's knowledge, experiences and skills throughout an entire organisation (Lin, 2007). In the same way, Ardichvili *et al.* (2003), for example, observe that knowledge sharing involves both the provision of and the demand for new knowledge. Van den Hooff and de Leeuw van Weenen (2004) believed that knowledge sharing includes both the voluntary communication of one's knowledge to another, and knowledge collecting. Examples of knowledge sharers include people who are willing to share knowledge to communicate effectively with colleagues (knowledge senders) and those who effectively consult others to learn from them (knowledge receivers).

5.3 Knowledge application

Knowledge application can be defined as the business processes through which effective storage and retrieval mechanisms facilitate a firm's easy access to knowledge (Lin and Lee, 2005). The main drawback of this definition is that simple availability of knowledge does not guarantee that such existing knowledge is truly implemented. In other words, knowledge in and of itself does not produce organisational value. However, its application to create effective action does. Knowledge representation and distribution are a prerequisite to effective use of knowledge. While representation and distribution still do not ensure the utilisation of knowledge, the opportunity to use highly available and distributed knowledge does become greater (Sun and Hao, 2006).

The process of knowledge application involves retrieving and using knowledge in support of making decisions, solving problems, developing competency maps to place people in jobs and teams so as to best enhance productivity, and providing job aids and training to bring people up to speed quickly (Sagsan, 2006). As is clear from the processes mentioned previously, the application of knowledge implies a range of interventions aimed at enhancing the implementation of knowledge to find a way of dealing with human problems.

6. Implications of organisational culture for knowledge management processes

The link between organisational culture and knowledge management has been the subject of many research studies. Zheng (2009), for example, suggested a theoretical framework that combines existing research on cultural antecedents that affect knowledge management. The framework includes three cultural categories: cultural antecedents linked to knowledge, people and work. He discloses that each category impacts knowledge management in dissimilar ways relating to the effectiveness, efficiency and sustainability of knowledge management. Under such conditions, creating a culture that values the sharing of ideas is essential for knowledge management initiatives to succeed (De Long and Fahey, 2000; Gupta and Govindarajan, 2000).

De Long and Fahey (2000) considered several ways in which culture impacts the behaviour central to knowledge sharing. First, organisational culture creates the context for social interaction that establishes how knowledge will be used in any particular condition. Secondly, organisational culture shapes the process by which new knowledge is created and distributed in organisations. In addition, it is affirmed that knowledge management is nested in social settings that greatly impact its processes (Alavi *et al.*, 2005/2006). Along the same lines, Lopez *et al.* (2004) examined how organisational culture affects knowledge management. They demonstrate that effective knowledge management initiatives must take into consideration the social contexts in which the sharing of knowledge occurs. De Long and Fahey (2000) make the connection between organisational culture and knowledge easier to understand when they mention that culture forms assumptions about what knowledge is significant and can generate a context for social interactions. As can be seen from the above argument, it is reasonable to presume that over time, organisational culture facilitates more mature knowledge management practices, and also develops organisational performance.

Given the above, this study first proposes a relationship between organisational culture and knowledge management processes, as they are closely linked to each other, and, second,

"A comprehensive analysis of the impact of organizational culture could provide guidance in developing a robust knowledge management plan."

a relationship between knowledge management processes and organisational performance.

An organisational culture that supports knowledge management can lead to more effective accomplishments. Instilling a culture of standardising and maintaining information is significant for the achievement of organisational goals (McManus and Loughridge, 2002). Edvinsson and Sullivan (1996) suggested a model that recognises the significance of culture in managing knowledge by proposing that culture be considered part of the intangible structural capital that facilitates the sharing of knowledge. Such a supportive culture of knowledge management is expected to further improve the successful implementation of knowledge management practices (see, for example, Kulkarni *et al.*, 2006/2007; Lopez *et al.*, 2004).

6.1 Implications of organisational culture in knowledge creation

Three aspects of the artefacts' elements seem important for the creation of knowledge, namely: organisational structure, information technology support and language.

Knowledge management literature has recognised that organisational structure is an important antecedent to creating knowledge at work. The impact on knowledge creation from this source includes two important dimension variables: centralisation and formalisation.

Formalisation can be defined as the degree to which decisions and working relationships are governed by formal rules, standard policies and procedures (Holsapple and Joshi, 2000), which means that organisations that have explicit rules that must be strictly followed are said to be formal in structure (Oyefolahan and Dominic, 2010).

Some affirm that the creation of knowledge requires flexibility and less focus on work rules (Bennett and Gabriel, 1999; Ichijo *et al.*, 1998). The range of new ideas seems to be limited when strict, formal rules must be obeyed precisely. Flexibility can accommodate better methods of carrying out daily activities (Graham and Pizzo, 1996). By contrast, in an organisation which does not greatly stress rules and procedures, workers' behaviour in daily tasks is less formalised (Chen and Huang, 2007), giving them the independence to utilise their experiences and also the ability to collaborate with others at the same time. In line with this research, Wang and Ahmed (2003) argue that informal structure better illustrates actual organisational activities and the dynamic interaction that is vital to the creation of knowledge. Accordingly, in establishments where work processes are less formalised, members' capability to work together to promote innovative ability is expected to be high. In light of the above reasoning, the following hypothesis is developed:

H1a. Formalisation has a negative impact on the creation of knowledge.

The "centre" in centralisation can be defined as a hierarchical level that has the authority to make decisions within an organisation (Caruana *et al.*, 1998; Robbins and Decenzo, 2001; Tsai, 2002). Centralisation has also been defined as the degree to which power and authority are concentrated at the organisation's higher levels (Hall, 2002; Rainey, 2003).

High levels of centralisation in the form of a *locus* of authority can lead to decreased knowledge creation (Lee and Choi, 2003). Thus, when the organisational structure is more centralised, the ability of employees to create knowledge is expected to be limited. Hence, the following hypothesis is posed:

H1b. Centralisation has a negative impact on the creation of knowledge.

Previous studies show that information systems can play a major role in knowledge creation through their encouragement of the individual's steps towards learning, as well as through support of collaborative interactions among people (Alavi and Tiwana, 2003). The creation of new knowledge requires a range of types of information systems. For instance, information systems designed to support collaboration and steps towards communication can enhance teamwork and thereby enhance people's contact with others. Electronic mail

and group support systems have been found to increase the number of weak ties in organisations and they can, in turn, augment the process of knowledge creation (Nonaka, 1994). Through effective information system capabilities, organisations can enhance the creation of knowledge by introducing new products and services. Therefore, a positive relationship between information system support and knowledge creation is suggested. This possibility leads to expect the following hypothesis:

H2. Information systems support has a positive effect on knowledge creation.

With respect to language and knowledge creation, knowledge travels through language and every conversation is an experiment in knowledge creation, examining ideas and trying out words and concepts. Constant conversation through daily work activities continually builds both tacit and explicit knowledge (Nonaka, 1994). The role of language is further elaborated in Nonaka and Takusi's (1995) spiral model of knowledge creation, which claims that externalisation from tacit to explicit knowledge is deeply reliant on analogies, metaphors, hypotheses and models expressed through articulated language, which in turn leads us to expect the following hypothesis:

H3. Language has a positive impact on knowledge creation.

With respect to the espoused beliefs and values levels of organisational culture, three factors seem important for knowledge creation. They are: creativity, problem solving and working with others.

First, creativity is the generation of ideas, products or procedures that are novel or original, and potentially useful or practical (Amabile, 1996; Zhou, 2003). Creativity and its resultant knowledge creation hold the vital position in a creative organisation theory. In creative organisations, all elements are creative, i.e. creative process, products and employees, as well as work environment and work culture (Oliver and Kandadi, 2006; Afolabi *et al*., 2006). For creativity to be more effective, there is a need to have a systemic approach towards managing the creative, knowledge-producing process, specifically where knowledge is created, disseminated and internalised. Therefore, in this research, it is expected that the following relationship holds true:

H4. There is a positive relationship between creativity and knowledge creation.

Secondly, from a problem-solving perspective, new knowledge is created by specifying a problem and then discovering a useful new solution (Nickerson and Zenger, 2004). This argument illustrates that relevant knowledge creation happens when problems are well-defined and aligned with the organisation's goals. Employees can be involved in creative problem-solving and knowledge creation as long as the working conditions within a company are flexible enough and conducive to allowing individual and group creativity (Fillis, 2002). Accordingly, it is hypothesised that:

H5. There is a positive impact from problem solving on knowledge creation.

Thirdly, a good deal of empirical evidence in the social interaction literature shows numerous advantages of social interactions relevant to knowledge creation in organisations. People who have a history of interaction with others are more helpful and accessible (Cross and Sproull, 2004), provide more assistance and support one another (Seibert *et al*., 2001). Furthermore, some scholars when establishing the requirements of knowledge creation in terms of positive evaluations regarding diverse products and services (e.g. Cordell, 1997) mention that knowledge creation is a vital mediator between network position and the attention to individuals in practice. Lechler's (2001) empirical study manifests that social interaction within entrepreneurial teams simplifies new product development and can create innovation success.

In addition, such social interaction can add greater value to the facilitation of knowledge creation (Chua, 2002; Levin and Cross, 2004; Singh, 2005). Through effective social networks, organisations can enhance their knowledge creation capability for introducing new products and services. For employee connectedness, it is suggested that there is a

positive relationship with knowledge creation because greater connectivity implies more interactions with a diverse range of network members. This proposition leads to the following hypothesis:

H6. Working with others is positively associated with employees' creation of knowledge.

As for underlying assumptions, the researcher found only one study that illustrates employees' perception and knowledge creation. In that study, Gan (2006) affirms that individual knowledge creation must be replaced by the perception that knowledge is participatory and collaborative. Consequently, it can be hypothesised that:

H7. There is a positive relationship between perception and knowledge creation.

The possible relations between organisational culture indicators and knowledge creation, as discussed above, are depicted in Figure 3.

6.2 Implications of organisational culture in knowledge sharing

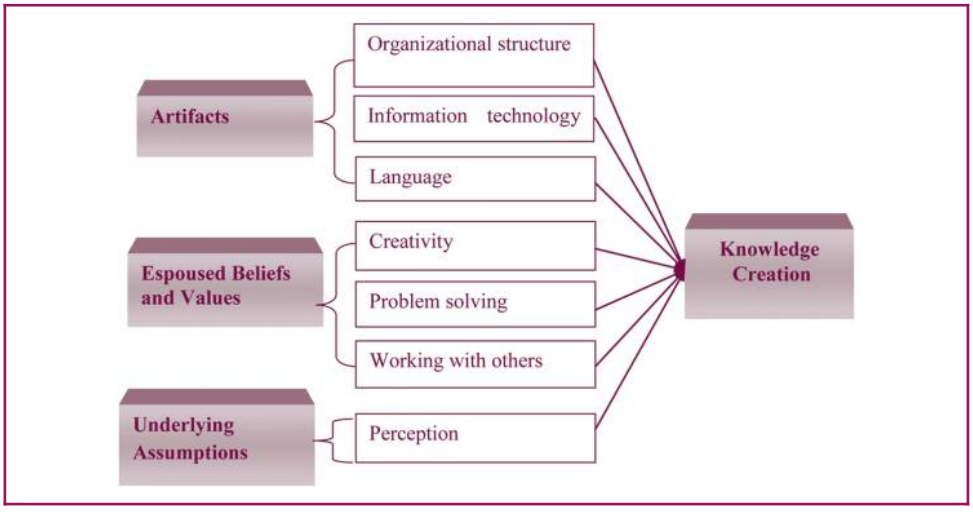
Three factors within the artefacts elements seem important for the sharing of knowledge, namely: organisational structure, information technology support and language.

Creed and Miles (1996) found that hierarchical structure in organisations restricts active knowledge-sharing activities between employees. Furthermore, it is believed that organisational structure ought to be designed for flexibility rather than rigidity to facilitate sharing and collaboration within the organisation (O'Dell and Grayson, 1998). Notwithstanding, this effect can also be facilitated by maintaining the formal hierarchical structure while adding the aspect of flexibility (Nonaka and Takeuchi, 1995). Furthermore, Chen and Huang (2007) affirmed that coordination mechanisms, which are combinations of centralisation and formalisation, are less acceptable for knowledge sharing than those concentrated on decentralisation and low formalisation. While the former type of coordination is recognised as having a low cost, it offers limited opportunities for flexibly enabling knowledge sharing (Lam, 2000). In light of the above reasoning, the following hypothesis is developed.

H8a. Formalisation has a negative impact on the sharing of knowledge.

Furthermore, because of its time-consuming procedures and the resultant distortion of ideas, centralised structure can lead to difficulty in communication and difficulty in the frequent sharing of ideas (Stonehouse and Pemberton, 1999; Lee and Less, 2007). As a consequence, decreased flexibility within an organisation's structure can result in restricted knowledge-management processes. Such a structure is unlikely to facilitate

Figure 3 Organisational culture and knowledge creation



an environment where employees participate in the knowledge-building process more spontaneously than they otherwise might. Knowledge processes require more flexibility and less focus on work rules (Ichijo *et al.*, 1998). For this reason, centralisation is not expected to facilitate timely knowledge sharing among organisational members because it facilitates the development of lateral network ties, which in turn are not expected to enhance the sharing of knowledge (Tsai, 2002). Thus, the following hypothesis is proposed:

H8b. Centralisation has a negative impact on the sharing of knowledge.

Recently, there has been increased focus on knowledge sharing due to rising optimism that knowledge-management tools offer "intelligent means" of retrieving, filtering and disseminating knowledge. Specifically, the World Wide Web's role in information retrieval has proved that this tool is a highly effective vehicle for knowledge sharing globally (Goh, 2004). The Internet can be utilised to extend the reach of communication across international boundaries and decrease the cost and time of transferring knowledge rich in content (Marwick, 2001). The Internet also expedites contact between employees who seek knowledge and those who possess it by supporting electronic discussion groups and corporate directories (Alavi and Leidner, 2001; Stenmark, 2001). In addition, more advanced communication systems with sophisticated search technologies, such as semantic network and adaptive pattern-recognition processing, support company-wide exchange of best practices by connecting people and facilitating the process of matching solutions to problems (Sambamurthy *et al.*, 2003). Furthermore, the idea the usefulness of knowledge sharing relies on an on-line community of practice has also been raised (Ardichvili *et al.*, 2006; Wasko and Faraj, 2005). The previous discussion leads to the expectation of the following hypothesis:

H9. There is positive relationship between information technology support and knowledge sharing.

A shared language is the precondition for the shared context for the social exchange process (Nahapiet and Ghoshal, 1998). Shared language goes beyond the language itself; it includes "the acronyms, subtleties, and underlying assumptions that are the staples of day-to-day interactions" (Lesser and Storck, 2001, p. 836). Al Saifi (2014) found that, in many ways, shared language influences the sharing of knowledge. First, language has a significant function in building and sustaining social networks between employees. Through shared language, employees can seek, discuss and transfer knowledge. In addition, language helps employees to make sense of words that have contextually specific meanings.

According to Wasko and Faraj (2005), shared language has the capability to affect individuals' attitudes towards sharing, discussing and adopting information. Under such conditions, language which reflects a common viewpoint becomes a significant instrument used by individuals to express and communicate in an effective and efficient manner (Tsai and Ghoshal, 1998). Furthermore, Dai (2012) found that being part of certain communities and sharing the same language and culture permits people to communicate in a common tongue, which smoothens the development of knowledge sharing. Speaking in a second language, however, is argued to offer a less rich means of sharing knowledge than speaking in one's native tongue (Feely and Harzing, 2003; Fredriksson *et al.*, 2006; Henderson, 2005). Less rich communication and language insufficiencies (Lagerström and Andersson, 2003) can, therefore, result in people having a limited knowledge of "who knows what". In conclusion, and bearing in mind the discussion set out, the following hypothesis might be put forward:

H10. There is a positive impact from language on knowledge sharing.

With respect to the espoused beliefs and values levels of organisational culture, three factors seem important for knowledge sharing, namely, creativity, problem solving and working with others.

Knowledge sharing is essential for producing creativity. Taken from the viewpoints of knowledge sharing and the autonomous motivation within the self-determination theory, knowledge sharing is positively linked to creativity performance. According to Plessis (2007) and Gong *et al.* (2012), knowledge sharing plays a significant role in creativity. In this regard, a high degree of knowledge sharing promotes an individual's creative skills (Gong *et al.*, 2012). Therefore, scholars commonly believe that individual employees are more likely to generate novel and vital creative ideas if they can access diverse knowledge by communicating with people who have a variety of expertise (Gibson and Gibbs, 2006; Sosa, 2011). In other words, to be more creative, employees need to engage with the skills and unique expertise of others. Hence, it is postulated that:

H11. Creativity has a positive impact on knowledge sharing.

Moreover, knowledge sharing has been linked to a range of desirable outcomes involving problem solving (Ipe, 2003; Nonaka and Takeuchi, 1995). Here, Gorry (2008) found that, in a networking structure, knowledge sharing will be aimed at problem solving and cooperation between employees. Jetz *et al.* (2012) too found that there is a need for teamwork and collegiality, as these are advantageous when it comes to the aim of gaining knowledge. Nickerson and Zenger (2004) argue that individual knowledge and abilities are improved through dealing with problems. To further explore the impact of problem solving on knowledge sharing, the following hypothesis is proposed:

H12. There is a positive impact from problem solving on knowledge sharing.

Additionally, working with others as a team can be viewed as one of the basic building blocks of organisations. Moshari (2013) affirms that organisations with team-oriented staff are more successful at the sharing of knowledge than those who are merely technologically driven. Thus, fostering a spirit of team work is a critical antecedent for the successful implementation of knowledge sharing. Another group of researchers affirms that social interaction can be used for a variety of individual and organisational functions which involve enhancing decision-making practices, providing messaging consistency and setting up social linkages (Mehra *et al.*, 2006; Mischen and Jackson, 2008). Hence, the following assertion is formulated:

H13. There is a positive impact from working with others on knowledge sharing.

In relation to underlying assumptions, a significant number of studies make a link between employees' perceptions and knowledge sharing. The sharing of knowledge is primarily recognised as an output of staff perceptions on and attitudes to various issues. A number of researchers have used Fishbein and Ajzen's (1981) well-known TRA to evaluate the attitude and intention toward the sharing of knowledge (Bock *et al.*, 2005; De Vries *et al.*, 2006; Holste and Fields, 2010). These studies propose that the more favourable the attitude towards knowledge sharing is, the more intention there will be. Connelly and Kelloway (2003) discussed the possibility that individuals working within a positive social interaction culture may be more likely to perceive a positive knowledge-sharing culture. This hypothesis leads to the making of the following assumption:

H14. There is a positive impact from perception on knowledge sharing.

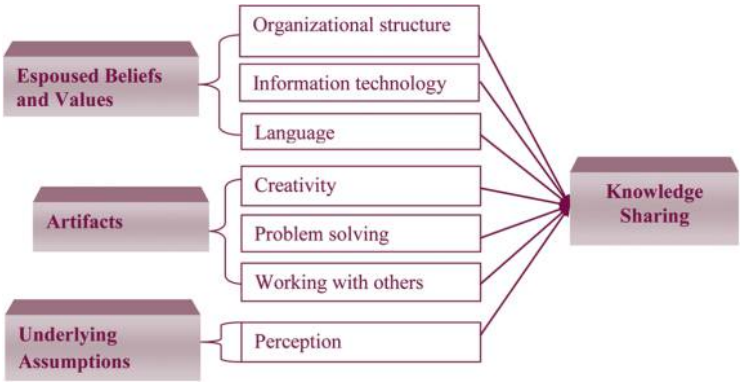
The previous discussion suggests that there is a need to shift the perspective from one where "knowledge is power", to one that says "sharing knowledge is more powerful", and also to a culture that will enable employees to capitalise on what they can, and will, do with the knowledge assets of their organisations (Dalkir, 2011).

The possible relations between organisational culture indicators and knowledge sharing, as discussed above, are depicted in Figure 4.

6.3 Implications of organisational culture in knowledge application

The three factors of the artefacts' elements that seem important for the application of knowledge are organisational structure, information technology support and language.

Figure 4 Organisational culture and knowledge sharing



As mentioned earlier, formalisation within organisations makes employees inflexible in their tasks and does not allow for the contemplation of other approaches. Under such circumstances, there is hardly any room for communication, collaboration and learning (Chen and Huang, 2007); moreover, the flexibility and speed needed for knowledge application are very limited. There are two opposing perspectives concerning the relationship of formalisation and knowledge application in an organisation (Lin and Germain, 2003). Formalised structures can be less flexible, preventing the implementation of knowledge. In light of the above reasoning, the following hypothesis is developed:

H15a. Formalisation has a negative impact on the application of knowledge.

In a comparatively centralised organisation, knowledge-applying workers will have less freedom to collaborate and use their own discretion based on their expertise and experiences. According to Pertusa-Ortega *et al*. (2010), freedom of action will encourage employees to use new knowledge. Therefore, the non-participative environment of a centralised organisation will decrease communication, and decrease the level of knowledge application accordingly. Hence, the following hypothesis is theorised:

H15b. Centralisation has a negative impact on the application of knowledge.

The information technology boom has caused companies to recognise that there has been a shift away from a resource economy based on controlling land, factory machines, raw materials and labour forces to a knowledge economy in which business value is created through the utilisation of intangible knowledge. This shift has made knowledge management of crucial importance (Yeh *et al*., 2006). Thus, information systems tools that enable the application of knowledge can possibly lead to important organisational value (Yeh *et al*., 2006). The review of the above literature makes clear that there are numerous information technology tools which facilitate knowledge application; for example, expert systems, decision support systems and intranets. Organisations that stimulate and improve information technology capabilities are more likely to encourage employees to use knowledge. This review of the information technology research literature shows, however, that it has traditionally concentrated on the issues and processes that enable the application of information technology in diverse organisational settings. Therefore, it is postulated that:

H16. Information technology positively impacts the application of knowledge.

While information technology support and knowledge application are significant, there is also a need to indicate the significance of creating an organisational environment which can facilitate the application of knowledge. Here, Asad and Muhammad Imran (2013) have

mentioned three significant trends which are creating challenges for managers in managing language. These trends are:

1. evolution of the knowledge economy;
2. globalisation of business and the economy; and
3. increasing diversity of the workforce.

That supposition leads to the making of the following assumption:

H17. There is a positive impact from language on knowledge application.

With respect to the espoused beliefs and values levels of organisational culture, three factors seem important for knowledge application. They are creativity, problem solving and working with others.

First, for creativity to be more effective, there needs to be a systemic approach towards managing the application of knowledge. However, it is hard to find a link between creativity and knowledge application because there is a lack of literature that relates to the link between such indicators. Hence, this study hypothesises that creativity positively facilitates knowledge application, and thus the following hypothesis is theorised:

H18. Creativity positively impacts knowledge application.

Secondly, solving problems implies initiating interactions with an unknown environment to collect knowledge about such an environment and to subsequently control it to reach a desired objective (Raven, 2000). In problem solving, prior knowledge about related strategies enhances the efficiency of problem exploration, according to Fyfe *et al.* (2012). Another group of researchers forge a link between employees' levels and the types of knowledge required. For example, the knowledge used by experts in problem solving is practical in nature (Arts *et al.*, 2000; Eraut, 1994). In addition, Al Saifi (2014) found that novice employees deal mainly with theoretical knowledge. By interacting and sharing tacit and explicit knowledge with others, employees enhance their capacity to apply their knowledge to act and clearly resolve specific problems (Nonaka *et al.*, 2006). Although some studies have provided much helpful information on the role of problem solving in knowledge application, that role has rarely been examined empirically. Thus it is posited that:

H19. Problem solving has a positive impact on knowledge application.

Furthermore, it is believed that obstacles to knowledge management should be overcome by working with others, and that knowledge islands should be cross-connected to stimulate the implementation of knowledge. Taking advantage of social interaction to facilitate organisational knowledge management is widely required. Kijkuit and Van den Ende (2007) argue that the extent to which a social interaction brings new ideas from that interaction between people depends on the mutual comprehension of individuals in a social interaction. If employees are unable to comprehend dissimilar knowledge, they are unlikely to be able to use that knowledge effectively in social interaction when communicating with others. The review of previous research revealed that the study of the impact of working with others on knowledge application is very limited. Hence, it is postulated that:

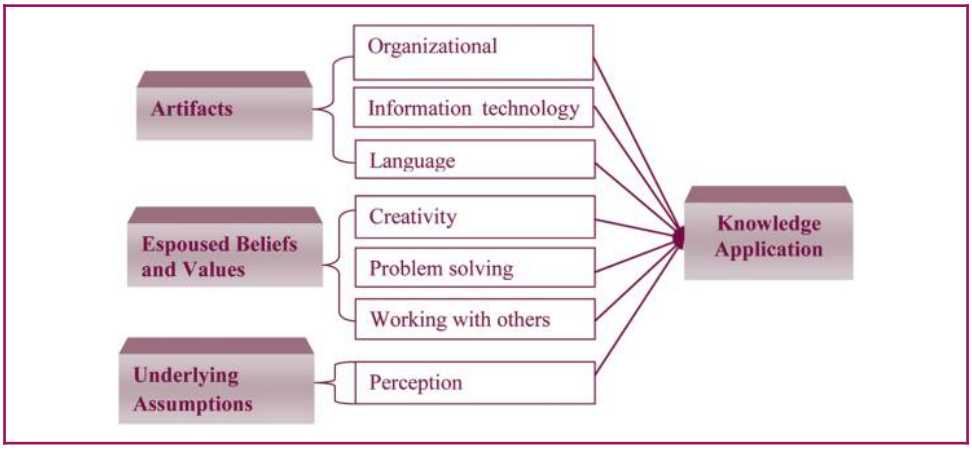
H20. Working with others has a positive impact on knowledge application.

As for underlying assumptions, the researcher did not find any study that illustrates employees' perception and knowledge application. The following hypothesis addresses the impact of perception on the application of knowledge:

H21. The level of perception is positively associated with employees' *application knowledge*.

Thus, the possible relations between organisational culture indicators and knowledge application, as discussed above, are depicted in Figure 5.

Figure 5 Organisational culture and knowledge application



7. Organisational performance and knowledge management

It has been said that knowledge and its management are connected to organisational performance (Choi, 2000). Indeed, the "connection" between knowledge management and organisational performance has become even more significant as we move into the knowledge-based economy era. There has been rising recognition of the significance of intangible assets (such as expertise, experiences and patents) to organisational performance (Drucker, 1995). One of the key factors that distinguishes this century's current globalising business situation is the concentration on knowledge management and organisational performance (Gupta and Sharma, 2004). In fact, it is not sufficient to rely only on financial measures to measure organisational performance. Hence, it is important to adopt other measurement tools that can describe specifically the performance of a knowledge-based economy. Despite there being only a few internationally accepted tools to measure knowledge management implementation (Chong, 2006a, 2006b), many researchers have claimed that the source of competitive advantage is the knowledge assets and benefits that organisations get from adopting knowledge management practices (Gonzalez-Padron *et al.*, 2010; Liu and Lai, 2011; Sulivan, 1998). Speaking specifically, knowledge management is seen as beneficial to organisations in many ways such as in its ability to optimise organisational performance.

A number of studies mention different ways to define organisational performance (Hamon, 2003; Hancott, 2005; Robbins and Coulter, 2002; Schermerhorn *et al.*, 2002). Organisational performance is an indicator which measures how well organisations accomplish their goals (Hamon, 2003). It can be defined as the efficiency and effectiveness of organisations' objective accomplishment (Robbins and Coulter, 2002). Schermerhorn *et al.* (2002) mentioned that performance refers to the quality and quantity of the accomplishments of individual or group work. Typically, the objectives of organisational performance include numerous features such as organisational effectiveness, survival, improvement or innovation (Sawhney and Prandelli, 2000). In this paper, the researcher uses Deshpande *et al.*'s (1993) and Drew's (1997) definition of organisational performance: that is, it is assessed by the use of global output measures such as market shares, profitability, growth rate, innovation, success and the size of the business in comparison with key competitors.

Numerous characteristics of organisations' environments could be determinants for the promotion and enabling of the dynamic process of knowledge creation at each of its levels (Nonaka *et al.*, 2005), and the continual process of organisational knowledge creation can have the important impact of making sure that organisational performance is amended (Nonaka *et al.*, 2000, 2005). Through all of the environmental characteristics and dynamic

processes of knowledge creation, knowledge-based organisational abilities could be enhanced in terms of including dynamic knowledge-based collaboration, an integrative problem-solving process, product-based market shares and continuous knowledge creation. Knowledge creation is expected to provide a positive contribution to convert tacit knowledge into innovative products, services and processes, and thus, ultimately, result in increased organisational performance. In conclusion, and bearing in mind the discussion set out, the following hypothesis might, therefore, be put forward:

H22. There is a positive impact from knowledge creation on organisational performance.

There has been much research exploring the relationship between the sharing of knowledge and individual work performance. In a study examining the impact of knowledge sharing on individual work performance, Kang *et al.* (2008) found that knowledge sharing improved individual work performance. In a similar study, Kim (2002) confirmed that sharing significant knowledge positively impacts on individual work performance measured by excellence, familiarity with work, frequency of compliments from supervisors, the number complaints from the public and problem solving. It can be seen from this discussion that, while some research has been done to examine the impact of knowledge sharing on individual work performance, there remains a need for further research to investigate the impact of knowledge sharing on organisational performance. Therefore, the following assertion is formulated:

H23. There is a positive impact from knowledge sharing on organisational performance.

The review of the above research has displayed that the organisational performance of knowledge application can be considered at both the strategic and operational levels. At the strategic level, knowledge application can provide sustainable competitive advantages (Johannessen *et al.*, 2001). In addition, Johannessen *et al.* (2001) further believe that knowledge makes an organisation's competencies and abilities invisible to its external environment, thus facilitating the organisations' performance, while Alvesson (2001) has recognised the implications of knowledge application on innovation.

Another group of studies examine the impact on performance of knowledge implementation at an operational level. Diverse studies report on how it facilitates and enables the effectiveness of daily decision-making in particular business operations (Johannessen *et al.*, 2001) and in multi-disciplinary problem solving (Mascitelli, 2000). In addition, studies have established the role of knowledge management processes in facilitating the effectiveness and efficiency of processes, for example, building customer relations (Salomann *et al.*, 2005; Sigala, 2005), facilitating the performance of supply chains (Hult *et al.*, 2006), assisting organisational learning (Hocking *et al.*, 2007), reducing waiting time for the market and increasing the level of innovation (Sarin and McDermott, 2003). This review of academic research reveals that the study of the impact of knowledge on organisational performance is scant. By effectively applying knowledge, employees may ultimately be able to augment organisational performance. This review of the academic research reveals scant study of the impact of knowledge on business performance. By effectively applying knowledge, employees may ultimately be able to augment organisational performance. This discussion gives rise to the following hypothesis:

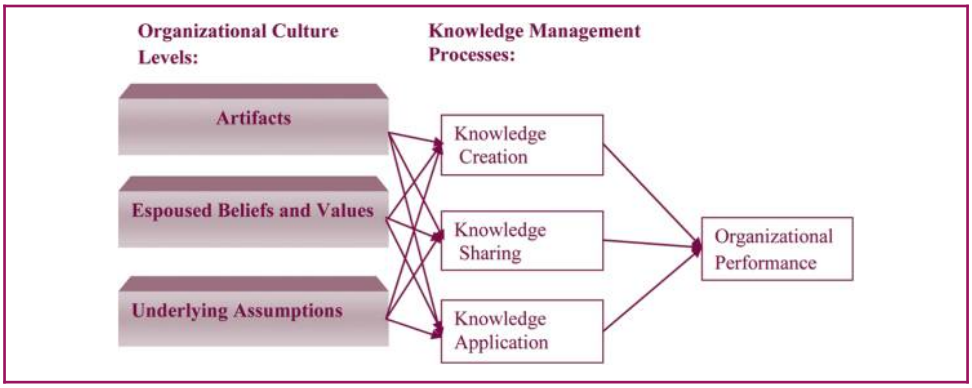
H24. The application of knowledge is positively associated with organisational performance.

Finally, the conceptualisation of the proposed relationships between organisational culture levels, knowledge management processes and organisational performance, based on the aforementioned arguments, is illustrated in Figure 6.

8. Discussion

Scrutiny of the literature illustrates the significance of organisational culture on the knowledge management processes. The paucity of empirical knowledge in this area is

Figure 6 Conceptual model of the relationships between organisational culture levels, knowledge management processes and organisational performance



explained not simply by a dearth of knowledge management studies conducted from an organisational culture perspective but also by the oversimplified representation of the organisational culture construct in the existent literature. This body of knowledge is not enough to decipher the impact of organisational culture on the successful implementation of knowledge management processes and their link with organisational performance. This study deals with the gap found in the literature on knowledge management. It does so by considering important success factors within the components of organisational culture in the evaluation of successful knowledge management implementation. The multi-level and multi-factor components of organisational culture have been considered to provide a holistic analysis of that construct in the context of knowledge management.

The aim of this paper is to propose a conceptual model for integrating organisational culture in knowledge management processes. Therefore, the discussions are devised on the basis of expected findings. Once its aim is accomplished, this study should reveal the importance of organisational culture for effective knowledge management processes. On the basis of the proposed implications of organisational culture for the three knowledge management processes, various issues warrant further analysis. It is expected that the way organisational culture impacts each knowledge management process is also dependent on the nature of the process itself.

Knowledge creation can be viewed as a group effort. Therefore, collective efforts among staff to participate in such a process depend on their mutual beliefs regarding the accomplishing of specific goals from the viewpoint of team work. Therefore, it is expected that working with others, using creativity and problem solving give rise to the creation of new knowledge. In other words, for the creation of knowledge to be more effective, the team work to make it happen is required.

Knowledge sharing enables people to come up with creative solutions and enables their organisations to introduce new products and services to the market (i.e. Morag *et al.*, 2010; Nonaka and Takeuchi, 1995; Wang and Noe, 2010). The previous discussion suggests that there is a need to shift the perspective from that of saying "knowledge is power" to one that says "sharing knowledge is more powerful", and shifting to a culture that will enable what people can and will do with the knowledge assets of their organisations (Dalkir, 2011). Therefore, the three levels of organisational culture, i.e. artefacts, espouse beliefs and values and underlying assumptions, could build an effective organisational culture that values the creation and sharing of knowledge.

Further, from the literature review, the application of knowledge implies a range of interventions aimed at enhancing the implementation of knowledge to find a way of dealing with human problems. Therefore, taken together, the three levels of organisational culture

(artefacts, espouse beliefs and values and underlying assumptions) could build an effective organisational culture that values the application of knowledge.

The conceptual model presented in this paper suggests that organisational culture contributes to organisational performance. However, this relationship could be mediated by the effects of knowledge management processes.

9. Summary

The aim of this paper is to propose a conceptual model for integrating organisational culture into knowledge management processes. Consequently, the summary is predicated on the expected findings. It is suggested that while organisational structure levels (i.e. formalisation and centralisation) negatively influence knowledge creation, sharing and application, a positive relationship between information technology and language and knowledge creation, sharing and application can be proposed. Moreover, a positive relationship between creativity, problem solving and working with others, and between knowledge creation, sharing and application is theorised. Additionally, employees' perceptions towards the creation, sharing and application of knowledge are suggested to have a positive relationship. This research proposes that knowledge creation, sharing and application impact organisational performance positively.

This study makes two sets of contributions to the existing body of knowledge in the area of knowledge management. The first set is theoretical contributions. The second is practical in nature.

This study contributes to the theoretical arena of knowledge management in the following ways. The first theoretical contribution to research comes from the theoretical framework illustrated in this research, which has been heavily influenced by academic literature. In this research, three levels of organisational culture have been explored: i.e. artifacts, espoused beliefs and values, and basic underlying assumptions. However, to understand knowledge management processes, there is a need to understand how such processes occur in practice. The ultimate outputs bridge the academic and the practical and, thus, give the reader a better picture of what is reported in previous literature and how knowledge management processes happen in reality. To be more specific, this research has put forth a comprehensive model of the nature of the relationships between organisational culture levels and knowledge management processes, and their link with organisational performance. The significance of this model is derived from the fact that despite the current increase in the popularity of extensive research on knowledge creation, sharing and application there is no comprehensive and integrative model for examining the relationships between the above variables. Many studies of knowledge management (i.e. Chakravorti, 2011; De Long and Fahey, 2000; Gold *et al.*, 2001) consider that the effects of organisational culture are vital to the success of knowledge management, specifically to the sharing part of knowledge. Nevertheless, many scholars fail to close the gap in comprehending the impact of organisational culture on the application of knowledge. This paper highlights the multi-level characteristics and multi-factorial levels of organisational culture. Furthermore, it suggests that the evaluation of knowledge management success and effectiveness should reflect the integrative factors of organisational culture.

The implications of this research have great value for organisations as they prepare to execute knowledge management. Organisations that take their specific organisational culture type into consideration can plan strategically and make informed decisions on the type of knowledge management initiatives to carry out. This preparation is of paramount significance because organisations make important investments in terms of time, money and personnel when they embark on knowledge management implementation (Becerra-Falezernandez *et al.*, 2004; Parikh, 2001). A comprehensive analysis of the impact of organisational culture could provide guidance in developing a robust knowledge management plan. In addition, further analysis of organisational culture and its link with

knowledge management processes would most likely provide new insights and explanations related to the increasing number of knowledge management initiative failures. By focusing on the cultural antecedents that define an organisation's culture, an organisation can take small steps towards enhancing its knowledge-centred culture.

Although this study contributes to the body of research in the domain of knowledge management – specifically, the impact of organisational culture on knowledge management processes and their link with organisational performance —, it suffers from three possible limitations. The first is that the study did not explore all elements of organisational culture. The second limitation is that the research discussion rests on the researcher's interpretation and analysis, leaving open the possibility that the data might have been interpreted differently by other researchers. The third limitation is that the discussion in this paper remains at a conceptual level. Hence, there is a need to first examine the relationship between organisational culture and knowledge management processes, and then, to show that there is a link between them and organisational performance.

Future research efforts within this field are required to further investigate the findings of this research, as it will create a better understanding of the influences of organisational culture on knowledge management processes and their link with organisational performance.

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