Communities of practice as an initiative for knowledge sharing in business organisations: a literature review

Abobakr Aljuwaiber

Abobakr Aljuwaiber is a Lecturer at Community College, Taibah University, Al-Madinah Al-Munawwarah, Saudi Arabia.

Abstract

Purpose – This paper aims to review the research and to summarise the evidence on communities of practice (CoPs) as a tool for sharing knowledge. It will highlight the related literature from the past two decades by looking at potential barriers, solutions and influential factors regarding CoPs within business organisations.

Design/methodology/approach – The study consists of a constructed approach to determine the sources for the review that covers relevant literature on the topic of CoPs.

Findings – This paper provides insights about the important role of CoPs in fostering knowledge-sharing within business organisations. It suggests that the impact of globalisation has encouraged many business firms to intentionally establish CoPs as a vital tool for knowledge management (KM) initiatives. It also appears that the importance of the three organisational factors – top management, structure and culture – lies in their ability to have a direct effect on intentionally established CoPs within business organisations.

Research limitations/implications – The paper suggests a number of ways in which intentionally established CoPs can be developed within business companies. This paper limited its review to three organisational factors. Investigation of other organisational factors is needed.

Originality/value – This paper provides a detailed insight into the management literature on CoPs as an initiative for knowledge sharing within business organisations.

Keywords Information technology, Knowledge sharing, Communities of practice (CoPs), Knowledge management (KM), Knowledge management system (KMS)

Paper type Literature review

Introduction

The rapid growth of scientific and practical knowledge in all aspects of life and at all levels – individual, organisational and national – requires the promotion of existing knowledge to produce new knowledge and to bring that knowledge into action (Alavi and Leidner, 2001). Francis Bacon's words "Knowledge itself is power", later shortened to "Knowledge is power" (Brown, 1989, p. 3) has opened the door for researchers and businesses alike to investigate the role of knowledge in improving business performance and gaining a sustainable competitive advantage. There are two types of knowledge. One is *explicit* knowledge, which refers to articulated knowledge that can be expressed in words and numbers and can be transferred easily among humans. The other is *tacit* knowledge, which refers to skills, wisdom and personal experiences that are embodied in someone. This knowledge is hard to visualise, requires interaction and can be shared effectively only through informal learning processes (Nonaka and Krogh, 2009). In some ways, knowledge management (KM) is a means for the survival of a company in a new competitive business world (Awad and Ghaziri, 2007). Hence, managing knowledge assists organisations to consider their knowledge assets and learn how to leverage them usefully (Goh, 2002).

Despite the importance of KM in organisational development, Wenger (2004) claims that managing knowledge through information systems is not enough for the improvement of

businesses. He argues that communities of practice (CoPs) could provide a new approach for companies so that their employees interact socially to share their knowledge and learn from each other informally. CoPs can be defined as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger, 2011, p. 1). According to Wenger (1998), the characteristics of a CoP are on three dimensions. *Mutual engagement* refers to the extent to which members interact with one another and form their own relationships and culture. *Joint enterprise* refers to the common purpose that binds people together and builds relationships that enable them to work on a specific interest. *Shared repertoire* refers to the continual development of the community, through which members produce sources over time through participation (these resources include, for example, procedures, techniques, forms, stories, tools and concepts).

The purpose of a literature review is to enable researchers to expand their scientific awareness of the theoretical framework of previous studies, to contribute to knowledge. This paper will contribute to the literature by providing a holistic review that focuses on CoPs as a KM initiative implemented in business companies. This paper is organised as follows. The first section presents a review of the existing management literature on knowledge sharing, starting with a discussion of the importance of knowledge sharing in the era of knowledge economy and related issues. The next section provides a historical background for CoPs and how they have been investigated widely in the past decade, followed by an overview of the evolution of the notion of CoPs in business environment. The final section presents a discussion of the role of knowledge sharing in CoPs, followed by an overview of CoPs in Western and non-Western contexts.

Literature review approach

Writing a literature review can be done in several ways. This paper follows the suggestions by Webster and Watson (2002), adopting the following steps to achieve a constructed approach to research of the sources for this review. First, leading journals are recommended as the first step in writing a literature review, as the major contributions in the field are likely to appear in the leading journals. Conference proceedings were also considered during the review. "Google Scholar" was the main search engine used. Keywords including "knowledge sharing", "communities of practice", "knowledge management" and "organisational learning" were used to identify relevant articles with respect to their titles, author supplied keywords and author supplied abstracts. Second, the citations in the articles identified in the first step were used to locate further sources relevant to the subject. Third, Web of Science was used to search the database of Social Sciences Citation Index for articles that cite the key articles identified in the previous steps. Following this, it was determined whether the articles were relevant enough for inclusion.

Knowledge sharing

Knowledge sharing refers to the process that occurs at various levels including interpersonal, between individuals to groups, between groups or with entities across and beyond organisational boundaries (Alavi and Leidner, 2001).

While many companies adopt KM initiatives in their business activities, it is still arguable that knowledge sharing is problematic, particularly in the case of tacit knowledge. Nonaka

(1994) suggests that knowledge within an organisation can be created through four modes of conversion: socialisation (tacit to tacit), externalisation (tacit to explicit), internalisation (explicit to tacit) and combination (explicit to explicit). As the socialisation mode is associated with shared experiences and practices, self-organised groups use socialisation as the dominant mode in their overall knowledge creation process. Recent studies emphasise the importance of tacit knowledge sharing processes that do not merely convert explicit knowledge using technology (Murillo, 2011, Brown *et al.*, 2013, Pyrko and Dörfler, 2013). Apparently, this adds value to tacit knowledge, which is not easily obtained, because it is embodied in an individual's mind. People may avoid relying on knowledge management systems (KMS) and use their own informal social networks to acquire knowledge.

The impact of information technology on knowledge sharing

Many companies have been investing heavily in KM technology as a tool for sharing explicit knowledge and coding this knowledge to store it in KMS documents (Hansen and von Oetinger, 2001). Walsham (2001) claims that KM should not abandon the use of computing systems (e.g. KMS). It is important to transfer explicit knowledge between individuals across the organisation and make knowledge available for everyone, including new employees who can go back to KMS to obtain information needed from experts. However, observations from recent studies about the feasibility of relying on technology to share tacit knowledge are notable. For example, Arling and Chun (2011) examined a KMS called AskMe. This is a social system that enables employees to share and create knowledge through interaction. The researchers examined the use of AskMe in increasing networking between scientists and engineers at PrattwhitneyRocketdyne. AskMe also aims to help engineers to find and contact knowledge experts, knowledge communities and share frequently asked questions. However, the researchers found that "text-based technology", though sophisticated, did not support the direct discussion of tacit-to-tacit knowledge. People prefer to get feedback and assistance through person-to-person sharing, rather than codification-based KMS. It is likely that, while technology is appropriate for sharing explicit knowledge, direct personal contact is more effective for sharing implicit knowledge and increasing the chance of creativity and innovation.

A study by Brown *et al.* (2013), in a service organisation in Canada, found that individuals will seek knowledge from people they know, regardless of the company's KMS. This is true particularly for new employees as they build upon their relationships (Wenger *et al.*, 2002). Brown *et al.* (2013) stressed the importance of the nature and the structure of individual social networks as elements for "knowledge-sharing practice" in organisations. They expected knowledge to be shared on a person-to-person basis, assisting a knowledge transfer outside a formal KMS. However, the results were contrary to their expectations, as they found that codified knowledge had no significant influence on KMS in a person-to-person knowledge sharing process, particularly for those who had been in post for a long time. Brown *et al.* (2013) claim that the complexity of the task may increase interaction in person-to-person knowledge sharing. They emphasise the role of social networks in this sharing process. Moreover, Brown *et al.* (2013) wonder if the codified knowledge in KMS did affect person-to-person knowledge sharing. They suggest that it would be important for further investigations to understand the meaningful relationship between the two. As Brown *et al.* (2013) studied an organisation in the service sector that may differ from the non-service sector, more research is needed in the non-service sector.

"**Technology inhibits transfer of tacit knowledge and results in a loss of direct human interaction.** "

While there can be a divergence between the effectiveness of technology in transferring and sharing tacit knowledge within a company, and how such sharing or transferring is actually done, this divergence occurs because people may avoid relying on technology (e.g. KMS) and use their own social networks to acquire knowledge (Hansen and von Oetinger, 2001). This opinion is supported by Wenger (2004), who argues that companies do not use KM unless they encourage people to use knowledge actively in the process. His argument is based on the fact that, while technology is used for information flow within an organisation, people (who are the main knowledge sources) decide what knowledge needs to be documented and what should be possessed tacitly. Hansen and von Oetinger (2001) argue that direct personal contact is missing in information technology. They suggest an approach such as T-Shaped Management, which helps liberate one from the traditional company hierarchy to share knowledge freely and encourage participation and collaboration across the company.

The central issue observed here is that some KM initiatives could consider using technology to enable knowledge sharing. It is likewise the case with CoPs that KM initiatives are used to facilitate knowledge sharing within the company. The absence of social interaction is highly noticeable when technology is applied.

Communities of practice: historical background

The concept of CoPs has grown in influence within the social sciences and has become an area for empirical research and investigation since the early 1990s. The notion of CoPs was first adopted in educational settings as a social theory of learning (Lave and Wenger, 1991), and later by businesses as a KM approach (Wenger, 1998; Wenger et al., 2002; Wenger, 2004; Hughes et al., 2007). Orr (1990), in his ethnographic study at Xerox, explains how informal networks can improve the workplace and "get the job done". Brown and Duguid (1991) examined Orr's findings and investigated how people can improve learning and innovation, not only in conventional forms but also through informal CoPs. Moreover, Brown and Duguid's (1991) work was developed for business communities based on Lave and Wenger's (1991) practice based theory of learning. Brown and Duguid (1991) noticed that the work of researchers such as Orr, Leave and Wenger could not be separated from each other, in theory and in practice.

Lave and Wenger (1991) have recently been considered as influential theorists for situated learning, as they have spent time studying the notion of CoPs in learning contexts. Lave and Wenger (1991) argue that learning is a process that takes place in situated contexts of practice through participation frameworks and group activities. This is rather than through focusing on the learning of the individual or receiving it from one source, such as in the classroom. Lave and Wenger (1991) discuss the concept of *legitimate peripheral participation* as the core process in CoPs, using the example of five apprenticeships as a learning model. They discuss how midwives, meat cutters, naval quartermasters, nondrinking alcoholics and tailors learned through engaging in practice and acquisition of knowledge from other participants. They argue that to become full members of CoPs, it is important for practitioners to take part in social interaction and mutual engagement. Over time, a way of learning among participants becomes an informal and dynamic social structure; thus, a CoP establishes itself (Lave and Wenger, 1991). However, in subsequent works, as Engeström (2007) observes, Wenger (1998) distanced himself from the concept

of legitimate peripheral participation in apprenticeships, as he realised that the communities have increasingly problematic and permeable boundaries.

Lave and Wenger's work did not investigate organisational dimensions, such as management and information systems. Gherardi (2006) argues that the organisational dimensions of learning were absent in Lave and Wenger's (1991) study of the five apprenticeships. This appears to be because Lave and Wenger became more interested in the shared features that enabled them to describe how newcomers actively use work settings for learning and how identity and motivation are generated where newcomers move towards full participation. Gherardi (2006) also argues that the social theory of learning that is used in Lave and Wenger's study stands in opposition to the cognitive theory of learning. Cognitive theory looks at learning as a way of knowing the world, whereas the social theory of learning conceives learning as a way of being in social relationships and not in the heads of individuals (Gherardi, 2006).

With regard to the use of the term "Communities of Practice", it is obvious that a major part of the existing literature uses the notion of CoPs. However, it can be noted that various phrases have been used in different names, particularly in the business environment. Examples are networks of practice (Wasko and Faraj, 2005), knowledge communities (Barrett et al., 2004; Yamazaki, 2008), community of practitioners (Gherardi, 2006), collectivities of practice (Lindkvist, 2005), communities of knowing (Boland and Tenkasi, 1995), occupational communities (Bechky, 2003), strategic communities (Kodama, 2005), brand community practices (Schau et al., 2009) and organisational CoPs (Kirkman et al., 2011, 2013). This diverse phraseology has obfuscated the concept of CoPs.

The role of knowledge sharing in communities of practice

Due to rapid developments and changes in the business world, knowledge and learning have become essential for organisations to understand the creation and transfer of knowledge through practice (Roberts, 2006). Notably, the existing literature in management studies, particularly that which discusses the improvement of knowledge sharing within organisations, suggests implementing CoPs as a tool for fostering the learning process (Ardichvili et al., 2003; Jeon et al., 2011; Zboralski, 2009). As mentioned earlier, KMS most often does not achieve KM strategy objectives. Murillo (2011) claims that KM initiatives have to consider intra-organisational informal networks, such as CoPs. Therefore, CoPs have become an influential tool to facilitate knowledge sharing in a wide range of organisational settings. The view is supported by Wenger (2004) who convincingly argues that CoPs are the cornerstone of KM and the place where people can interact and share knowledge effectively.

Different studies have different results when investigating the effectiveness of CoPs as a tool for knowledge sharing. However, most agree that CoPs play a vital role in enhancing knowledge sharing among community members. For example, in the business environment, Probst and Borzillo (2008) found that exchanging tacit knowledge through CoPs could reduce learning time for new employees. At Siemens, for instance, engineers from different divisions exchanged technical "know-how" on how to build improved automotive systems. Probst and Borzillo (2008) underline, however, that exchanging expertise relies on the common interest of members to learn together. Zboralski (2009) studied the role of community members' motivation to share knowledge. She found that

> "... the main concern of senior managers should be how to develop effective KM initiatives, such as CoPs, which assist in improving knowledge sharing and the exchange of ideas."

less-motivated members will not exchange knowledge actively due to lack of trust, cohesion and positive communication.

Knowledge sharing within CoPs also helps in solving problems. Retna and Ng (2011) noticed that mutual engagement between community members helps provide advice, solutions and acquisition of new knowledge. Therefore, a person who faces a problem will examine information from different sources and respond to the customer appropriately. For example, Corso et al. (2009) examined the Chrysler Corporation's dilemma when the company was about to go out of business due to other major car manufacturers, owing to the traditional manufacturing culture at Chrysler. Tech Clubs emerged within Chrysler in response. Informal meetings were conducted between engineers, designers, line workers and managers. This assisted in fostering the learning process and the flow of knowledge in the community, with ideas being spread between members. Furthermore, Tech Clubs reduced the great costs involved in repeating mistakes.

While CoPs have knowledge sharing benefits, there is a different perception of them with regard to retaining knowledge within an organisation. Pyrko and Dörfler (2013) indicate that knowledge sharing is a mutual learning process that requires social learning spaces. They note that CoP members can easily leak knowledge outside of the organisational boundaries. They argue that experts are more loyal to their disciplines than to the organisations they work for. This is similar to the arguments of Brown and Duguid (2001) and Swan et al. (2002) that, while CoPs develop, the "epistemic differences" between communities may extend the scope of knowledge sharing beyond organisational boundaries, particularly regarding the aspect of innovation.

CoP members can communicate and exchange their knowledge either via face-to-face interactions or virtual ones. However, some studies (Ardichvili et al., 2003) argue that knowledge networks are not designed to replace "face-to-face communities" with virtual ones. His argument is based on the premise that participants, having never physically met, may not know each other, thus rendering virtual CoPs superfluous among people who are members of a tight-knit face-to-face community. Taking into consideration the importance of virtual networking, there may be no difference between using KMS and virtual CoPs, as both rely on technology in communication (Ardichvili et al., 2003). The consequence is that technology again inhibits transfer of tacit knowledge and results in a loss of direct human interaction, as suggested by Lave and Wenger (1991).

Schenkel and Teigland (2008) found that levels of trust and confidence are reduced when individuals move to different locations to work. These levels increase when they meet face-to-face again. In contrast, Jeon et al. (2011) found that if there are no organisational supporting systems [such as information system (IS) support], then knowledge sharing activities within CoPs may not spread. Despite this, there is increasing interest in establishing virtual CoPs, particularly in geographically diverse companies, such as multinational companies (Corso et al., 2009). Kirkman et al. (2013) found that communication media, such as email, instant messaging and knowledge repositories, were all connected with higher CoP performance in global settings. However, they stressed the importance of face-to-face meetings, videoconferences and teleconferences for higher OCoP with nationality diversity. Wang and Noe (2010) propose further research into how perceived benefits and costs may differ in face-to-face knowledge sharing communities compared to an electronic KMS. Agrawal and Joshi (2011) and Wang and Noe (2010) also suggest further research to compare different types of CoPs, such as virtual CoPs and face-to-face CoPs. Further research will conclusively show which is better for effective knowledge sharing.

Knowledge-intensive firms have compelled companies to enhance the culture of knowledge sharing, particularly tacit knowledge sharing. The CoPs therefore play a significant role in the codification of tacit knowledge and help people to deal with their work tasks.

Communities of practice in business environments

There are many studies which discuss CoPs in different disciplines, such as higher education (Hodgkinson-Williams *et al.*, 2008), health care (Li *et al.*, 2009) and business research (Lave and Wenger, 1991; Roberts, 2006; Wenger, 2011). Businesses implement CoPs to link the employees between different organisations and across independent business units (Wenger *et al.*, 2002). There is the suggestion that CoPs are for KM practices within organisations (Wenger *et al.*, 2002; Ardichvili *et al.*, 2003; Wenger 2004; Annabi *et al.*, 2012, Jeon *et al.,* 2011). However, CoPs should not be a part of the KM organisational structure but instead used as a context for a special type of organisational learning. A case study within a professional bureaucracy by Harvey *et al.* (2013) observed that CoPs may not always serve all types of organisations. They argue that CoPs should be seen as a social phenomenon rather than as an organisational learning tool. Consequently, there is a need for more case studies on CoPs within organisations to contribute to the development of more appropriate KM practices (Harvey *et al.*, 2013).

Yamklin and Igel (2012) showed the importance of developing an effective KM tool through CoPs, which can identify and share practices to improve business performance. Generally, CoPs play a vital role in sharing explicit and tacit knowledge, connecting people, solving problems, fostering innovation, raising awareness and creating new business opportunities (Wenger *et al.*, 2002; Wenger, 2004). Nevertheless, most studies on CoPs in business organisations focus on building and designing CoPs (Corso *et al.*, 2009; Thompson, 2005), the effectiveness of CoPs (Hemmasi and Csanda, 2009) and the success and failure factors of CoPs (Zboralski, 2009). There is insufficient evidence in empirical studies that have examined the role of CoPs in community activities, such as fostering the innovation process (Harvey *et al.*, 2013) or CoPs' leadership and governance committees (Probst and Borzillo, 2008).

The impact of globalisation, on the other hand, has spread worldwide and intense competition between businesses has increased and influenced economic, political and social settings (Wenger *et al.*, 2002). In response to this, a number of companies have begun to support CoPs as their KM strategy (Hemmasi and Csanda, 2009). The existing literature suggests that multinational and international organisations from different sectors are increasingly motivated to create CoPs (Thompson, 2005; Ardichvili *et al.*, 2006; Probst and Borzillo, 2008; Corso *et al.*, 2009; Kirkman *et al.*, 2011, 2013). Table I presents studies using CoPs. Moreover, most companies have considered using virtual CoPs to foster knowledge exchange processes (Ardichvili *et al.*, 2003). Dube *et al.* (2005) argue that due to geographical distances and busy schedules, virtual CoPs make communication much easier and more efficient than meeting face-to-face. However, little attention has been paid to examining the effectiveness of mechanisms for knowledge sharing (Kirkman *et al.*, 2011; Wang and Noe, 2010).

Roberts (2006) argues that the rapid pace of change complicates the development CoPs in the business environment. She indicates that restructuring, downsizing and outsourcing are common occurrences that are not congenial to the development of trusting communities. However, there are independent CoPs in businesses which may take a role in the creation and transfer of knowledge. Hildreth and Kimble (2004) argue that CoPs are always a proper tool for KM in business organisations. Their argument is based on the idea

Table I	Examples of studies in CoPs in different sectors
Sector	*Source*
Oil	Wenger *et al.* (2002)
Marketing	Schau *et al.* (2009)
Insurance	Hemmasi and Csanda (2009), Corso *et al.* (2009)
Computing	Hamel (2000)
Manufacturing	Probst and Borzillo (2008), Wolf *et al.* (2011), Su *et al.* (2012)

that CoPs are self-managed and self-directed. Any contribution may be of uncertain value to the organisation. McDermott (2000), on the other hand, states that CoPs are not sustainable if they are not supported by business units. He identifies four management challenges to cultivating CoPs:

1. focusing on themes important to the business and community members;

2. appointing a well-respected community member to direct the community;

3. making certain people allocate time and encouraging them to participate; and

4. relying on the core values of the organisation.

These suggestions for the smooth working of CoPs are also described in other studies (Annabi *et al.*, 2012; Harvey *et al.*, 2013; Hemmasi and Csanda, 2009; Probst and Borzillo, 2008; Retna and Ng, 2011).

Researchers also note that large organisations should use CoPs as a mechanism to facilitate KM initiatives (Wenger *et al.*, 2002; Roberts, 2006). Kirkman *et al.* (2013) argue that more research is required to maximise the benefit of CoPs, particularly in large organisations whose members are globally distributed. For example, Shell Oil relies on CoPs to protect its technical excellence across multiple business units, geographical regions or project teams (Wenger *et al.*, 2002).

In companies, the incentives to establish CoPs are various. Several studies have uncovered the reasons motivating people or organisations to form CoPs. For example, some of these CoPs have been established to create the value of a company's brand (Schau *et al.*, 2009), generate knowledge and innovation for a competitive advantage (Brown and Duguid, 1991; Kirkman *et al.*, 2013), improve members' performance (Hemmasi and Csanda, 2009; Schenkel and Teigland, 2008) and lower costs and increase revenue (McDermott and Archibald, 2010; Probst and Borzillo, 2008).

The argument above accentuates the importance of conducting further research into the business realm, particularly in large companies, to obtain evidence to help improve CoPs in business settings.

Communities of practice and their deliberate establishment

The prevailing framework of establishing CoPs in business organisations draws on the perception of Wenger *et al.* (2002), who assert that CoPs are self-organised configurations that succeed only when created informally. However, it has recently been argued that even intentionally formed CoPs (sometimes clarified as organisational CoPs) can be successful (Agrawal and Joshi, 2011; Annabi *et al.*, 2012; Dubé *et al.*, 2005; Kirkman *et al.*, 2011, 2013).

Studies have revealed the need for organisations to assign official sponsors and facilitators for their CoPs (Annabi *et al.*, 2012), assign CoPs leaders (Retna and Ng, 2011) and steer CoPs with a governance committee (Probst and Borzillo, 2008), to maximise the benefit of CoPs. McDermott and Archibald (2010) argue that CoPs will be more effective when they have clear accountability and management oversight. However, this contrasts with Wenger *et al.*'s (2002) insistence that CoPs should self-emerge with no interference from an organisation.

Yamklin and Igel (2012) did three case studies of CoPs in the manufacturing sector in Thailand to understand how they contributed to achieving tangible organisational performance objectives. Two of the CoPs were intentionally created and supported by management, whereas the other was spontaneously formed. They found that assigning formal responsibility in CoPs activities affects individual performance. Furthermore, Yamklin and Igel (2012) found that allocating obvious activities to CoPs is important to deliver tangible benefits. As a result of this, CoPs receive attention from management that will reflect positively on the community, whose ideas and suggestions are revised and implemented within the firm. However, it has been suggested that further studies should be

conducted in other organisations with different cultures in different countries, to investigate the different types of CoPs (intentionally and spontaneously created) and explore their impact on organisational performance. Moreover, more research is needed on whether CoPs that target short-term goals, such as productivity, deliver operational benefits to the organisation in the long run (Yamklin and Igel, 2012).

Another study by Su *et al.* (2012) in the aerospace industry found that formalised CoPs in organisations provide "quality" knowledge and assign responsibilities to specific members, so that they will not abandon a CoP. Kirkman *et al.* (2013) go further. They suggest that organisational communities of practices (OCoPs) are more effective when the responsibilities are divided among members with no formal retributions for success or failure (Table II for the differences between OCoPs and traditional CoPs). They argue that OCoPs can be distinguished from traditional CoPs and organisational teams as more formalised, purposeful and bounded. However, Wolf *et al.* (2011) argue that formally established CoPs remain unclear in terms of their impact on the company's performance. Future research should compare formal and informal CoPs to explore their potential effect within organisations.

Though there are successful examples of intentionally created CoPs within organisations, a recent case study by Harvey *et al.* (2013) investigated the purposeful design and development of CoPs. The researchers used the example of professional bureaucracies among the most prominent Canadian labour unions. They found that badly planned and organised CoPs could fail as KM tools. They argue that the features that make CoPs an ideal tool for learning – such as shared perspective on domain, trust, longstanding relationship, a communal identity and established practice – cannot be designed. Harvey *et al.* (2013) support the idea that CoPs should emerge spontaneously and evolve over time (Brown and Duguid, 1991; Lave and Wenger, 1991). Harvey *et al.* (2013) note that organisations should allow CoPs to grow naturally and sustainably rather than force their development. Although their study failed to purposefully design and develop CoPs, the authors argue that helping CoPs to emerge is important to put the right people in projects most likely to create CoPs, whose members interact regularly, establish common interests and build trust and reciprocity, thus allowing knowledge to flow more easily. They recommend further study to ascertain if CoPs only suit specific organisations.

In summary, companies in recent years have been considering forming CoPs intentionally, giving them a space of flexibility to work informally. However, this is a new area that needs far more empirical investigation. According to Wolf *et al.* (2011, p. 36):

> [. . .] it remains unclear whether the formal establishment of communities of practice has any impact on their performance and future research should compare formal with informal communities to control for this potential effect.

Table II	The key differences between OCoPs, traditional CoPs and formal teams		
Factor	OCoPs	CoPs	Formal teams
Task mission	Knowledge sharing and codification of information	Emergent from the community	Mandated by the organisation
Membership	Membership boundaries	Voluntary	Appointed
Leadership	Facilitative	Emergent and dynamic	Defined explicitly
Task interdependence	Permeable, rather than stable	Lower	Higher
Structure	Long term to develop a body of knowledge	Emergent	Designed
Accountability	External, no formal sanctions	Flowing from internal, social sanctions	External, formal sanctions
Resources	Coming from the organisation	Coming from members	Coming from the organisation
Source: Adapted from Raven (2003) and Kirkman *et al.* (2013)			

The role of organisational factors influencing communities of practice within business companies

Research has increasingly shown the need to change the perceptions of organisations and their employees regarding the influence of the three organisational factors – top management, culture and structure – on CoPs' roles (Annabi et al., 2012). Retna and Ng (2011) argue that CoPs' activities positively support organisational goals when organisational culture and top management support CoPs. Dubé et al. (2005) indicate that the style, culture and structure of organisations seem to most determine success or failure of CoPs at the launching stage. Recent studies indicate a growing trend among organisations to encourage intentionally established CoPs, while there is a trend among researchers to explore the influence of organisational factors on CoPs' activities (Annabi et al., 2012; Idris, 2007; Kirkman et al., 2013; Li et al., 2009; Siau et al., 2010; Walter et al., 2013; Wolf et al., 2011). The prominent organisational factors that impact on CoPs' activities will now be discussed.

Top management and communities of practice

Top management plays a vital role in the success or failure of CoPs' activities. It is argued that top management may find it a challenge to decide whether it is worth feeding CoPs with resources. Lave and Wenger (1991) argue that management can establish a team for a specific project, but cannot form a CoP. However, members who are involved in a project acquire the ability over time to establish their own CoPs. Additionally, with CoPs becoming an approach for KM initiatives, many organisations have begun to facilitate the emergence of CoPs and support them to achieve the aims of the project (Roberts, 2006).

Arguably, it is difficult for top management to assess the benefits of providing emergent CoPs with resources, as they are fundamentally informal by definition (Hislop, 2013). Though top management plays a vital role in supporting CoP activities (Annabi et al., 2012; Borzillo, 2009), CoPs are self-managed with self-controlled membership and setting of objectives (Hislop, 2013; Lave and Wenger, 1991). CoPs are often merely ratified by top management through governance committees (Fallah, 2011). Thus, CoP leaders work as a bridge between the formal structure of the organisation and the whole CoP to provide official sponsorship and support. However, the existing literature remains undecided about how top management can support CoPs without control (Borzillo et al., 2011). Annabi et al. (2012, p. 3877) suggest further research to investigate the perceptions of top management and employees' relating to the role of the CoPs and their importance to the organisation.

The impact of organisational structure on communities of practice's activities

The old structure of organisations is no longer appropriate in the age of knowledge economy. Recent research claims that companies need to think about having a less centralised organisational configuration (Lippert, 2013) by working in more open environment structures (Baker and Sonnenburg, 2013) and encouraging communications between departments through informal meetings (Wang and Noe, 2010). Probst and Borzillo (2008, p. 342) found that when CoP members are free of hierarchy-related pressure (such freedom being seen in the "zero sanction" or "risk free" assessments by direct managers if employees make mistakes or ask naive questions), they will have the freedom to criticise the practices that they encounter in their departments or across organisational units. They will, therefore, openly suggest solutions to overcome challenges and improve practices. However, Probst and Borzillo (2008) emphasise the role of CoP leaders in encouraging suggestions that leverage organisational performance positively. Likewise, Retna and Ng (2011) conducted a qualitative case study in a multinational company in Singapore, to explore the dynamics and key success factors in the development of CoPs. They found that free communication, good interactions and collaboration across all levels of the organisation helped the activities of CoPs, which can have a significant impact on the organisation's people-performance and achievement.

With regard to legitimisation from organisations, Corso et al. (2009) argue that, if CoPs want to be recognised by the firm, they should demonstrate themselves to be active entities with their own structures. This is supported by a recent study of Annabi et al. (2012), who found that to promote the power of CoPs, firms have to align their CoPs with the appropriate organisational entities and resources and orient them to specific business objectives. Yamklin and Igel (2012) suggest that CoPs should be integrated into formal organisational structures, where employees consider CoP activities to be part of their duties and participate without hesitation. Furthermore, Borzillo (2009) argues that top management only recognises CoPs that are formally located within the organisation's structural hierarchy. While experts debate whether this is possible, Annabi et al. (2012) state that determining an explicit role for CoPs within an organisational structure will contribute to business objectives.

The role of organisational culture on communities of practice's activities

While KM initiatives endeavour to foster knowledge sharing within organisations, culture can be a major barrier that inhibits knowledge sharing effectively (McDermott and O'Dell, 2001). Dube et al. (2005), in examining the intentional formation of CoPs within organisations, found that organisational and cultural contexts seem to be the defining characteristics that assist or obstruct success at the launching phase. It is therefore argued that change in culture at all levels of the organisation is required (Annabi et al., 2012).

Having said that, CoPs, particularly those that are intentionally formed by the management, are not immune to organisational culture. There are very few studies addressing the impact of cultural factors on CoPs. A study by Siau et al. (2010) examined the effects of national culture on types of knowledge sharing, such as knowledge dissemination and acquisition, between Chinese and American virtual communities. The study was based on Hofstede's cultural dimensions for examining national culture differences between the two selected countries. The study investigated 18 virtual communities hosted by Yahoo that used messages as a means of communication. The findings indicated that power, distance and individualism-collectivism dynamics are the major national cultural factors that affect knowledge sharing in virtual communities. Hofestede's popular cultural dimensions are based on a very large-scale survey of data collected from 16,000 multinational companies. One of the limitations of Siau's et al.'s (2010) study, however, is that it did not clarify whether the sample consisted of participants who worked in the same organisation with similar backgrounds. Siau et al. (2010) suggested the importance of further investigation on the effect of organisational culture on knowledge sharing and KM in CoPs, which are gaining importance in the business environment.

Communities of practice in Western and non-Western contexts

The majority of studies that have investigated non-Western cultural influences on knowledge sharing have been conducted in Chinese cultures. Wang and Noe (2010) state that more studies are needed about the impact of cultural differences on knowledge sharing in emerging economies, in countries in Africa, the Middle East and South America.

KM-oriented CoPs formed in business contexts have succeeded in many Western companies (Corso et al., 2009; Hemmasi and Csanda, 2009; Li et al., 2009; Kerno, 2008; Wenger et al., 2002; Wenger, 2004) and have attracted growing interest in non-Western contexts, particularly in East Asian countries such as in Japan (Yamazaki, 2008), Singapore (Retna and Ng, 2011), Korea (Jeon et al., 2011) and China (Yamazaki, 2008). However, CoPs are relatively new in the Middle East and North Africa (MENA) area (Idris, 2007). Marouf and Al-Attabi (2010) conducted a study in the health sector in Kuwait. They claim that the CoP is a relatively new approach in MENA. This view is supported by Johnson and Khalidi (2005, p. 106) who state "CoPs and regional networks in the MENA region are still in the early stages of development".

Although the existing literature does not clearly specify studies in a specific country within MENA, this paper classifies MENA into two groups: Arab countries and Gulf States, which share similar culture, values, language, and geographical location. Table III demonstrates the countries involved in MENA.

All these countries except Israel are Arab-based countries. Though the literature indicates that it would be important to study CoPs within MENA, the Gulf States seem to be particularly relevant. They consist of large companies based on oil and petrochemicals that have business relationships and affiliates across the world. This part of the world therefore should be investigated to find out the differences and similarities in CoPs in different countries around the world.

Li *et al.* (2009) claim that most (77.8 per cent) of the previous studies on CoPs were conducted in the USA. Many organisations, particularly in Europe and the USA, have established very successful CoPs and gained positive results from them (e.g. reducing software development costs and time at Xerox-Eureka, and increasing effectiveness in employees' job performance at State Farm Insurance Companies in the USA) (Corso *et al.*, 2009). However, Kerno (2008) argues that CoPs are social configurations, and it is important to differentiate cultural characteristics along the dimensions of Eastern and Western. His concept is that both cultures differ in their practices regarding practical knowledge, follow different styles of social interaction and have different social roles and behaviour.

Even though previous research has been conducted in different contexts, it seems that the incentive for studying CoPs in most cases, if not all, was to improve CoP effectiveness by investigating the CoP itself and the impact of its activities. Therefore, it is difficult to probe whether there is a difference between implementing CoPs in Western and non-Western contexts. However, Table IV is an attempt to provide an overall picture that might help outline some of the features of CoPs in different cultural contexts.

From the above table, it can be concluded that CoP studies in the Western context converge on improving CoP mechanisms that enable improvement of both individuals and the organisation. Meanwhile, in non-Western contexts, studies give more attention to the role of CoPs in enhancing social bonds in the company to improve the work environment.

Nevertheless, several studies assume that CoPs are likely to be active in some societies and not in others. For example, Roberts (2006) argues that societies that have a very strong social structure are more likely to have CoPs in the business context. She argues that a nation characterised by collectivism is more likely to find the CoP an effective KM strategy compared to nations characterised by individualism. She argues that a country will have the opportunity to enhance the process of knowledge creation and dissemination through the development of CoPs. Her argument is supported by Rice (2003, p. 471) who indicates that "in contrast to the American individualistic culture, the Arabs are an extremely collectivistic people and there is ease in social interactions and formation of groups". Roberts (2006) also argues that informal groups that establish CoPs more closely fit the Arab work culture than structured, formal teams. Rice (2003) and Roberts (2006) hold that CoPs in societies that consider collectivism over individualism are likely to have a positive impact on work performance. There is, however, little direct evidence to verify these claims.

Table III The Middle East and North Africa countries (MENA)		
Arab countries	*Gulf states*	*Non-Arabic speaking*
Algeria, Djibouti, Egypt, Iraq, Jordan, Lebanon, Libya, Malta, Morocco, Syria, Tunisia, West Bank and Gaza (Palestine), Yemen.	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates	Israel
Source: Adopted from The World Bank data (2016)		

Table IV	Examples of CoPs in different contexts		
Source	*Context*	*Type of organisation*	*Key cultural features*
Jeon *et al.* (2011)	Korea	Large high-tech production companies	Social and psychological aspects and rewards have a positive impact on CoP members' attitude towards KS Fairness has an impact on KS
Hemmasi and Csanda (2009)	USA	Financial service industry	Trust is not important Member connectedness and job relevance are important, leading to a perception of greater CoP effectiveness
Harvey *et al.*, 2013	Canada	Labour Union Organisations (private and public sectors)	CoPs need a formal position to lead and oversee member interaction within CoPs.
Schenkel and Teigland, 2008	Denmark and Sweden	International Contractor Consortium	Trust and confidence increase through face-to-face relationship.
Borzillo *et al.* (2011)	Europe and USA (HQ)	Multinational companies	The role of the leader and sponsor of CoPs are important.
Ardichvili *et al.* (2006)	Russia, China, Brazil and USA (HQ)	Caterpillar	Russia: Saving face; prefer communication via email China: Modesty, power barriers (e.g. competitiveness and job security) Brazil: Low in openness to share knowledge
Siau *et al.* (2010)	USA and China	Yahoo, virtual communities	China: Personal relationship is important to KS Retaining knowledge to maintain power distance Collectivism dynamic USA: Open expression of opinions Individualism dynamic/self-understanding
Retna and Ng (2011)	Singapore	Multinational company providing document and KM solutions	CoPs seem to members as family, and this increases social bonds within the company

Conclusion and future research

This paper has presented a discussion of knowledge sharing and CoPs based on review, interpretation and synthesis of a broad range of relevant literature. Based on this literature review, enhancing knowledge sharing within companies is gaining importance and becoming one of the strategic objectives of every business in the knowledge-based economy. This study has provided a critical review of the existing literature on CoPs, leading to a detailed overview of relevant studies from which research gaps have been identified, to gain a holistic theoretical framework for the issue of establishing intentional CoPs within businesses. It was found that CoPs are an important tool for KM initiatives in businesses. However, CoPs have been given different names, either in the research milieu or in businesses. This therefore renders the concept ambiguous. There is a need for studies that can examine the development of CoP definitions in the research and provide a definition that can help researchers be consistent with the characteristics of CoPs within organisations.

It was also found that the absence of social interaction (e.g. face-to-face, person-to-person) was noticeable when technology was applied. Technology inhibits transfer of tacit knowledge and results in a loss of direct human interaction. Given that international and global companies have implemented CoPs in virtual settings, there is an issue regarding using this technology where there is high probability of decreasing social interaction and tacit knowledge sharing. Further investigations are needed to find out how CoPs are affected by IT and if there are any differences between KMS and virtual CoPs. Moreover, it would be interesting to examine whether CoP members prefer to communicate face-to-face and how to mitigate the effects of virtually geographically dispersed CoPs. Additionally, a study of CoPs that are based in physical interaction versus CoPs based in virtual interaction could confirm whether the sort of specialists, nature of work and type of organisation can increase social interaction or the

complexity of tasks, and whether technology can hinder or support social interaction and tacit knowledge sharing.

Many organisations prefer to have intentionally established CoPs. Consequently, this review showed that this disagreement in definitions allowed a new concept to emerge: OCoPs. OCoPs are more suitable for companies as they consist of characteristics that mix between traditional CoPs and formal groups (e.g. team works). More studies are needed to find out how OCoPs work for business organisations in different industries.

With regard to the impact of organisational factors on CoP activities, this study has shown that there are several organisational factors that could affect CoP activities within companies. These are top management, organisational structure and organisational culture. This review showed that top management plays a vital role in supporting CoPs. Therefore, there is a need for more empirical studies to examine how the impact of formalised CoPs (e.g. OCoPs) can impact the quality of their work and how this would affect the autonomy of the OCoPs work. It can be also concluded that there is a good deal of ambiguity about whether CoPs reside within the structure of a company. This study indicates that more work is needed to determine the appropriate scope of CoP activities that enable companies to encourage CoPs in more sophisticated and effective ways. Further study can consider whether CoPs operate more effectively at lower or higher levels of the organisational structure, and investigate whether the formation of informal CoPs is perceived to be threatening by top management. As for organisational culture, this study has shown that there are many aspects which come under this factor, despite the focus in previous studies being only on the most prominent organisational culture aspects. Research that has focused on knowledge sharing culture and reward systems has been rather poor. Some would investigate to what extent organisational culture impacts on flow of knowledge and what can be expected from CoPs (e.g. do engineers associate more with the finance members but avoid human resources).

In this regard, this review has revealed that the importance of the three aforementioned organisational factors lies in their ability to have a direct effect on employees' knowledge sharing behaviour. This is the main element in establishing CoPs. An indirect one is influencing managers' attitudes towards CoPs. Examining these three organisational factors together is still limited. Further studies are needed to examine the impact of these three organisational factors as a symbiotic relationship and to understand their impact. Moreover, there is a need for further exploration to find out the key similarities and differences between factors that could particularly assist CoPs in companies with global operations.

This review has also looked at studies carried out on CoPs in Western contexts, which have been discussed more widely in the literature than those in non-Western contexts. However, the review of extant literature has brought about increasing interest in CoPs in non-Western contexts, particularly in East Asia. This review clearly underlines that studies on CoPs in MENA are currently insufficient. More research is needed to review the claims that CoPs more closely fit the Arab work culture than formally structured groups. In addition, empirical case studies are needed to see whether there is any difference in the application of CoPs in the West and other contexts. It is hoped that the frameworks provided in this paper can assist in these critical undertakings.

Implications

This paper has important implications for researchers and practitioners who wish to expand the extant literature on CoPs and KM. For certain types of organisational factors, the findings of this study have highlighted how intentionally established CoPs can be managed within business organisations and how they encounter the influence of three organisational factors – culture, structure and top management.

If firms wish to remain sustainable and competitive in today's business world, they are required to implement a dynamic method of social interaction and operational flexibility. Therefore, the

main concern of senior managers should be how to develop effective KM initiatives, such as CoPs, which assist in improving knowledge sharing and the exchange of ideas. This in turn could promote a firm's innovation, solve its business problems and enhance its organisational competitiveness.

CoPs as a tool for knowledge sharing from a holistic perspective and in a different sector is expected to assist practitioners to comprehend how CoPs can be purposefully cultivated within their companies and how to develop them to be more effective and more productive.

Limitations

This review is not without limitations. For practical purposes, this review was limited to publications that studied CoPs within business environments. Other knowledge fields were excluded. The focus was on only three organisational factors that influence CoPs. These were top management, structure and culture. Examining other factors might have revealed perspectives different from that which this present study presents, such as organisational innovation, organisational value, organisational environment and their impact on the performance of CoPs within a company. Finally, the author believes that this paper proposes some research directions that would contribute to the body of scholarly knowledge on CoPs and improve the map of KM initiatives.

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About the author

Abobakr Aljuwaiber is a Doctoral Researcher at Norwich Business School, University of East Anglia, UK, and a Lecturer at Taibah University, Saudi Arabia. His research interests include knowledge management, knowledge sharing and Communities of Practice. He is currently studying the influential role of organisational factors in intentionally created CoPs within business organisations. Abobakr Aljuwaiber can be contacted at: abobakrju@gmail.com

www.manaraa.com