Online communities of practice and their role in educational development: a systematic appraisal

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Abstract
Practice teachers and academics have a role in developing knowledge and promoting evidence-based practice with their students in a supportive and creative learning environment. Recent advances in technology are enabling 'communities of practice' (CoPs) to be developed online and may present a valuable opportunity to form greater connections between educators. To explore this idea, the author conducted a systematic appraisal of published evidence relating to the impact of using an online CoP (OCoP) to develop knowledge among healthcare educators. Three academic databases were targeted for articles and the search retrieved nine articles that were analysed for quality. The findings identified that an OCoP offers a 'polycontextual' environment that can enhance knowledge development, strengthen social ties and build social capital. Communities that support tacit knowledge development, information sharing and problem solving are most valued and existing information and communication technology (ICT) tools can be used to promote usability and accessibility. Recognising the value of tacit knowledge and using ICT for educational development within workload hours will require a shift in cultural thinking at both an individual and organisational level.

Key words
Online community of practice, community practice teachers, academics, educational development, support

Community Practitioner, 2014; 87(4): 28–31.

No conflict of interest declared

Introduction

The Nursing and Midwifery Council (NMC) (2008a) identifies that practice teachers and academics are leaders in educational quality and responsible for developing, sharing and disseminating knowledge across the learning environment. Building nursing knowledge should be rooted in the practice setting in which care is delivered to ensure relevance and to prevent a theory–practice gap (Ousey and Gallagher, 2010).

Organisational barriers, workload pressures and limited opportunities for contact often present a challenge to partnership working and relationships between professionals (Ousey and Gallagher, 2010). For these reasons, we may need to consider creating a different type of learning environment, which promotes engagement of educators and captures their collective intelligence to generate new research and practice development opportunities (Brooks and Scott, 2006).

Face-to-face meetings can be time consuming and difficult to organise and sustain. Therefore, virtual methods may offer a suitable approach to develop either an online community of practice (OCoP) or support a hybrid approach (Brooks and Scott, 2006). Digital technologies are advancing at a rapid pace and opening up new possibilities for connectedness all the time (Kamel Boulos and Wheeler, 2007).

Aim

This systematic appraisal aimed to collate published evidence relating to the impact of using an OCoP to develop knowledge among healthcare educators. The research was conducted as part of a requirement to meet a master's qualification. The research question was: 'What is the impact of using an OCoP to develop knowledge among healthcare educators?'

Background

Wenger et al (2002: 4) define a community of practice (CoP) as: 'A group of individuals who share a common interest and are motivated to gain and develop new knowledge on a topic through regular interaction'.

The central feature of a CoP is the relationship that develops between the members, enabling learning to take place within a culture of support, trust and mutual understanding.

The CoP model has been used in business to develop knowledge management for over 20 years but is still relatively new in the healthcare sector (Li et al, 2009). Two systematic reviews of healthcare CoPs have recently been carried out and agree that they can vary greatly in relation to composition, intended purpose and means of communication (Li et al, 2009; Ranmuthugala et al, 2011). Most often, CoPs are developed to promote student learning, professional development, support and building knowledge. Interestingly, CoPs are becoming more targeted in their focus, specifically on sharing and promoting evidence-based practice (Ranmuthgala et al, 2011).

A limitation of the review by Li et al (2009) was the time lag between conducting the search and publishing the work, as only articles published from 1991–2005 were included. There has been a volume of published work since this time and the impact of evolving technology highlights the need for an updated review. In particular, further research may provide insight into whether barriers to online communication such as lack of familiarity still persist (Gray, 2004).

The role of leadership in promoting the functioning of the OCoP is debated and whether or not this role is useful in developing a community spirit could be clarified (Li et al, 2009). Ranmuthugala et al (2011) acknowledge that none of their studies addressed the sustainability of CoPs in health care, as this requires longitudinal follow-up. The systematic review did not include academic educators and none could be found that focused on OCoPs or academic and practice educator partnerships. A gap in knowledge has been clearly identified in relation to the impact of an OCoP to develop

knowledge among healthcare educators. From a professional accountability and ethical perspective, it would be wrong to introduce a new practice without a sound evidence base to support the innovation (NMC, 2008b).

Method

Three academic databases were targeted: Medline (Proquest), the British Education Index and Web of Knowledge. Search terms were created using the Pacific Institute for Community Organization (PICO) model (Petticrew and Roberts, 2006) (Box 1) and a 'search diary' was maintained detailing the names of the databases searched, the key words used and the search results. Titles and abstracts of studies to be considered for retrieval were recorded on a search report, along with details of where the reference was found. The author examined all retrieved studies to ensure they met the inclusion/exclusion criteria (Box 2).

The included studies were critically appraised for quality to ensure robustness of the process and transparency of the decisions made. The author abstracted data onto a proforma and summarised the results from each study to provide consistency and reduce bias. Authors were contacted to provide missing or additional data to promote a robust critique of the quality of the studies. Narrative synthesis was chosen as the most appropriate method for synthesising the data and was peer reviewed to assess the robustness of the synthesis process (Rodgers et al, 2009). A concept map was created to identify themes emerging from the studies (Figure 1).

Box 1. Search terms

Key concepts	Possible alternative search terms
Online community of practice	Online/virtual community of practice; Online/virtual learning communities; Online/virtual learning networks
Online	Linked with CoP to identify most relevant articles
Educators	Teachers, academics, professionals, nurses, practitioners, clinicians, educators
Developing knowledge	Building knowledge, knowledge management, knowledge development, knowledge sharing, knowledge transfer, professional development

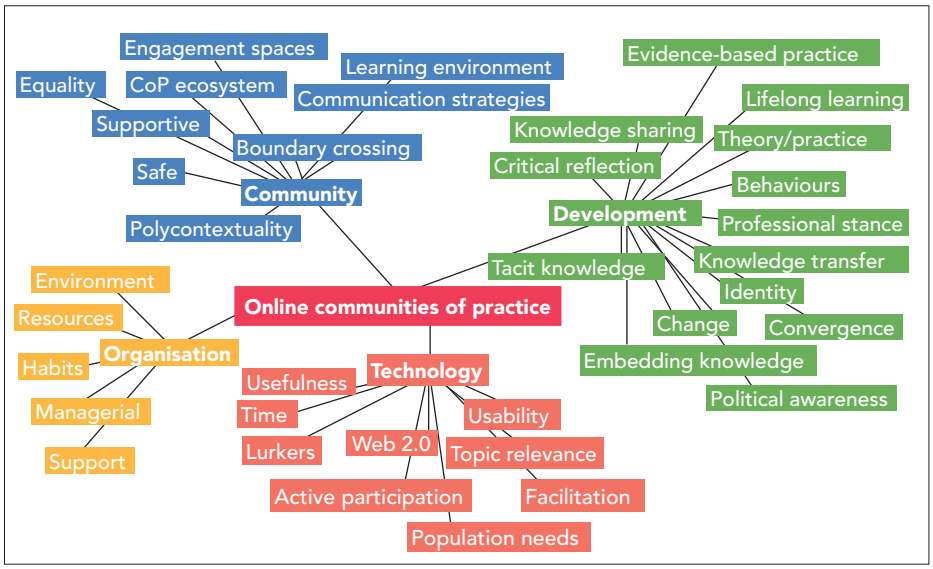

Figure 1. A concept map of the key themes emerging from the literature

Discussion and implications for practice

The findings support previous research, which recognises that an OCoP provides a safe engagement space to enhance knowledge development, strengthen social ties and build social capital (Hew and Hara, 2007; Cranefield and Yoong, 2009). OCoPs can develop from knowledge networks as relationships strengthen, and motivation to work together on common problems increases (MacPhee et al, 2009).

The OCoP can have a very positive impact on development and support for isolated clinicians spanning disparate geographical locations (Hoffmann et al, 2011; Valaitis et al, 2011; Sinclair and Levett-Jones, 2011). The importance of trust and honesty among members is recognised and can be promoted through the OCoP environment (Cranefield and Yoong, 2009; Allan and Lewis, 2006). Kamel Boulos and Wheeler (2007) suggest that member contributions lead to 'collective intelligence' and dynamic content that fosters a sense of community, empowerment and ownership for users. Spallek et al (2008) highlight that members are more inclined to collaborate equally as they are more visible to each other rather than one individual dominating the discussion. This sense of equality and collective ownership can lead to the breaking down of professional silos/isolation (Hoffmann et al, 2009; Sinclair and Levett-Jones, 2011).

The studies differed in relation to the technological difficulties expressed by participants. Valaitis et al (2011) found that participants experienced few technological difficulties, despite using a variety of tools. Hew and Hara (2007) identified that their members were using familiar email systems and did not need to access a separate website where they might forget passwords or not have time to log in.

This may also be a reflection of the role that social media now plays in people's lives, being generally accepted as a key method of communication (Kamel Boulos and Wheeler, 2007). The growth of texting and next-generation mobile phones have created opportunities for a range of social interactions that can occur beyond the boundaries of home or work. High-speed connections are enabling people to communicate and connect in ways that were previously not possible (Kamel et al, 2007). Cranefield and Yoong's (2009) research supports this improvement and suggests that it is the 'polycontextuality' of the OCoP that offers new ways to capture and promote knowledge development.

In contrast, Kelly et al (2007) and Hoffmann et al (2011) found that some members were more prone to lurking than active participation and this may be due to lack of confidence, limited discussions/resources and alternative ICT/communication preferences. Hew and Hara (2007) noted lack of time and knowledge as the most common inhibitors to knowledge sharing and active participation. Although thriving CoPs depend upon active members, lurking can be a vital first step for individuals who are wary of ICT or lack confidence in their knowledge base (MacPhee et al, 2009). Wenger et al (2002) identify that peripheral members may not be as passive as first thought and may still gain value and enhance their practice from this type of membership.

To promote active participation within the OCoP, members need to perceive it as relevant and capable of meeting their learning needs (Hoffmann et al, 2009). OCoPs that support tacit knowledge development, sharing ideas and problem solving are most valued among members (David et al, 2012; Sinclair and Levett-Jones, 2011; Hoffmann et al, 2011; Valaitis et al, 2011). Without collaboration, academics are in danger of possessing more of the explicit knowledge and less of the tacit knowledge required to make use of the evidence and relate to practice (Ardichvilli et al, 2003). Sharing tacit knowledge requires interaction and informal learning processes such as storytelling, conversation and coaching to promote participation (Wenger et al, 2002).

MacPhee et al (2009) suggest that knowledge brokers are needed to tap into the tacit knowledge of members. The knowledge broker builds safe, trusting relationships among members and establishes values or a clear rationale for engagement. The role can also include regulating knowledge flow and reducing the possibility of information overload. However, Kamel Boulos and Wheeler (2007) suggest that all members can manage the content through collaborative filtering or peer review and this collective system adds to the sense of ownership and community.

Spallek et al (2008) suggest that chairmanship could be rotated among core members, offering a useful leadership opportunity. Wenger et al (2009) have also shifted thinking in this area and discuss the facilitator role as a technology steward supporting the smooth running of the OCoP but this may be a shared or a developmental activity.

Box 2. Inclusion and exclusion criteria

Inclusion and exclusion criteria	Rationale
Publication language	English language only
Publication scrutiny	Peer reviewed journals only
Geographical context	Western countries similar culturally to UK
Years of publication	2006–2013 due to evolving nature of technology
Study design(s)	Qualitative, quantitative or mixed – to investigate impact
Population of interest	Educators, academic and clinical
Intervention type	Online communities of practice (OCoP)
Sampling procedures	To meet quality criteria for chosen methodology
Data collection methods	Appropriate to research design
Outcome measures	Studies must contain some measurement of how the OCoP impacted on the knowledge development of the educators or practitioner eg increased knowledge sharing, building knowledge, enhanced research capabilities, improved partnerships/networks, improved dissemination of knowledge, greater connections, OCoP relevance to health care educator role

The importance of accessibility, supportive system features and user friendliness are highlighted in the appraisal findings to support ICT use and combat issues such as lack of time (David et al, 2012; Hoffmann et al, 2011). Kamel Boulos and Wheeler (2007) also identify that technologies support professional development needs through easy access and the ability to share knowledge through multi-media channels. Web 2.0 offers user-generated content (blogs, podcasts, wikis) to enable users to comment, edit and share information as well as promoting reflection through the development of discussions (Wenger et al, 2009; Kamel Boulos and Wheeler, 2007).

MacPhee et al (2009) highlight the possibilities of using a system that allows questions to be posted, online chats, knowledge entries, subject repositories, and connections to other online communities and resources. The key to creating accessible information is to organise it according to a scheme that tells a story about the discipline in their language (McDermott, 1999). Use of email alerts to notify members of new material can save valuable time in having to repeatedly check for updated content.

At a macro level, two authors suggested that a lack of organisational recognition and managerial support was perceived to be a potential issue although this was before OCoP development (David et al, 2012; Sinclair and Levett-Jones, 2011). Ardichvilli et al (2003) consider that rapidly changing economic conditions, strong hierarchies and power distance could inhibit knowledge sharing within organisations. In hierarchical cultures, such as the NHS and education systems, managers may feel the need to control the flow of information to other 'competitors'.

Employees may not feel free to post information or questions on an OCoP without checking with their supervisor first. Hew and Hara's (2007) typology includes the level of organisational support for the OCoP, and the authors speculate that the knowledge-sharing culture would influence the professional's attitudes and behaviour. Wenger et al (2002) identifies the importance of providing evidence to the organisation of the achievements of the OCoP to gain support, resources and funding. Methods to achieve this include encouraging community members to reflect on their learning to produce a project snapshot that can be translated into useful practice.

Recommendations

There would appear to be value in developing an OCoP to promote knowledge and provide professional support; although implementation can only be successful if the intended users can see the relevance and are willing to use it (Hoffman et al, 2011). A scoping exercise could determine whether there is a need for an OCoP, to identify key stakeholders and determine their level of support. Start-up costs need to be considered although may be minimised by using existing

tools such as email and free online tools where possible. Leadership time will be considerable in the initial phase to nurture the OCoP development and could be shared with key members from across the organisations.

Creech and Ramji (2004) suggest that it can take one to three years for members to get to know each other, develop trust and engage in higher level activities, such as an OCoP. MacPhee et al (2009) identify that a common mistake is to not allow enough time for members to become familiar with networking activities. Technology stewards will need to work closely with IT departments to find a fit with OCoP developments and the functional capabilities of rapidly evolving online tools (MacPhee et al, 2009). A respectful online environment is vital for successful knowledge sharing and clear clinical governance guidelines can protect individuals from feeling criticised or threatened for expressing their personal views (Hew and Hara, 2007).

Questions of libel and copyright apply when users post content created by others or comments about other people and need to be understood to ensure effective use of the OCoP. Privacy policies and adequate controls need to be in place to protect the storage and exchange of organisational knowledge. Password protection can be one control mechanism but also may act as a barrier to participation and increase the time it takes to access information (Kamel Boulos and Wheeler, 2007).

Integrating knowledge sharing into routine work habits needs to become a cultural norm with allocated time within workloads (Valaitis et al, 2011). Novel strategies to demonstrate the value of this knowledge need to be included in the OCoP design and have been adopted by successful business organisations to promote dissemination and improve performance (Wenger et al, 2002). Evaluation is a key feature of the OCoP and will support further developments and funding and should be considered and planned throughout the development of the project (MacPhee et al, 2009). The impact of a community is often delayed and it can be difficult to determine whether a great idea was generated within the community or within a wider work team, making evaluation challenging.

Wenger et al (2002) recommend using non-traditional methods to assess the value of the OCoP including listening to member's stories, which can clarify the complex relationships among activities, knowledge and performance. Collecting anecdotal evidence that captures the diversity and range of activities that communities are involved in systematically can also be useful.

Finally, there is the recognition that knowledge is in constant development as it lives and changes in relation to the current context, past experience and present understanding (McDermott, 1999). Equally, OCoPs are evolving digital habitats and the possibilities to shape future practice are still being imagined, offering opportunities for further research to build this emerging body of knowledge (Wenger et al, 2009).

Key points

- Understanding the community's needs from the outset is vital to create a sense of belonging, relevance of topics explored and an effective information and communication technology (ICT) design
- The online community of practice (OCoP) can start simply by using existing technology to create a network that can be developed into a learning community
- The benefits of an OCoP include the opportunities to engage in knowledge transfer and professional support within a safe space that is easily accessible across locations
- The OCoP may capture valuable tacit knowledge that can be combined with empirical knowledge to develop evidence-based practice
- Challenges include promoting an active community, easily accessible ICT design, resources including time/skills and gaining organisational support

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