Research

Usefulness of a virtual community of practice and Web 2.0 tools for general practice training: experiences and expectations of general practitioner registrars and supervisors

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Abstract. General practice training is a community of practice in which novices and experts share knowledge. However, there are barriers to knowledge sharing for general practioner (GP) registrars, including geographic and workplace isolation. Virtual communities of practice (VCoP) can be effective in overcoming these barriers using social media tools. The present study examined the perceived usefulness, features and barriers to implementing a VCoP for GP training. Following a survey study of GP registrars and supervisors on VCoP feasibility, a qualitative telephone interview study was undertaken within a regional training provider. Participants with the highest Internet usage in the survey study were selected. Two researchers worked independently conducting thematic analysis using manual coding of transcriptions, later discussing themes until agreement was reached. Seven GP registrars and three GP supervisors participated in the study (average age 38.2 years). Themes emerged regarding professional isolation, potential of social media tools to provide peer support and improve knowledge sharing, and barriers to usage, including time, access and skills. Frequent Internet-using GP registrars and supervisors perceive a VCoP for GP training as a useful tool to overcome professional isolation through improved knowledge sharing. Given that professional isolation can lead to decreased rural work and reduced hours, a successful VCoP may have a positive outcome on the rural medical workforce.

Additional keywords: family physician, general practice.

Introduction

Australian general practice training can be isolating (Larkins *et al*. 2004). During training, registrars move from a large urban hospital environment, with many colleagues in open ward rounds, to small training practices in urban and rural areas with fewer colleagues and much time spent alone in a private consulting room. Geographic barriers can result in professional isolation through decreased knowledge sharing (Cooper and Kurland 2002) and can affect career choices among doctors and other health workers (Williams *et al*. 2001; Moore *et al*. 2010), including lower intentions to work in rural practice (Larkins *et al*. 2004). Registrars also experience social isolation, a form of loneliness (Weiss 1973), particularly in rural terms (Larkins *et al*. 2003, 2004). At a time when the Australian general practice workforce is under pressure (Thomson *et al*. 2011), especially in rural areas (Campbell *et al*. 2011), isolation must be addressed.

Peer group tutorial models within Norwegian rural general practice training overcome professional isolation, leading to higher rural workforce retention (Straume *et al*. 2010). These peer group tutorials are essentially communities of practice. 'Communities of practice' are '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 1998). Ways of working, standards and values within the community are shared and become a resource for the whole community (Lave and Wenger 1991; Wenger 2000). These communities of practice facilitate knowledge sharing (Probst and Borzillo 2008), thus overcoming professional isolation.

General practice training in Australia is also a community of practice, with learners at different stages interacting with experts and peers to gain knowledge. However, these communities of practice suffer from barriers to knowledge sharing, in particular the large distances that training programs cover.

Knowledge sharing can be facilitated by social media tools and Web 2.0, resulting in virtual communities of practice (VCoP; Poissant *et al*. 2010; Paton *et al*. 2011; David *et al*. 2012; Stewart and Abidi 2012). A recent survey study (Barnett *et al*. 2013) showed that registrars and supervisors within a general

What is known about the topic?

• Professional isolation adversely affects rural workforce retention. Communities of practice and virtual communities of practice (VCoP) can improve professional isolation through improved knowledge sharing.

What does this paper add?

• VCoP may be useful for improving knowledge sharing and overcoming professional isolation in GP training, particularly when using forums, webinars and shared resources, and possibly chat, within a community that includes registrars, supervisors and specialists.

practitioner (GP) regional training provider had the requisite interest, ability and access to use a VCoP, such as an online community for GP training. Most importantly, it showed that their intention to use such a community was associated with their perception of its usefulness.

The present study examined the perceptions of a small group of high Internet users, focusing on the concept of usefulness, including the particular role of an online network, its features and barriers to use. These insights will help guide further studies on the development of online GP training communities.

Methods

Data and sample selection

A qualitative study, using semistructured individual telephone interviews was conducted with 10 GP registrars and supervisors in one of Australia's 17 regional general practice training providers.

The 10 participants were selected from a previous online survey study. From the survey, 34 participants agreed to be contacted for an interview. The criterion for selection for an interview was that participants spent more than 1 h per day on the Internet. The intention was to choose interviewees who were confident using the Internet and social media tools, and were thus able to given an informed opinion on their use and usefulness. There were 18 participants who met the selection criterion. From these 18, seven registrars and three supervisors were randomly chosen to participate in the interviews. All invitees agreed to participate.

The age of the 10 interviewees ranged from 27 to 54 years (mean age 38.2 years) and four of the interviewees were men. The average length of interview was 18 min. All participants were allocated a unique identifier and data were de-identified to maintain confidentiality. The Human Research Ethics Committee of the University of Wollongong granted ethics approval for this research.

Measures

The semistructured interviews were designed to explore the concept of usefulness. Interviewees were asked to describe their general training experience, any particular problems they had and how social media tools may be useful, if at all. The interview

guide was developed by the authors and trialled among a small group of registrars and supervisors. The interviews were performed by the chief investigator (SB) and recorded and transcribed by research assistants. Thematic analysis was undertaken with a researcher and research assistant (SB and LB) coding the transcripts independently of each other. Data saturation was reached at 10 interviews. The discussion guide was used to develop provisional themes; both researchers discussed their findings with one another until agreement had been reached on the appropriate themes.

Results

Several themes emerged from the interviews, including professional isolation; the potential of social media tools to provide peer support and improve knowledge sharing; and barriers to use, including time, access and skills.

Professional isolation

Respondents felt that the training program was generally supportive; however, some registrars identified that the transition from hospital to general practice training can be isolating. This isolation seemed to stem from the distances between the registrar and training opportunities, particularly in rural areas. It was also due to the nature of working in a small general practice compared with a large hospital with many colleagues. Supervisors could also be professionally isolated due to distance.

I think I really struggled when I first started GP training. I came out of the hospital, which is a very social environment, and into GP, which is really isolating, and I found that very difficult. (GP registrar 7)

We are quite spread out, it is quite difficult to keep in contact with people . . . what trends are and what's happening. (GP Supervisor 9)

Although distance was commented on as a barrier by some, one registrar felt more supported in the rural placement than in the urban placement due to the higher amount of webinar communication in the rural term.

[In the urban term] . . . because we only see each other, you know, once a month . . . but in the countryside we just have the meetings [webinars] *every week.* (GP registrar 3)

Knowledge sharing and support

Interviewees were asked about the potential benefits of an online network using social media tools. The main benefit of online tools was described as their ability to facilitate increased interactions and collaboration with others. These facilitated interactions were described in several different scenarios. For example, some registrars felt the need for support from off-site clinicians, particularly when working in remote areas or when the skills were not available on-site due to clinical experience or time pressures. Others felt that more contact with peers would assist the initial isolation they felt.

When I am working alone, or when I am working remotely, so having a network would be very helpful. . .to discuss the

clinical conditions, especially when you don't have a specialist around. (GP registrar 2)

Some sort of forum ... in the first few weeks, to say, all look this is what problem I'm having ... that would be quite useful ... it's always good to get other people's opinions in relation to questions from people who are in your similar situation. (GP registrar 8)

Other potentially useful facilitated interactions suggested were around general sharing of resources. Registrars and supervisors felt that sharing resources that other doctors had developed or found useful or interesting would be valuable.

To actually have a ... maybe an online collaboration of what people have found very useful for particular things I think would be really, really helpful. (GP registrar 8)

This morning is our presentation morning ... it would be good if you could end up with a few presentations that you could almost take out and share. (GP supervisor 9)

In addition to general resource sharing and to supervisor discussions, registrars noted specific areas of clinical support that would be useful, including exam preparation and particular topics, such as mental health, dermatology and procedures.

Social media tools

Respondents commented on the benefits and limitations of several social networking tools. For example, live chat was seen as a useful means of social interaction between peers, a way of accessing instant clinical support and improving confidence in a consultation. The main limitation was that other users needed to be online at the same time. One user said that this limitation may be overcome by having lots of users, thus making it more likely that someone would be available.

In work hours so if somebody is there online you feel very confident. (GP registrar 2)

Some of us use it during our practice time, like if you've got a problem and need a quick result. [We use] *chat either from Hotmail or from Facebook.* (GP registrar 1)

Forums were mentioned by eight of the 10 respondents. The main benefits of forums were once again to promote collaboration and to be able to compare different points of view. They were seen to be useful because they allowed for flexibility of communication at a time that suited the user and gave the user the ability to see a conversation over time. Overall, respondents preferred forums to chat, although acknowledging their different advantages.

I'd prefer [to] *just post it online with waiting for the response* [from chat]. (GP registrar 5)

You've got time to have a look at what the general conversation is over time, so something that is more longitudinal rather than I've got to be online at this time. (GP supervisor 6)

Webinars and video resources were seen as particularly beneficial for providing visual demonstration not available

through other media. The examples given included demonstrating procedures, participating in lectures and live collaboration across different sites. Several respondents were active users of these applications.

It is online meeting, one person does the presentation and the other registrar and supervisors are doing the comments ... I believe that's a very good chance of, you know, communicating and learning [with] *each other.* (GP registrar 3)

Barriers to usage

Participants mentioned several barriers, including privacy, access, training and time. However, these barriers were not universal; for example, in the case of time, several participants noted that they felt they would get good value for their time online.

I've had webinar invites, but I haven't actually looked at them ... it's just time as usual. (GP supervisor 9)

One hour a week wouldn't be much. (GP registrar 3)

You'd get good value for your time with things like that [chat, forum, shared repository]. (GP registrar 8)

Access to an adequate online experience was seen as a barrier by one participant in particular. They commented on dropped lines, particularly in the country, differing levels of equipment and access at different sites. For example, one workplace had banned several sites, including social networking sites. Another participant had troubles with download speeds for video.

If you gotta watch a video, you have to arrange where to do it. (GP supervisor 9)

Public hospitals banned those websites, so the AMS [Aboriginal Medical Service] *has got no access* [to] *social networking sites...so the way I got around it was to use Hotmail* [email]. (GP registrar 1)

One participant was cautious about privacy, wanting to make sure they knew who they were talking to so that patient information was not misused. Several other participants were not concerned about privacy, as long as information was de-identified and people were 'careful'.

I want to be sure to whom I am sending a patient's details. (GP registrar 2)

Obviously you don't put a name on anything. (GP supervisor 9)

Some users were confident that their skills would be sufficient, particularly if the site was easy to use, but others identified that some training would be helpful, even though they could see they would like to use it. One supervisor also said that there may be a skill gap between supervisors and registrars, because registrars are more technically adept.

An easy interface is important ... if you have to log in to multiple things it becomes less appealing. (GP registrar 7)

Dermatology. Take a picture and post it online–but I don't know how to do that. (GP registrar 5)

I think the registrars would find it useful because they're even more savvy on it [computers] *than we are, so they are going to take to it very easily.* (GP supervisor 9)

Discussion

This study population of frequent Internet-using GP registrars and supervisors perceived social media tools as part of an online community to be useful for training purposes. The main aspect of that usefulness was perceived to be in facilitating interactions with other doctors, thus overcoming professional isolation through improved peer support and knowledge sharing. Barriers were noted, but there was a perception that these were something to be acknowledged and overcome and that, despite the barriers, the value of the online interaction would be worthwhile.

This concept of usefulness is in keeping with the literature, particularly the Technology Acceptance Model (Davis *et al*. 1989), in which usefulness is the primary predictor of use of an online network and barriers, although acknowledged, are overcome by users if their perception of usefulness is high enough. In the US, physicians recognised barriers to the use of social media for professional collaboration (McGowan *et al*. 2012), but those physicians who perceived the technology as useful overcame the barriers and had the highest usage.

Several small studies internationally have demonstrated the benefits of knowledge sharing in VCoP (Curran *et al*. 2009; Valaitis *et al*. 2011; David *et al*. 2012). There is also an international trend towards the use of online medical communities (Table 1), with 50% of respondents in a US study using one (McGowan *et al*. 2012). In Australia, respondents to a survey of GP registrars and supervisors within a regional training provider also perceived an online community as useful while recognising barriers, including time and privacy (Barnett *et al*. 2013). In that study, although intention to use was predicted by a perception of usefulness, computer confidence was not associated with intention to use.

The present study is a small, qualitative study of frequent Internet users, with presumably high computer confidence. However, it is in the context of a larger survey study in the same sample population, and its findings are in line with other, international studies. Therefore, although it has limitations, the present study provides some insights around perceived usefulness and specific social media features that could be used to guide larger, quantitative research on the design and implementation of a VCoP for GP training.

Finally, because usefulness is a highly important predictor of the use of online communities, training and promotion may be effective ways of encouraging usage. This position is supported by the proposed model for implementation of VCoP in Health (Table 2; adapted from Barnett *et al*. 2012). Effective training could concentrate on demystifying any technology issues and on promoting the usefulness and the particular benefits of use to the target user group. From the present study, this could include promotion of benefits such as clinical and peer support with specific examples, including case-based online discussions and exam preparation support.

Limitations

The present study was a small qualitative study involving one regional training provider in Australia. The participants self-selected for interview and were then further intentionally sampled based on frequent Internet usage.

Table 1.   **Online medical communities for doctors**

Network name	Country	No. of users as of 13 February 2013	Source
www.sermo.com	US	125 000	Sermo
www.doctors.net.uk	UK	197 891	doctors.net.uk
www.e-healthspace.com.au	Australia	10 786	e-healthspace

Table 2.   **Health virtual community of practice (VCoP) framework (adapted from Barnett *et al*. 2012, table 8)**

Facilitation
   Facilitators promote engagement and maintain community standards
Champion and support
   The network needs to have an initial stakeholder champion, with stakeholder support
Objectives and goals
   Clear objectives provide members with responsibilities and motivates them to contribute more actively
A broad church
   Consider involving different, overlapping but not competing, professional groups, different organisations and external experts; however, make sure the church is not too broad
Supportive environment
   Health VCoP should promote a supportive and positive culture that is both safe for members and encouraging of participation
Measurement, benchmarking and feedback
   Health VCoP should consider measurement as a factor in their design, including benchmarking and feedback
Technology and community
   Online CoPs should ensure ease of use and access, along with asynchronous communication
   Other options, including chat and meetings, can also be considered, along with the need for training
   Communities are more likely to share knowledge when there is a mixture of online and face-to-face meetings, members self-select and both passive and active users are encouraged

Conclusion

An online community to support knowledge sharing in the general practice training community is perceived as useful by higher Internet users in an Australian regional training provider. The most useful features were forums, shared content, webinars and possibly chat. Barriers of time and usability were also noted. The potential benefits of use include overcoming professional isolation through improved knowledge sharing, resulting in better training and improved rural workforce retention. Further study is needed to ascertain whether these findings are applicable to the broader general practice training community.

Conflicts of interest

SB is the Medical Director of www.e-healthspace.com.au, an online community for Australian doctors.

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