Introduction

Applying research evidence into routine clinical practice, often referred to as knowledge translation, is a significant challenge.1 Currently, the transition from knowledge generation to habitual utilization by health professionals in the health care system is unacceptably long.2–5 Although health professionals recognize the importance of continuing professional development (CPD) to maintain knowledge and skills and employ evidence-based practices throughout their professional lives, conventional approaches to education, including peer-reviewed publications and lectures, typically do not cause professionals to translate learning into practice changes.1,6–10

Reasons for the limited effectiveness include the rapid growth of new knowledge for health professionals to learn and manage,11,12 the complex nature of health professionals’ intentions and behaviors regarding a new practice,13 and the complex adaptive nature of the health care practice environment that influences health professional behavior.14,15 Furthermore, most CPD activities are designed for a single profession and do not address the needs of changing professional practices comprising interprofessional teams that practice in systems of care.8,16

Interaction between health professionals in the workplace has been shown to influence learning and to change professional behaviors.7,17 Consequently, informal groups and learning networks are emerging on different levels of the health system, from physician study groups,18,19 to interprofessional teams in various geographic locations.20,21 An innovative model for synchronizing interprofessional learning and knowledge translation is the community of practice (CoP), which is described by Wenger and colleagues as a type of informal learning network.22–24 The CoP is an evolving concept,25 gaining popularity in health care as a means

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of driving evidence-based practice change. This paper explores how CoPs facilitated by modern information technologies, or electronic communities of practice (eCoPs), can support learning and knowledge exchange in interprofessional health care teams. Using an example to illustrate, we will introduce 6 core principles of eCoP derived from our experiences and the literature, and share our insights about the application of eCoPs to facilitate interprofessional learning.

**Electronic Community of Practice: Theoretical Advantage in CPD**

A community of practice (CoP) can be described as an informal network of people with common interest who interact on an ongoing basis, sharing and cocreating knowledge over a sustained period of time. Wenger described the evolution of CoPs in 5 unique phases: potential (establishing the territory of common interests), coalescing (coming together of individuals and resolving to contribute), maturing (members growing together), stewardship (establishing organizational structures and leadership), and transformation (sustainable growth and evolution or dissolution of the community).

A recent systematic review identified 4 fundamental characteristics of CoPs in the business and health care sectors: (1) active social interaction among members, (2) knowledge sharing, (3) knowledge creation, and (4) identity building within the group (eg, developing common languages). Even though there are principles that govern the success and sustainability of CoPs, each community varies in its structure.

This is analogous to the ways thriving cities, although sharing some common sociological and anthropological success factors, display their own unique characteristics that distinguish them from other cities.

Information technologies provide opportunities for CoPs to facilitate communication among members from different geographic locations and time zones, increasing the diversity of the learning network. Tools such as listservs, discussion boards, desktop videoconferencing, as well as live, synchronous chat rooms provide ways for community members to interact electronically without the need for face-to-face encounters. These electronic communities rely on virtual communication with or without using telephones exclusively, or combine both on-line activities and face-to-face meetings to enrich the interactions.

In the context of continuing professional development (health professionals maintaining and broadening their knowledge and skills in practice) and knowledge translation (the process of putting research knowledge into routine practices), eCoPs offer theoretical and tangible benefits to health professionals who hold disparate expertise. The benefits of eCoPs include:

1. Unique, dynamic, semistructured, and continuous learning environments, with immediate or just-in-time access to a wide range of educational knowledge.

2. Access to repositories of current and historical discussions (eg, “archived” knowledge), connected to peers and mentors, applying acquired knowledge to their respective practices.

3. A common platform for discussion and exchange of ideas and resources (eg, documents, data, audiofiles, etc) to ensure optimal patient care, unified and coordinated communication with patients, and multiprofessional observations of patient outcomes.

To ensure success of eCoPs, the technology and communication protocol (eg, productivity software, social network platform, or collaboration tools such as wikis) must be user-friendly and protect members’ privacy. Also, because the community may be self-organized, members must exercise ownership of the knowledge-exchange process. To this end, the presence of a capable facilitator creates opportunities for members to interact and learn, to filter extraneous information, and to maintain the interests of the members.

**An Example: Technology-Enabled Academic Detailing: eCoP for CPD**

Academic detailing (AD) is a method that calls for a health care professional to provide objective, evidence-based information to a physician in the physician’s office. Technology-enabled academic detailing (TEAD) is academic detailing used in the context of synchronous communication technologies (eg, Web-based chats and presentations). During a 3-year project carried out in British Columbia, TEAD was compared with traditional face-to-face AD and also compared to the combination of TEAD and AD, to determine their effects on the care of patients with diabetes in urban and rural communities.

TEAD demonstrated characteristics of an eCoP. For example, the AD component of TEAD provided an opportunity for synchronous social interaction, as Web-based chats allowed for asynchronous comments on clinical topics. Knowledge sharing occurred through TEAD sessions, providing opportunities for physicians to seek additional, personalized information from pharmacists, beyond the limited time of the academic detailing session. New knowledge was available for researchers, as the eCoP allowed the research team to track collaboration and capture data (eg, on discussion themes and resources downloaded). Survey results from participants (pharmacists and physicians) indicated that navigation through the eCoP was “fair/very easy,” and when compared with AD, TEAD was felt to be equally effective as a teaching modality. Participants commented that there was genuine value in engaging in the TEAD sessions.

The TEAD concept was novel and effective, with participants developing an interprofessional eCoP with its own identity in practice. Physicians decided voluntarily whether to join the TEAD project, which focused on the care of patients...
Guidelines to Enable a Successful eCoP

1. **Voluntary involvement and self-organization.** A CoP is voluntary and self-organized. CoP membership may be self-selecting or assigned, but in either event, interaction, and engagement should be self-directed. Voluntary involvement allows for a diversity of membership, self-determined motivation, and perspectives to be shared, which enhances learning, relationships, and creativity.

2. **Problem focused.** An eCoP offers a response option for problems that require multiple perspectives in order to generate solutions. The temporal and geographic flexibility with electronic connectivity enables members to seek solutions asynchronously, enabling wider engagement of diverse perspectives. This is true to Wenger’s vision of a joint enterprise—the process wherein individuals share a common purpose, work to share knowledge, and become engaged.

3. **Distributed leadership, transparency, and public accountability.** An eCoP requires leadership that is both emergent and distributed to function effectively. Volunteers can be powerful contributors to improving system operations and innovations. Harnessing the contributions of these individuals often means providing enthusiastic members with leadership from their ranks and freedom to experiment and succeed, within the boundaries of the eCoP. Electronic connectivity provides a transparent environment that facilitates public accountability within a networked context.

4. **Accessibility.** The use of electronic platforms for engagement requires that tools be accessible and user friendly. System access cannot be restricted by firewalls and software must be compatible with that used by the eCoP members, and the eCoP should be available whenever a member needs it, not limited to traditional work days/hours, as members may reside in diverse geographic regions. The organizational culture should enable and celebrate participative decision-making opportunities and innovative processes that facilitate use and implementation of an eCoP.

5. **Shared identity.** The membership of a successful eCoP identifies not only with a particular problem, but also a general approach of working with each other to solve that problem. It is commonly recognized that “... in a decentralized peer-to-peer electronic community, peers often have to interact with unknown or unfamiliar peers and need to manage the risk involved with the interactions (transactions) without any presence of trusted third parties or trust authorities.” The absence of spatial and temporal boundaries makes building trust and shared identity in the eCoP a challenge, but a communication and collaborative strategy that engenders trust through building the community’s accountability structures evolves as members work with each other and build incremental successes over time. Membership in an eCoP appears to favor those who support collaborative problem solving, can work with complexity, and are less invested in social hierarchies created by discipline, seniority, and social roles.

6. **Sustainability.** An eCoP, like any community, seeks sustainability. Nagy et al identified 5 critical factors for a successful community that grows and sustains itself over time: (1) continued member access to educational content, (2) an established mechanism (eg, discussion board) that facilitates ongoing communication between members, (3) member involvement and encouraged content ownership, (4) established credibility of community to members, and (5) investment in creating activities within the community.

Conclusion

Mutual respect of community members and recognition of their importance is fundamental to interprofessional collaboration and the equalization of power between different professional groups. To manage unexpected challenges, all community members must adjust to one another’s patterns of practice and participation. All leaders must demonstrate individual and collective commitment to the accountability of the community, and help to resolve conflicts openly and respectfully. Mistakes become learning opportunities, and successes are celebrated.
Lessons for Practice

- Electronic communities of practice (eCoPs) use modern information and communication technologies to facilitate team-based learning and practice.
- Implementing an electronic community of practice (eCoP) requires careful planning and understanding of the evolving dynamics of the community, as well as the participatory needs of the community members.

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