

Works in progress / Travaux en cours

Mobilizing Knowledge and Building Capacity for Technology-Enhanced Professional Development

Dawn Buzza, University of Waterloo

Liwana Bringelson, University of Waterloo

Chris Eaton, Waterloo Catholic District School Board

Sandra Loucks Campbell, University of Waterloo

Vic Degutis, Waterloo Catholic District School Board

Koorus Bookan, University of Waterloo

ABSTRACT

Technology-enhanced knowledge mobilization can be extremely useful for helping practicing professionals keep abreast of research and development efforts in their field. The initiative described in this paper encourages collaboration among university and community partners to effectively use online learning and communications technology for professional and staff development for multiple types of professional communities.

RÉSUMÉ

La mobilisation des connaissances améliorées au moyen de techniques peut être très utile pour aider les professionnels pratiquants à s'accorder aux progrès des efforts de recherche et de développement dans leur domaine. L'initiative décrite dans cet article encourage la collaboration parmi les partenaires universitaires et communautaires à utiliser de façon efficace l'apprentissage en ligne et les technologies

We are engaged in pilot projects with two parallel professional communities within the health care sector (optometric training and practice) and the public education sector (school boards). While these communities differ in both their professional relationships and their learning needs, their variability allows us to design and test the technical, social, and instructional requirements of a generic strategy for using technology for effective knowledge mobilization.

de communication pour le développement professionnel, et ceci pour plusieurs sortes de communautés professionnelles.

Nous participons à des projets pilotes avec deux communautés professionnelles parallèles ; une communauté du secteur de soins de santé (formation et pratique en optométrie) et l'autre du secteur de l'éducation publique (commissions scolaires). Bien que ces communautés diffèrent par leurs relations professionnelles et par leurs besoins d'apprentissage, leur variabilité nous permet de concevoir et de tester les exigences techniques, sociales et pédagogiques d'une stratégie générique utilisant une technologie de mobilisation efficace des connaissances.

INTRODUCTION

Currently, there is an increasing need in our workplaces for new knowledge and flexible ways for employees at all levels of organizations to access that knowledge. One challenge for providers of professional and staff development programs is to deliver learning events and activities relevant to the needs of workplace learners. These learning events should be problem- and issue-focused in order to provide new knowledge that can be applied directly to practice. A related challenge is to use effective and usable professional development activities to bring new information to learners through flexible opportunities for individual learning and for meaningful collaborative work with peers.

In this paper we describe pilot work with university and community partners toward building capacity in the effective use of online learning and communications technology for professional and staff development. Using an open-source, web-based communication software tool called ePresence (<http://epresence.kmdi.utoronto.ca>), our goal was to bring leading-edge information and concepts to learners and decision-makers in the workplace.

Our approach to working in partnership with community and professional organizations was to engage a two-way knowledge mobilization process in which ideas, questions, perspectives, and knowledge are contributed equally by each partner. In this paper we define knowledge mobilization as “moving knowledge into active service for the broadest possible common good” (Social Science and Humanities Research Council of Canada, 2006). According to this definition, knowledge is understood to mean any or all of the following:

- (1) findings from specific social sciences and humanities research
- (2) the accumulated knowledge and experience of social sciences and humanities researchers
- (3) the accumulated knowledge and experience of stakeholders concerned with social, cultural, economic, and related issues

By defining our collaborative activities in this way, we and our partners together have sought to identify areas of new knowledge of the most interest and value, content specialists who can contribute expertise in those areas, and instructional design and delivery method choices most appropriate for specific learner groups. In turn, we have used this approach to identify the most appropriate uses of online communications technology to support learning communities of practice within and across organizations. Professionals within these communities of practice can then formulate, share, and implement appropriate applications of new knowledge. The concept of communities of practice (Barab, Makinster, & Scheckler, 2004; Lave & Wenger, 1991) is critical to our approach, as it involves collaborative peer relationships among professionals and their shared participation in research and practice.

In our current pilot activities, we are exploring the use of web-based communication technology to design, deliver, and package professional development for practitioners. There are a variety of software packages that provide the requisite technical functionality (light-weight webcasting, archiving, editing, and additional asynchronous interaction modes) and could be used. Although the approach we are developing relies on these functionalities, and this paper documents the system we use currently, the primary focus of this discussion is on the more general pedagogical and community-building aspects of technology-enhanced professional development.

BACKGROUND

The learning needs of professionals differ in several important ways from those of students who are engaged in education prior to or between periods of active career-focused employment. One obvious difference is that working

professionals have significant time constraints that are different from those of full-time students—a factor that often affects both the learning goals and the structure of learning experiences that are needed in professional development contexts.

In discussing differences in the quality of professional development opportunities for teachers, Bransford, Brown, and Cocking (2000) described four kinds of learning environments that are important to the effectiveness of those opportunities: learner-centred, knowledge-centred, assessment-centred, and community-centred.

Learner-centred environments, which build on the strengths, interests, and needs of the learner, often are lacking in professional development programs because they are not tailored to teachers' needs (Bransford et al., 2000). Knowledge-centred and learner-centred environments intersect when they address appropriate content and skill development objectives, given the knowledge and understandings brought to the situation by learners. Providing this kind of learning environment in professional development programs for educators or members of other professional groups can be challenging because these groups often vary widely in discipline specializations and experience levels. Assessment-centred opportunities include the ability to try out new ideas or skills and receive feedback. This is an especially important feature for professional development learning environments because learners need to apply what they learn in their practice and to "situate" new knowledge in authentic contexts (Greeno, Collins, & Resnick, 1996). The opportunity to share with colleagues their ideas, perspectives, and experiences in applying new approaches to practice is a valuable way for professionals to obtain feedback. Collaboration that involves sharing experiences and decision-making also helps to build communities of practice (Barab et al. 2004; Lave & Wenger, 1991) in which informal and formal relationships can promote lifelong-learning goals and the development of expertise in less-experienced participants.

The use of technology in support of professional development can enhance the opportunity to provide for these kinds of learning environments in important ways, often beyond what can be offered through face-to-face instructional events. Proponents of e-learning claim that its advantages include making learning more situated (Bransford et al., 2000) and increasing opportunities for active learning and connectivity (Laurillard, 2002; Schuell & Farber, 2001). The interactive technologies that are now available can provide learning environments in which people can learn by doing, receive feedback, and collaborate with others, thereby allowing them to continuously refine their understandings, build new knowledge, and incorporate new ideas into practice (Barron et al., 1998; Bereiter & Scardamalia, 1993; Hmelo & Williams, 1998; Schwartz, Lin, Brophy, & Bransford, 1999).

In a general sense, technology-enhanced knowledge mobilization can be extremely useful for helping practising professionals keep abreast of research and development efforts in their field. In many cases, professionals must complete minimum annual continuing education requirements in order to maintain their professional status. This is the case, for instance, with teachers in the K-12 system and with many health professionals. In Ontario, teachers and administrators must participate in a baseline of regular self-directed professional development activities and complete mandated professional development requirements within limited timelines. Continuing education requirements may take the form of formal university courses (such as additional qualifications courses required of teachers in Ontario), workshops, or conferences and other live events where participants can hear about recent research and industry developments. However, it is not always feasible for working professionals to attend live events, due to both time and geographical considerations. Although remote broadcasting and interactive online events are potential ways for learners to participate, they still require attendance at pre-scheduled times and dates. Also, although online or other forms of distance education credit courses are sometimes required or preferred, working professionals, as well as other staff and volunteers, often need access to shorter, less-formal educational events that relate to specific issues of interest. Through the initiatives described here, we have acknowledged these needs and preferences by collaborating actively with community partners who will work with us toward appropriate solutions.

These community initiatives have been piloted using ePresence software as a means for developing and delivering workplace education and training that are supported by online communications technology. The ePresence software was developed at the University of Toronto's Knowledge Media Design Institute to serve the needs of remote learners and professionals through cost-effective, open-source, web-based communications and is described as follows:

ePresence Interactive Media software is a content capturing, archiving, and webcasting system that delivers video and presentation media over the internet using multiple streaming formats for multiple platforms. ePresence also supports text and voice interaction among event participants (<http://www.epresence.tv/>, accessed June 14, 2006).

For the purposes of our current pilot activities, ePresence provides a medium through which we can explore this bidirectional knowledge-mobilization approach for capacity and community building among working professionals. The fact that ePresence is an open-source software tool has advantages and disadvantages for the University of Waterloo team that is leading the introduction of the technology within the partner organizations' management group. One obvious advantage is that it is inexpensive

compared to off-the-shelf commercial products with similar features and functionalities. It also provides the opportunity for users (i.e., members of the open-source consortium) to influence and contribute to the ongoing development of the tool's functionality. A disadvantage is that ePresence is characterized by some of the typical shortfalls of open-source software, including limitations to the documentation and support for end users. We have found that considerable technical knowledge is needed in order to set up, capture, and publish online events, particularly when technical issues requiring troubleshooting expertise arise.

So far, ePresence has enabled us to move forward in building capacity for online professional learning in terms of the readiness, attitudes, and learning capabilities of employees in our partner organizations. (These social and technological aspects of capacity building are described in more detail later in this paper.) Building capacity within organizations does not, however, require a long-term commitment to a particular software product or solution. With this and the above considerations regarding open-source vs. commercial products in mind, we remain open to the potential for partner organizations or units to move eventually toward obtaining licences for other online communications tools.

CURRENT PILOT COMMUNITIES

The aim of this project was to develop a knowledge-mobilization strategy that can serve as an overall approach to workplace education that is useful for multiple types of professional communities. Using this strategy, we are working with community stakeholders to identify appropriate content, instructional design, and delivery methods for continuing education. A second key aspect of the strategy was to facilitate effective communities of practice within the professional community.

Currently, we are involved in pilot projects with two different professional communities, one within the health-care sector (specifically, optometric training and practice) and the other in public education (a local school board). The first community is characterized by individual and small groups of practitioners whose work is largely independent of others. A primary professional development need for them is timely access to leading-edge research in the fast-paced and competitive knowledge environment of health science. The second community, that of educators, includes much more closely organized groups of professionals who work both independently (e.g., in the classroom or office) and in collegial practice communities. Their professional development needs include support in applying new knowledge under a variety of workplace environments and support in their collab-

orative work and communication with one another, which can help sustain and enhance creativity in practice.

Although each pilot project is unique to its discipline, their differences enable us to evaluate the social, technological, and instructional aspects of a generic strategy for using technology effectively in knowledge mobilization. This strategy is necessarily characterized by flexibility in combining technologies and face-to-face communication, as called for in varying workplace-learning contexts and situations. Briefly described, our goal is to develop a flexible approach to meeting the e-learning needs of working professionals through a combination of delivery approaches tailored to each learning organization or community, an approach that involves

- 1) delivery and automated archiving of a live educational event via interactive webcasting technology (ePresence),
- 2) editing the archived material for redevelopment into online instructional modules, and
- 3) disseminating the instructional modules to a wider audience of professionals through asynchronous web access.

In some instances, not all of these three steps will be necessary or appropriate for the professional learning needs of an organization. For instance, in the three pilot studies we have conducted so far, we have not delivered live events to a remote audience through webcasting. In our first pilot study, described below, we were unable to do so because of technical difficulties. Due partly to this experience in the first pilot test, our two school district partner groups (different management and operational units within the school system) determined that their pilot educational events should be created as an edited archive from the outset. It was generally agreed that while technological failures during pilot testing are to be expected, it nonetheless impedes the building of e-learning capacity with working professionals who may be exploring learning through technology for the first time. Aside from the potential for technical issues to arise, this decision was also made because of the instructional-design flexibility afforded in terms of editing presentations and combining them with other forms of instructional activities. These partners also saw value in the flexibility it allowed users to access the learning modules any time, any place.

Pilot Study 1: Continuing Education for Optometry Professionals

The first pilot project involved a partnership with the School of Optometry at the University of Waterloo (UW). The goal was to re-purpose research-based learning materials from archived continuing education (CE) events to meet the needs of geographically dispersed optometry professionals.

We captured and created an online archive of several live, face-to-face presentations that occurred as part of an annual CE conference hosted by the School of Optometry. The approximately 200 live conference participants completed questionnaires to report their preferences for online vs. face-to-face CE events and their potential reasons for these choices. We subsequently created an archived recording of five of the presentations, which could be accessed through the World Wide web on an ePresence server hosted at UW. Finally, we created a sample learning activity that involved linking to and viewing one of the conference presentations in the archive, discussing the presentation with several online peers, and completing a brief quiz on the presentation content. This learning activity "wrapper" was created in UW's learning management system, utilizing ANGEL (<http://www.angellearning.com>), which was accessible through an innovation server.

The second phase of data collection for this pilot study involved a group of remote volunteer participants, recruited from among known professional colleagues of the UW School of Optometry. These volunteers were invited to view the five archived presentations, explore the sample activity "wrapper," and complete and submit a questionnaire similar to that of the live conference participants. The data capture and analysis phase of this study are still underway and, although results appear to be promising, final conclusions are not currently available.

School Board Collaboration

We are currently engaged in two ongoing pilot projects in collaboration with a local school board toward building e-learning capacity in staff and professional development. We see this partnership as a powerful initiative for education and professional leadership within this organization, as well as a first step toward wider potential collaboration among professional communities in education and other human-service sectors. The power of technology to enhance workplace learning is viewed by these partners as both timely and important for their next steps in growth and leadership within their constituency.

Through initial discussions with our university and school board partners, we identified a number of areas of interest for knowledge mobilization. These potential targets for professional and staff development activities included knowledge and skills related to conflict management, communication and interpersonal skills, leadership, assertiveness, personal problem-solving, violence prevention, and equity and diversity issues. Drawing upon the interdisciplinary strengths in the academic areas of Social Development Studies, Social Work, and Peace and Conflict Studies at UW, we were able to provide expertise to address professional and staff development needs across a wide range of relevant topics. As identified in discussion with our school

board partners, these knowledge areas can address a number of their organization's learning goals, such as:

- awareness and skill building for staff at all levels (administration, teaching, and support staff)
- student emotional development and well-being
- prevention of school-level problems such as bullying and school drop-out
- student learning and curriculum goals such as understanding peace and conflict in society and international studies in political and economic areas

In addition to the areas of knowledge that can be mobilized from university expertise, our public education partners are developing content from their own areas of expertise in some cases. As described above, with online communications software we can capture and webcast live presentations in selected content and skill areas, publish them to archives, reuse them for remote audiences either alone or in the context of face-to-face meetings, and/or wrap them with instructional activities to be distributed online. These applications of learning and communication technologies illustrate the potential for flexible knowledge sharing and exchange in a wide variety of teaching/learning contexts. The shared mobilization of knowledge from either school system or university expertise is achieved through collaborative needs assessment and instructional design and delivery activities. At the same time, university resources are being used to assess and evaluate the outcomes and impacts of the learning events on participating staff members. These research efforts contribute to our understanding of the processes and outcomes of both knowledge mobilization and e-learning capacity-building efforts.

Pilot Study 2: Human Resources Training in Conflict Management

One of our first pilot study efforts within the overall collaboration with the school district was developing a conflict-management training module to be delivered to maintenance staff across the district. This initial step in our collaborative development and delivery of reusable online learning materials enables us to evaluate this approach to training within a particular population of learners. The module was developed as an archived presentation that includes synchronized video and PowerPoint content, delivered by a faculty member in the School of Social Work and Social Development Studies, combined with several role-played vignettes that illustrate appropriate and inappropriate behaviours in the workplace. Working together with Human Resources and Facilities representatives from the school board, we defined a roll-out strategy that enabled maintenance supervisors to see a script of the

presentation, provide feedback on the content and approach to be taken, and then access the archived module before their front-line staff viewed it. We also included face-to-face debriefing sessions with maintenance supervisors and groups of staff members to evaluate their responses to the first module before beginning development of subsequent modules.

Readiness for technology-based learning among individuals within a workplace community varies widely, depending on such factors as comfort and skill level with technology, attitudes toward training and technology, language proficiency, and prior education. To build capacity for e-learning, we believe it is critical to assess these variations and identify ways to meet these learning needs. For example, many of the staff members who participated in this pilot training module are new Canadians for whom English is not their first language. Moreover, there were cultural, gender, and interpersonal issues among this group that may have influenced not only their approach to the training but also their ability and willingness to accept both content and delivery. Their readiness may also have been influenced by limited formal educational preparedness in some cases, as well as challenges related to both oral and written English literacy. The feedback we obtained from our first module delivery and from those delivered later this year to the same and/or different staff groups will enable us to respond to these user acceptance and readiness issues in specific ways. With appropriate learner feedback taken into account, delivery via multimedia technology may enable flexible and engaging learning through visual and oral presentations, while also allowing learners to replay part or complete presentations multiple times. As was the case in this pilot module, presentations can include acted scenarios to illustrate concepts or behaviours, language translation provided as subtitles for PowerPoint slides, or other appropriate instructional features.

Pilot Study 3: Introduction to Curriculum Changes for Elementary Teachers

Another pilot study with the school district involved the creation of a set of learning modules for elementary teachers to introduce Ministry of Education-mandated curriculum changes in the area of Language. These modules incorporated content developed by a school board curriculum consultant and were designed to encourage teachers to interact with the curriculum document while working through the online presentations. The learning modules were archived to enable individuals or groups of teachers to access them with maximum flexibility in both time and location. We also created CDs for back-up delivery in case of firewall or bandwidth issues (see below).

The modules were introduced first to approximately 50 school representatives, who in turn introduced them to the teachers on staff at each

school. Although the representatives generally introduced the modules in a staff meeting, there was flexibility in how the remaining activities were completed. In some cases, teachers were able to work through the modules in the context of face-to-face staff meetings, while in other cases they completed them on their own.

This pilot study will provide an excellent opportunity to evaluate the use of online technology in the context of creative instructional design in the form of interactive, task-based learning events. Paper-and-pencil evaluation surveys are currently being administered to the approximately 1,200 participating teachers and parallel surveys are being administered to the school representatives. This study was underway at the time of publication; results will be reported in a later paper.

BUILDING E-LEARNING CAPACITY

Concurrent with the development of the online learning modules in Pilot Studies 2 and 3 are ongoing efforts toward developing the e-learning infrastructure within the school district, both socially and technologically. These efforts include testing and demonstration events involving brief, informal, live and archived presentations that are webcast to a range of district staff participants. Technical issues related to accessing ePresence webcasts or archives on the UW server from various locations are created by firewalls and other settings within the school board's internal Internet access network and by bandwidth limitations resulting from high Internet usage by students at certain times of day. In addition, building e-learning capacity in this case will mean that, eventually, the school district will host webcasts and archives on its local server, using its own version of ePresence or other online communications software. Working together on the testing and implementation of this system is another phase in the technological component of our capacity-building partnership.

Gaining user acceptance of online learning and communication at all levels of the organization is a process that requires thoughtful planning and needs assessment, monitoring of user experiences and perceptions, managing issues effectively, and ongoing effective communication. The range of knowledge, experience, and comfort levels with online communication and learning approaches seems to vary widely among individuals in the system and we anticipate that these differences will strongly influence their readiness for change. Their training and support needs in using online technology effectively and in navigating their way around the virtual environment will also necessarily vary, ranging from documentation to formal group instruction to one-on-one informal coaching. Even with a user-friendly environment and sufficient support, however, many people may still prefer some

face-to-face contact with facilitators, instructors, presenters, and peers. These issues are discussed and illustrated informatively by Barab et al. (2004, pp. 76–79) in the context of a virtual community of practice for teacher professional development. These authors found, for instance, that many teachers were reluctant to participate actively in the virtual communications space until they had face-to-face interactions with other members of the community. This need for personal familiarity had to do with understanding the context of others' videotaped classroom teaching and with gaining a sense of trust before they would share their observations and opinions online.

Our efforts at identifying and characterizing specific instances where these challenges present themselves and addressing them as opportunities for building greater e-learning capacity are still in their infancy. Our school board partners are just now introducing the concepts and potential power of online communication and learning to their professional staff. In the meantime, we are working together with technical school board staff to identify and resolve remaining technical issues that may interfere with live webcasting in order to ensure universal and consistent functionality before system-wide implementation is expected.

RESEARCH ON VIRTUAL LEARNING AND COMMUNICATION

Although we are certainly not the first to introduce online technologies for professional development and communications within community organizations, we believe that what we learn through this partnership in knowledge mobilization and capacity building may be informative to others with similar interests. To this end, we have a research agenda to document, analyze, and articulate some of the key activities, experiences, and outcomes of our collaboration. We are particularly interested in the processes and outcomes of learning that are supported with online technology, both as they pertain to professional and staff development and to learning that occurs in the context of communities of practice.

We have defined initial research questions to address such issues as:

1. the effectiveness of the learning opportunities provided through technology-mediated educational programs and activities, in terms of
 - appropriateness of content and skill development objectives, given variations in the knowledge and experience of participants,
 - participants' ability to try out new ideas or skills and receive feedback from peers (and thus to "situate" new knowledge), and

- features of technology-mediated instructional design that are most effective in various learning environments and for different audiences;
- 2. the features of the online communications and learning environment that support and facilitate professional communities of practice among educators, in terms of
 - identifying and assessing methods and technologies for online vs. face-to-face interactions for various purposes, including variations in blended approaches, and
 - identification of barriers to the effective development or support of the community that may be mitigated, exacerbated, or caused by technology.

We anticipate that our collaboration will generate additional and further-refined research questions to those we identified initially. Our long-term vision for the effective use of technology includes participation of other colleges, departments, and disciplines at the University of Waterloo, which in turn will bring content expertise and ongoing partnerships with other external groups that can enhance the knowledge and capacity-building initiatives we have begun. As noted earlier, we anticipated that additional community partners will join the collaboration, such as other school boards, as well as social service agencies and police services that work with schools to support the social and emotional well-being of students and promote safe and secure schools. These partnerships will bring with them organizational and technology cultures, professional identities, and learning needs and goals that provide different challenges and opportunities for our understanding and further study of online learning.

CONCLUSIONS

In this paper, we have outlined our initial steps in developing a generalizable but flexible strategy for using online learning technology through community partnerships to build e-learning capacity for professional development, staff training, and organizational learning. This work represents the beginning of an initiative, which we hope will grow into a much larger collaboration, implementation, and research agenda that can produce significant, positive impacts on community practices in education and health care. Conducting our joint initiatives in the context of an overall relationship strategy among organizations has provided an effective means of identifying the questions most relevant to users in the field and then mobilizing academic expertise and the most recent research related to those questions directly to those who can apply it in practice.

In addition to designing, developing, and delivering professional and staff development programs through the flexible use of online technologies, the school board partnership we have established will provide opportunities to support and enhance professional communities of practice among educators in even broader ways. We anticipate that, over time, these educators will find appropriate ways to use online technology to enhance their communication, information dissemination, collaborative problem-solving, and participation in professional communities, both internal and external to the district. There will be many opportunities for live presentations or panel discussions to be webcast to remote locations, where participants can interact with presenters through live chat or voice-over internet protocol (VOIP). These events can be archived and viewed at other times and places by those who cannot attend the live presentation. Archived presentations or other events can also be used as a focus for later face-to-face meetings at any number of remote sites.

An advantage of “one-to-many” communications tools such as ePresence or other webcasting software is that information from a single, controlled source is transmitted to all participants without being altered in any way, which typically occurs with train-the-trainer delivery models. In this way, site-based, face-to-face professional development events (including discussion, collaborative problem-solving, or knowledge creation) can be offered without losing or changing any of the content in the core messages due to individual interpretation or presentation style and ability.

Another advantage of web-based capture and publishing of learning events is that they can be archived for later access and for re-purposing. In a sense, an archived event can serve as a learning object or content resource that can be incorporated into other online learning modules, linked to learning activities within learning management systems, or included in blended-learning events such as face-to-face workshops, where participants view the archive before, during, or after live discussions. The development and use of learning designs and activities that can act as “wrappers” around archived events and presentations provide a means of creating engaging, interactive learning opportunities that also allow for rapid deployment of leading-edge research for practising professionals.

Our partner organizations can use any or all of these features to facilitate their professional and human resource development programs and to support the professional communities of practice that facilitate professional learning through collaboration and communication.

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BIOGRAPHIES

Dawn Buzza collaborates with faculty and external partners on research related to the use of learning technologies for professional and staff development. She has served as an educational and management consultant to industry and government in British Columbia, and as an associate professor of education at the University of Victoria.

Dawn Buzza collabore avec des professeurs et des partenaires externes sur la recherche se rapportant à l'utilisation de technologies d'apprentissage pour le développement professionnel et la formation du personnel. Elle a déjà été conseillère pédagogique et de gestion pour les secteurs industriels et gouvernementaux en Colombie-Britannique ainsi que professeur agrégé en éducation à l'Université de Victoria.

Liwana Bringelson is the director of the Centre for Learning and Teaching Through Technology and a research associate professor in systems design engineering at the University of Waterloo. Her interests include the application of a human-centred perspective to the design and implementation of systems to support life-long learning and teaching.

Liwana Bringelson est directrice du Centre pour l'apprentissage et l'enseignement au moyen de la technologie (Centre for Learning and Teaching Through Technology), et est professeur agrégé de recherche en techniques de la conception des systèmes à l'Université de Waterloo. Ses intérêts comprennent l'application d'une perspective axée sur le facteur humain à la conception et la mise sur pied de systèmes appuyant l'apprentissage et l'enseignement continu.

Chris Eaton has taught a variety of subjects in both elementary and secondary schools. His present role with the Waterloo Catholic District School Board is to initiate and develop approaches to using applicable technology for educator professional development and for student classroom learning.

Chris Eaton a enseigné une variété de matières dans les écoles élémentaire et secondaire. Son rôle actuel avec le Commission scolaire catholique de Waterloo est d'initier et de développer des approches utilisant des technologies applicables au développement professionnel des enseignants et à l'apprentissage en salle de classe.

Sandra Loucks Campbell is the assistant to the principal for academic planning and special projects and the coordinator of the alternate stream bachelor of social work program at Renison College, University of Waterloo. Her

interests include organizational design, gerontology, and teaching methodologies in human service disciplines and organizations.

Sandra Loucks Campbell est l'assistante du directeur de planification académique et de projets spéciaux ainsi que la coordonnatrice du programme de baccalauréat en service social formation non traditionnelle au Collège Renison de l'Université de Waterloo. Ses intérêts comprennent la structure organisationnelle, la gérontologie, et les méthodes d'enseignement des agences et des disciplines de services sociaux.

Vic Degutis has an extensive background in both the business and education sectors and is currently the chief administrative officer for the multi-faceted WCDSB Resource Development Office. The functions of this department include innovation, business development, grant development, and strategic partnerships.

Vic Degutis a beaucoup d'expérience dans les secteurs commerciaux et d'éducation, et est présentement l'administrateur principal du Bureau de financement de la Commission catholique de Waterloo WCDSB (WCDSB Resource Development Office). Les fonctions de ce bureau comprennent l'innovation, le développement commercial, le développement des subventions et les partenariats stratégiques.

Koorus Bookan has been a senior computer systems analyst at the Center for Learning and Teaching Through Technology (LT3) since 2000. In this role, he serves as technology manager for LT3's systems and research projects. Between 1997 and 2000 Koorus was a software developer with the HCI and Tele-Learning Network at the University of Waterloo.

Koorus Bookan est l'analyste principal de l'informatique au Centre pour l'apprentissage et l'enseignement par la technologie (LT3, ou Center for Learning and Teaching Through Technology) depuis 2000. Dans ce rôle, il sert comme gestionnaire de la technologie pour les systèmes et les projets de recherche du LT3. Entre 1997 et 2000, Koorus était réalisateur de logiciels avec le HCI et le réseau de télé-apprentissage à l'Université de Waterloo.