Going the distance: Developing shared web-based learning programmes

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ABSTRACT: Despite a high demand for continuing professional education, it is becoming more challenging to provide education in a resource-limited environment that meets the varied needs of learners. The advent of user-friendly, interactive communication technology led the University of British Columbia in Canada to explore the feasibility of developing a web-based distance learning programme shared by undergraduate and practising therapists to address this problem. Potential benefits and challenges of distance learning, undergraduate web-learning, pilot-test results and an assessment of therapists’ interests and needs are profiled.

Key words: continuing education, education, occupational therapists, physical therapists.

While Canadian educators face increasing pressure to do more with fewer resources (Pacey and Penny, 1995), there is mounting demand for more accessible undergraduate, graduate and continuing professional education (CPE) that better accommodates the varied needs of learners. Changing practice demands have increased occupational therapists’ and physical therapists’ interest in CPE that will enable them to function effectively in the workplace and enhance their employability (Bainbridge and Matthews, 1996; Physiotherapy Association of British Columbia Task Force, 1998; VonZweck, 1998). At the same time, greater use of computer technology in the workplace requires new graduates to have some knowledge and skill in using this technology for future practice.

Occupational therapy and physical therapy education is most commonly delivered in a conventional, face-to-face format. However, the limited availability of CPE in this form when demand is high suggests that continued reliance on this type of education may be questionable. Adapting all or parts of undergraduate courses for distance delivery has the potential to meet the
needs of practising therapists as well as undergraduates, while achieving some cost benefits (Jennings and Ottewill, 1996). When course development for one programme overlaps with another, better use of resources results (Bates, 1999). This paper explores the potential for developing shared web-based courses for undergraduates and practising therapists in the School of Rehabilitation Sciences at Canada's University of British Columbia.

**Distance education as an adjunct or alternative to conventional education**

Despite the many changes that have taken place in distance education in recent years, its core features – separation of instructor and learners, and the use of technology to enable communication between instructor and learner – remain the same (Keegan, 1996). Although the term ‘alternative delivery’ can be used instead of distance learning, the latter term is used here to emphasize the first of these features.

Today, distance education is much more than learning by correspondence (Haughey, 1995). ‘Tried and true’ print, audiotape and videotape materials, telephone communication and ‘snail mail’ are now enhanced by interactive technologies such as electronic mail and computer-mediated conferencing, making web-based instruction feasible for large numbers of people (Keegan, 1996; Khan, 1997). Such technology connects learners and instructors wherever they may be (for example, home or work), provides opportunities for cross-cultural discussion and collaborative project work, and enables learners to control when and where learning occurs (Bates, 1995; Keegan, 1996).

Growth in the use of web-based technology in distance education has been exponential in recent years (Bates, 1995; Khan, 1997). Increasingly, it is being used in the education of health professionals around the world (for example, Farrow, 1995; Neafsey, 1997; Wood et al., 1998; American Association of Occupational Therapists, 2000; Dalhousie University, 2000). Although ‘hands-on’ psychomotor skills cannot be acquired at a distance, opportunities to expand cognitive knowledge and skills are more accessible with distance learning.

At this stage, literature linking distance education and occupational therapy is sparse (AOTA, 2000; Dalhousie University, 2000). Farrow (1995: 99), an Australian occupational therapist, acknowledged that computer-based distance education is ‘even more learner centred and flexible than the use of audio-conferences and weekend workshops’. The internet also has the potential to help clients and therapists learn (Dawson and Walker, 1998; Habib, 2000; VonZweck, 2000).

Research shows that distance education can be at least as effective as face-to-face education (Threlkeld and Brzoska, 1994). Distance education enhances access to learning (Brown and Brown, 1994; Bates, 1995) and can increase learning efficiency and achievement (Szabo, 1998). The opportunities that computer-mediated conferencing affords for collaborative, case-based
and problem-based learning, as well as self-directed learning (Grow, 1991; Bridges, 1992; Dede, 1996), make it a potentially useful tool in occupational therapy education.

The planning context
The School of Rehabilitation Sciences at the University of British Columbia is the only provider of undergraduate and graduate education for occupational therapists and physical therapists in British Columbia. Each undergraduate programme is four years long (one year pre-professional, three years professional study). About 65% of the courses taken by students are unique to their discipline, with the remainder offered to two or more disciplines. A master of science degree in rehabilitation started in 1993.

The undergraduate curricula are intended to prepare graduates for future practice. Before the autumn of 1997, students used the internet only for library searches; however, the possibility of shared undergraduate and continuing professional education was realized when websites with computer-mediated conferencing were introduced in 1998. The development of shared web-based programmes is consistent with the University of British Columbia's future vision (University of British Columbia, 1998a) and the School of Rehabilitation Sciences' 1998–2000 Strategic Plan (School of Rehabilitation Sciences, University of British Columbia, 1998a).

Development of the programme was preceded by a three-part assessment process that included a) exploring the feasibility of participation in web learning, b) developing and pilot testing web-based course components, and c) assessing therapists' needs as a foundation for development of a CPE programme.

Assessing the feasibility of participating in web-based learning
Distance learning has been available at the University of British Columbia since 1949 (University of British Columbia, 1998b). A new Centre for Distance Education and Technology was established several years ago and offers more than 105 courses using distance technology. It develops and delivers programmes, courses and learning materials for clients who want cost-effective, quality education delivered in flexible formats (University of British Columbia, 1998b). Services include student recruiting and marketing, student registration and support, programme development and computer support, and the production and dissemination of course materials. With a competitive grant and loan programme it offered the best funding and administrative support for the proposed shared programme.

Access to technology and technological support
A review of technology platforms led to the decision to use WebCT (2000). It was designed by a University of British Columbia faculty member either to
complement face-to-face courses or for ‘stand alone’ distance-learning courses (Goldberg, 1997). Prompt online support is available, and the software and educational seminars on its use are available free of charge to University of British Columbia faculty. The potential value of WebCT is evident from research (Hwang et al., 1999) and from its use by 900 institutions for up to 1000 courses, in 47 countries worldwide (Goldberg, 1999). WebCT compares favourably with other web tools, can be used easily by people who are not web experts and has many useful features including asynchronous web conferencing (University of Manitoba, 1998). Website content and features can also be updated easily.

Faculty needs

The proposed websites will include case-based asynchronous computer-mediated conferencing that can develop the reflective, higher-order thinking that is essential for competent practice (Dede, 1996; Sorenson, 1999). Consequently, in addition to navigating and maintaining course websites, faculty members will need to be skilled conference facilitators. Education of faculty and funded release time for course development are needed if these benefits are to be achieved.

Learner characteristics and needs

Applicants to the School of Rehabilitation Sciences undergraduate programmes are 18–45 years of age, have some previous post-secondary education and are residents of British Columbia (School of Rehabilitation Sciences, University of British Columbia, 1998b). A total of 72 undergraduate students enter the occupational therapy and physical therapy undergraduate programmes each year. Of those admitted to the occupational therapy programme in 1998, 88.8% had internet access at home and 30% judged themselves sufficiently knowledgeable about computers that they could coach others; in 1999, these figures were 70% and 13.3% respectively (School of Rehabilitation Sciences, University of British Columbia, 1999). Annual variations like the drop in home access in 1999 are expected, but a trend to increased access is predicted over time. With a computer lab and a technician available, it was reasoned that students should have sufficient access to web learning activities.

Web learning for undergraduates

A graded approach to programme development was taken to ensure that the estimated resources were sufficient for learners to participate fully in their courses. One course was piloted in the 1998–99 academic year, and two others were piloted in the 1999–2000 year. The courses included, a) a second-year occupational therapy theory and practice course, b) a fourth-year course on
designing occupational therapy services, and c) a fourth-year occupational therapy and physical therapy healthcare management course. Website features and other characteristics are profiled in Table 1.

Five clinicians joined the occupational therapy course conferences as observers and occasional participants. The level of student conference participation was high for all courses, with one client's story prompting more than 100 postings related to ageing and disability. Although available, private conferences were requested by only three student groups, and chat rooms were visited but not used. Because less was known about physical therapy students' access to the internet, students on the occupational therapy and physical therapy course were not required to participate in the web conferences. Fifteen of the 67 students chose the non-web assignment.

Observations and recommendations

Based on our experiences to date:
1. Participation is greater and easier when learners have home access to the internet.
2. Students have different needs for orientation to WebCT depending on their learning style, and their familiarity with computers and the internet. For some, demonstration of WebCT and/or a tutorial is needed in addition to written guidelines.
3. WebCT is a viable medium for computer-mediated conferencing.
4. Participation in computer-mediated conferencing fosters greater reflection and discussion of client issues than discussion in class.

<table>
<thead>
<tr>
<th>Characteristics or website features</th>
<th>2nd-year occupational therapy</th>
<th>4th-year occupational therapy</th>
<th>4th-year occupational therapy and physical therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students on the course</td>
<td>36</td>
<td>36</td>
<td>67</td>
</tr>
<tr>
<td>Course outline</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Assignment guidelines</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Course calendar</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Student tips and links to resources</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of case-based conferences</td>
<td>4 (3 required)</td>
<td>3 required</td>
<td>2 (if chosen)</td>
</tr>
<tr>
<td>Conference group sizes</td>
<td>12, 12, 18, 18</td>
<td>18, 12, 12</td>
<td>18, 12</td>
</tr>
<tr>
<td>Private assignment bulletin boards</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Computer access survey</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Number of online quizzes</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Student progress review (marks)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Real-time chat rooms</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
5. Participation in computer-mediated conferencing does not require a high degree of computer or web literacy. A student who expressed concern about computer-mediated conferencing because of her limited familiarity with computers was an active participant after a 10-minute coaching session. Of the 160 students who have participated so far, only two have made this request.

6. Clinician participation in case-based conferences is valuable, but they also need easy access to a computer and the internet, and may need WebCT coaching.

7. Participation by course instructors in all discussions enables student and instructional assessment. Students who are having difficulty applying concepts can be more easily identified and instructors can assess first hand the degree of clarity of class instruction and course materials.

8. Conference groups of 15–18 are desirable to decrease the volume of reading for participants. Even though expectations influence the number of postings, group sizes of no more than 20 students are recommended to facilitate instructor management and grading.

9. Most students value the online learning activities and resources, and report that access to others' ideas in conferences enhances their learning.

Effective design of conference questions and process, and conference facilitation and management proved to be far more important to the learning outcomes than the medium (that is, technology). These findings will inform the next stage of programme development – the funded development of the web-based CPE modules.

Assessing therapists' needs

Consistent with the view that sound educational planning evolves from a thorough needs assessment (Boyle, 1981), a variety of methods were used to assess the characteristics and needs of the learners.

Therapist characteristics

Some 15 000 English-speaking occupational therapists and physical therapists practise in Canada (Canadian Association of Occupational Therapists, 1998; Carol Miller, personal communication, 16 December 1998). Of these, 3213 practise in British Columbia (Centre for Health Services and Policy Research, University of British Columbia, 1998). Not surprisingly, 94% of occupational therapists and 79% of physical therapists in British Columbia are women. Because 81% of occupational therapists and 86% of physical therapists in British Columbia are 25–54 years of age, and 36% of occupational therapists and 51% of physical therapists practise part-time, it is likely that many of these therapists have children and family responsibilities (Centre for Health
Services and Policy Research, University of British Columbia, 1998). With 21% of occupational therapists (46% nationally) and 42% of physical therapists in British Columbia working in the private sector, these therapists represent a sizeable proportion of the CPE market (Canadian Association of Occupational Therapists, 1998; Centre for Health Services and Policy Research, University of British Columbia, 1998).

Increasingly, therapists have access to the internet. Email or internet access by members of the Canadian Association of Occupational Therapists increased from 10% to 60.9% between 1987 and 1998 (Canadian Association of Occupational Therapists, 1999), whereas physical therapists' access was estimated to be in the range of 50–75% (Carol Miller, personal communication, 16 December 1998).

Expectations of CPE

Occupational therapists and physical therapists are expected to maintain professional competence (Canadian Association of Occupational Therapists, 1996; Physiotherapy Association of British Columbia Task Force, 1999), but the proliferation of healthcare knowledge and the significant health service changes make this an increasing challenge. A high demand among occupational therapists for CPE (VonZweck, 1998) suggests that therapists may now lack some of the skills new graduates have for today's workplace.

Availability of continuing education

Since 1982, education committees of professional organizations, usually comprising volunteers, have organized and coordinated between one and five 1–3 day workshops each year. Most of these workshops were delivered in the Vancouver area where 57% of British Columbia occupational therapists reside (Centre for Health Services and Policy Research, University of British Columbia, 1998), making them less accessible for the remaining 43%. Even so, more and more workshops are cancelled due to low registration. A 50% reduction in education funding by institutional employers (D. Mah-Jones, personal communication, 25 September 1998) and exhaustion because of greater work demands (Bainbridge and Matthews, 1996) may be contributing to this situation. The Canadian Association of Occupational Therapists offers audio-conferences and self-assessment modules as well as annual conferences, but these serve only a small number of Canada's occupational therapists. These conditions suggest that alternative educational opportunities that better meet therapists' needs are desirable to meet professional expectations. This need is likely to exist in some other countries.

Therapists' interests and perceived needs

A survey of occupational therapists and physical therapists was undertaken in April 1999 to provide extra information about therapists' interest in web-based
learning, access to technology and perceived educational needs. Of the 1574 surveys faxed to about half of the therapists in British Columbia, 366 (23.2%) of the 396 returned were suitable for analysis. Respondents preferring only web courses comprised 13.9% of the sample (n=51). The characteristics and preferences of the 80% of respondents who chose web-only, or web and face-to-face learning, are shown in Table 2.

For these respondents, none of the cross-tabulations calculated using contingency analysis were statistically significant. Physical therapists’ lower response rate may reflect their greater interest in face-to-face courses that enable them to further develop ‘hands-on’ skills. Occupational therapists’ and physical therapists’ consistently high rankings for courses on core skills such as evidence-based practice and research support the notion that shared courses could occur, even if some course components differ to meet varying learner needs.

**Distance learning challenges**

Many of the challenges in mounting distance learning programmes, such as funding, personnel preparation and administrative support, are common to other developing educational programmes, but others are unique to web programmes.

**Support from faculty**

Gaining full support for distance learning activities in a conventional educational setting can be a significant challenge (C. Entwistle, personal communication, 15 December 1998). Beliefs about the value of distance education compared with face-to-face delivery, perceived ownership of courses, hostility about changing teaching practices, and faculty perceptions of personal power

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**TABLE 2: 'Web only, and web and face-to-face' (both) respondent characteristics and preferences** (n=309)

<table>
<thead>
<tr>
<th>Category</th>
<th>Descriptive statistics</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>n</td>
</tr>
<tr>
<td>Occupational therapists</td>
<td>190</td>
</tr>
<tr>
<td>Physical therapists</td>
<td>110</td>
</tr>
<tr>
<td>Combined therapists</td>
<td>9</td>
</tr>
<tr>
<td>Employed in the private sector</td>
<td>109</td>
</tr>
<tr>
<td>Employed in the public sector</td>
<td>201</td>
</tr>
<tr>
<td>Employed in both the private and public sectors</td>
<td>44</td>
</tr>
<tr>
<td>Residents of the Greater Vancouver area</td>
<td>137</td>
</tr>
<tr>
<td>Residents elsewhere in British Columbia and the Yukon</td>
<td>171</td>
</tr>
<tr>
<td>Interested in a postgraduate, non-degree qualification</td>
<td>185</td>
</tr>
<tr>
<td>Had internet access</td>
<td>266</td>
</tr>
<tr>
<td>Had internet access and were willing to pay $500+ per course</td>
<td>109</td>
</tr>
</tbody>
</table>
and influence can make planning and delivery of the distance education programmes exceptionally difficult. Entwistle recommends involving all faculty members early in the development of any distance education programme. With concerns about workload, funded release time for instructor education and programme development is essential.

Learner support

Despite the apparent support for web-based learning from survey respondents, a significant challenge will still be overcoming therapists’ misconceptions about what distance education is and what course fees include. Because distance courses are often seen as correspondence courses, the features and benefits of web-based courses will need to be communicated clearly to therapists and employers. Practising therapists and, to a lesser extent, undergraduates will have to meet the expense of computer equipment and internet access; however, being able to interact with other learners without travel costs is likely to be a benefit rather than a deterrent. The tuition fees of undergraduates who use face-to-face and web-based learning at the University of British Columbia are not higher than the fees for students who take only face-to-face classes. This may not be true in other settings.

Conclusion

Using the web to link entry-level and continuing professional education can achieve economies of scale. Sharing development costs makes good sense when resources are scarce, greater efficiency is needed and the CPE needs of therapists parallel those of undergraduates. The two groups of learners may learn separately, but when shared learning occurs, undergraduates bring their new knowledge and therapists bring their practice experiences. By discussing their different perspectives in computer-mediated conferencing these learners can identify realistic solutions to the challenges that clients face, which are supported to the greatest extent possible by the latest research.

The convenience sampling for the survey of therapists, and the small numbers of courses and students in the pilot tests limit generalizability of these findings. Still, the advent of advanced communication technologies does have the potential to bring different learners together either nationally or internationally (Mugridge, 1995; Bates, 1999) and change the face of occupational therapy education at all levels. The greatest value, though, will be the increased access to education regardless of learners’ residence, physical limitations, family or social circumstances or ability to travel.

Postscript

Since this paper was accepted for publication, the University of British Columbia has developed a graduate-level Postgraduate Certificate in Rehabilitation that is designed primarily for occupational therapists and physical therapists.
References


Canadian Association of Occupational Therapists (1999). How far we’ve come ... Some quick comparisons from ten years ago. OT Now (Newsletter of the Canadian Association of Occupational Therapists), 1(3) (May/June): 25.


School of Rehabilitation Sciences, University of British Columbia (1999). 2nd Year Computer Survey Results. Unpublished manuscript, University of British Columbia.
Sorenson E (1999). Distributed computer supported collaborative learning through shared practice and social participation. Paper presented at the CREA D (Consortio-Reto de Educación a Distancia – The Inter-American Distance Education Consortium) conference, September, Vancouver, BC.
University of British Columbia (1998b). Distance Education and Technology: Courses, Consultation, Research, Training. [Brochure.] Vancouver, BC: University of British Columbia.

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