

PROFESSIONAL DEVELOPMENT IN THE ONLINE CLASSROOM

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Abstract

Many professionals wishing to participate in continuing professional education experience barriers as they try to juggle work, family, and their professional development activities. As a result, providers are under pressure to change the style, method, and administration of their professional development programs in an effort to meet the needs of today's busy professionals. Struggling with this issue, providers of professional development have begun to look at technology-mediated distance learning as a solution, with the World Wide Web being the technology of choice. This article reports on online participants' perceived satisfaction with a Web-based course in mandatory and credentialed continuing professional education. In addition, some course takers who chose not to participate in the online learning option were surveyed. Implications are twofold. First, the findings indicate that the Web is an excellent medium for facilitating credentialed and mandatory professional development where the main purpose is to update the participants with new and changing information. Second, computer-mediated conferencing should be explored as an extension of Web-based professional development.

Résumé

Nombre de professionnels désireux de suivre un programme de formation permanente sont tiraillés entre leurs obligations professionnelles et familiales et le besoin de faire progresser leur carrière. Afin de répondre aux besoins actuels de ces professionnels, les fournisseurs doivent procéder à des ajustements à leurs programmes de développement professionnel, sur les plans du genre, de la méthode et de l'administration. Soucieux de trouver une solution à ce problème, les fournisseurs de programmes de développement professionnel se tournent dorénavant vers la technologie, plus précisément vers la formation à distance par Internet. Le présent article fait état du niveau de satisfaction rapporté par des participants qui ont suivi un cours par Internet, dans le cadre d'un programme de formation obligatoire menant

à une attestation professionnelle. En outre, certains étudiants qui avaient choisi de ne pas suivre le cours par Internet ont également été sondés. Les résultats de l'étude peuvent être divisés en deux volets. Dans un premier temps, les données révèlent que l'Internet constitue un excellent médium quand il s'agit de faciliter les efforts de développement nécessaires à l'obtention d'une attestation professionnelle, dans les cas où le but principal du programme est d'informer les participants des nouveautés et des changements survenus dans leur domaine. Dans un second temps, il y aurait lieu de se pencher sur l'utilisation des visioconférences sur Internet en tant que prolongement du développement professionnel par Internet.

The main purpose of professional development should be to improve practice (Cervero, 1998). Ideally, professional development courses should (a) update professionals with new information related to their field, (b) assist professionals in developing a critical and analytical way of considering knowledge, (c) enable professionals to practice using judgement skills, and (d) assist them in developing new knowledge based on practice (Cervero, 1988; Schön, 1987). The latter three activities in professional development move participants from simply "updating" to improving their practice. In reality, however, these activities are rarely provided. Rather, most professional development activities are dominated by the information update model (Cervero, 1998) whereby, typically, professionals participate in a short course (e.g., 2-3 days) with a speaker who is an expert in the field, where they "sit for long hours in an audiovisual twilight, making never-to-be-read notes at rows of narrow tables covered with green baize and appointed with fat binders and sweating pitchers of ice water" (Nowlen, 1988, p. 23). This kind of professional development has been universally criticized for being ineffective in improving practice (Cervero, 1998; Cranton, 1996; Koschmann, Myers, Feltovich & Barrows, 1994).

Yet, if simply updating professionals is universally criticized, why does it continue to dominate continuing professional education? There are a variety of possible explanations for this, but the main reason is likely that alternative models (e.g., the critical model that facilitates critical and analytical thinking and better judgement skills) emphasize non-cost-effective methods such as small discussion groups, brainstorming, analogies, case studies, simulations, role play and reflection (Cervero, 1988; Nowlen, 1988). These methods have been criticized for not only being non-cost-effective but for also being inaccessible to many due to time, place, and situational

barriers (Anderson & Kanuka, 1997). Thus, even though the update model of professional development is generally acknowledged to be ineffective at improving practice, it continues to be the dominant method for professional development due, primarily, to financial constraints and access barriers. This can lead to the conclusion that, if professionals are to improve their practice rather than just up-date themselves, they will have to assume responsibility for developing their own critical analysis of the information provided and the development of new knowledge. Nevertheless, how important the need is to develop a critical and analytical way of assessing knowledge varies in degree between occupations. For example, although professionals in all occupations should strive to improve their practice, one can argue that it is more important in some occupations to become critically reflective practitioners who have well-developed judgement skills than it is in other occupations. Moreover, one can argue further that even within a single occupation, certain goals may be served well through the update model (i.e., practical and technical knowledge) whereas other, more complex knowledge, is better served through the critical model. Thus, there should be some correspondence between the professional development goals being pursued and the professional development model utilized. The research for this study is based on the assumption that there are circumstances whereby using the update model for continuing professional education is an effective approach.

A New Genre for Professional Development

Although the update model continues to dominate the majority of professional development activities, irrespective of the intended goals, there is a shift occurring in the delivery method from the short course format to a technology-mediated distance learning format (Cervero, 1998). One can surmise that the main force behind this trend is economics. Specifically, the short course format requires a loss of work time, which translates to a loss of revenue for most participants—revenue that many professionals can ill-afford to lose. In addition, many professionals have difficulty *finding* replacements in their absence. This is at a time when demands for professional development appear to be increasing. Specifically, the relationship between maintaining a competitive edge in the marketplace and keeping up-to-date in one's area of expertise makes it all too easy to experience professional obsolescence if one does not participate in continuing education. Therefore, because continuing professional education seems to be necessary to remain competitive in the marketplace, and because attending face-to-face course offerings means a loss of income for many professionals, providers

are experiencing pressure to make professional development activities cost effective and accessible. Providing cost-effective, accessible professional development activities is only part of the solution to the pressures currently felt by providers. Equally significant is the expectation that programs will meet the individual learning needs of participants. Professional development activities must not only be accessible and cost effective, but must also allow participants a high degree of control over when and where they learn, how they learn, and what they learn. Clearly, if providers of professional development activities are to meet these challenges, innovative delivery systems must be developed.

Early adopters of new communication technologies are discovering that the Internet has the potential to remove some of the constraints and barriers that many professionals experience (Kanuka & Anderson, 1998). Specifically, distance delivery using the Internet has been shown, in some settings, to be a cost-effective technology that can remove time, place, and situational barriers that discourage participation (Bates, 1997). Yet other research has revealed that, although online learning for professional development is accepted by employers and program organizers, it is not always widely accepted by participants (Anderson & Kanuka, 1997). Thus, online distance-delivered programs seem to be more successful in some environments and with some populations than others. What is it, then, that makes the Internet an appropriate delivery medium for continuing professional education? Is it possible that some types of professional development are more appropriate for online learning than others? The purpose of this research was to investigate perceived satisfaction with the Web for the delivery of mandatory credentialed professional development where the main purpose is to ensure that participants are aware of new developments related to their practice.

Review of the Literature

The literature that we drew on in this research included distance education, Web-based instruction, and models of continuing professional education. Following is an overview of this literature.

Research on the Effectiveness of Technology-Mediated Distance Learning

In its simplest sense, distance education is a learning transaction where the instructor is in some way removed from the student. At its most basic level, according to Willis (1993), distance education is where learners and instructors are separated by distance and technology is used to bridge the instructional gap. This definition is straightforward enough, but does not

reflect many of the complex activities often involved in distance education. In an attempt to acknowledge these complex issues, distance education has been defined by Moore (1988) as the organizational and pedagogical methods of providing systematic education at a distance using various forms of educational and communications technology. A basic assumption in any definition of distance education is that the learner and instructor are somehow separated and a communication medium is used to facilitate learning transactions (Moore & Kearsley, 1996).

Most areas of education are beginning to explore the use of technology-mediated distance learning. Yet in spite of the current interest, there is still much reluctance to adopt and/or integrate distance education due, primarily, to a belief that it is incapable of facilitating effective learning. In an effort to determine the validity of this concern, considerable research has been conducted. With few exceptions, these studies indicate that technology-mediated distance learning outcomes are similar to classroom learning outcomes (Phipps & Merisotis, 1999; Russell, 1999).

The research conducted in this area generally focuses on the outcomes of, attitudes toward, and satisfaction with various forms of distance education (Phipps & Merisotis, 1999). Overwhelmingly, these studies conclude that "regardless of the technology used, distance learning courses compare favorably with classroom-based instruction and enjoy high student satisfaction" (Phipps & Merisotis, p. 13). Studies by Cheng, Lehman, and Armstrong (1991), Hammond (1997), Jewett (1997), Martin and Rainey (1993), and Souder (1993) revealed that grades or test scores were either the same or higher in technology-mediated distance delivered instruction, with satisfaction levels being somewhat more favourable. These findings are consistent with other reviews of the literature such as Russell's (1997) *No Significant Difference Phenomenon* and Dillon and Gabbard's (1998) review of the quantitative research. However, these findings are based on typical forms of evaluation, such as knowledge-based tests, rather than application. The research using descriptive analysis and case studies suggests *similar* findings—though the intent of many of these studies is to develop recommendations to improve learning, rather than to compare outcomes (Dillon & Gabbard).

Some reviewers of the research (i.e., Dillon & Gabbard, 1998; Phipps & Merisotis, 1999) have questioned the validity of these findings. Original research reviewed by Dillon and Gabbard, for example, revealed four problems: (1) Much of the research does not control for extraneous variables and therefore cannot show cause and effect, (2) most of the studies do not use

randomly-selected subjects, (3) the validity and reliability of the instruments used to measure student outcomes and attitudes are questionable, and (4) many studies do not adequately control for the feelings and attitudes of the students and faculty—what the educational research refers to as “reactive effects.”

Moore and Kearsley (1996) add to this list of problems with the observation that:

The sheer weight of opinion in the literature should not allow educators to over-estimate its significance, because much of what is written is based on anecdotal evidence offered by persons and institutions with vested interests in the techniques being evaluated or in the very programs they are evaluating. Teachers or university faculty with extremely limited resources have often undertaken the research and, as a result, the methodology of many of the research designs is weak. In many large institutions where more resources are available, there is a preoccupation with so-called “institutional research” that aims at solving a particular problem of that institution or evaluating a particular course. The research is usually unrelated to any theoretical framework, and this means it has little or no general value. Even when research is done in research universities, it is usually undertaken by persons with an interest in technology, but little or no knowledge of distance education theory.

(p. 76)

Although the concerns highlighted by Dillon and Gabbard (1998) and Moore and Kearsley (1996) allow us to conclude that there is a need for more systematic and scholarly research in this area, we cannot conclude that there is no significant difference between technology-mediated distance delivered learning and face-to-face learning. At best, we can conclude that neither has yet been shown to produce consistently superior outcomes.

Effectiveness of the Web Compared to Other Technologies

The use of hypertext on the Web for instructional purposes has acquired a number of different labels (i.e., e-learning, online learning, distributed learning, web-based instruction). Although both labels and definitions in the literature vary in overall intent, purpose and focus, common to each is the use of a Web browser as the delivery platform in a way that uses its unique attributes and resources to facilitate learning. The use of the Web has gained unprecedented popularity as a technology in the field of distance education. Several reasons have been put forth for this. Bates (1997) argues that under certain circumstances it can improve access to education and training,

improve the quality of learning, and reduce instructional costs while also being popular with consumers and accessible to many regardless of computer platform. McManus (1995) explains two important reasons why many distance educators have enthusiastically embraced the Web over other technologies:

The Internet can deliver video, but not as quickly as videotape, television, or CD-ROM. It can carry real time personal interaction, but not as well as telephone or video conferencing. It can display textual information, but not as usefully as a book or magazine. Why then should the Internet be used? The Net has two real advantages over other media. It combines advantages of other media so that it conveys video and sound better than a book, is more interactive than a videotape, and unlike a CD-ROM, it can link people from around the world cheaply. The second advantage, and one that is often overlooked when discussing the Internet as a delivery system, is that it can also be a content provider. The Internet is, arguably, the largest and most diverse information resource in the world today.

Bates (1997) also addresses the advantages of the Web over other communication technologies typically used in distance education. In particular, he argues that technologies (such as one-way television coupled with two-way audio—i.e., video-conferencing) are effective when there are multiple sites within the same system, and insufficient student numbers at a particular site but sufficient overall numbers to justify developing a course. They are also valuable for special events. For example, an outside expert or panel can be brought into one or more distance locations. However, Bates points out that these technologies still keep the learners time-and-place dependent and typically have high unit costs, making scales of economy essential. The Web, however, has the ability to overcome these drawbacks. Bates argues that in addition to the Web's ability to reduce the accessibility and cost barriers of older communication technologies (i.e., interactive television and video conferencing), it can provide interaction at a distance with real people, not time or place bound. Thus, although other technologies (such as paper and audio and video cassettes) can provide learning that removes time and place barriers, the Web can, in addition, provide for two-way communication whereby students and instructors can interact directly and flexibly at a distance. Overall, then, the Web can remove time and place barriers as well as provide the kind of interaction that other communication technologies provide, but much more cost effectively and with better access.

Continuing Professional Education

In 1915, Flexner began the debate on what it means to be professional. Eighty-five years later, adult educators are still struggling with what it means to be professional. According to the literature, three approaches have emerged that attempt to define professional: static, dynamic/process, and socio-economic market (Cervero, 1988; Houle, 1980; Merriam & Brockett, 1997; Nowlen, 1988). The *static* approach, which is the oldest and probably most enduring definition, asserts that there are certain objective standards that can be formulated to define a professional (Flexner, 1915). These objective standards allow one to discriminate between those occupations that are a profession and those that are not. The *dynamic/process* approach views occupations as existing on a continuum of professionalization (Houle, 1980). This movement may be either toward or away from professionalization. The *market* view assesses a profession as to whether or not the public and political authorities accept the certified credentials of a practitioner as necessary to provide a specialized service. These services, then, become a means of earning an income for the professional.

An examination of each of these views reveals fundamental differences, as well as implications for how continuing professional education should be carried out. In particular, the differences can be seen through each model's perspective on service, knowledge, consensus, and change. The static approach sees professional service as increasingly altruistic in motivation. The market approach views the professional's service as self-serving in a market economy. In the static and market approach there is the belief that homogeneity and consensus exist within a profession. The dynamic/process approach involves becoming more, or less, of a professional measured along a continuum rather than as *either/or* alternatives. About this, Houle (1980) explains that,

The needs of society require that every professionalizing occupation become better than it is, and at least part of the effort it must exert is the improvement of its patterns of lifelong learning. A dynamic concept of professionalization offers educators both the opportunity and the challenge to use active principles of learning to help achieve the basic aims of the group with which they work. (p. 30)

Presently, rapidly changing information and an onslaught of new technologies have created a situation whereby there are many occupations that are specialized and have unique bodies of knowledge. Because occupations share unique bodies of knowledge and many have mandatory

association membership, continuing education today is generally known as *professional development* or *continuing professional education*. Irrespective of whether or not the term "professional" should be included, continuing education for all occupations has become a necessity in today's world. From this perspective, then, it could be that the dynamic/process perspective proposed by Houle (1980) is a most fitting approach to define what it means to be professional.

The Research Setting

The Alberta Real Estate Council, in an effort to ensure that all real estate practitioners in the province of Alberta are kept aware of new and changing information related to their practice, introduced a self-regulation professional development program in 1997. What this means is that real estate agents must participate in professional development to keep their license. The mandatory continuing education cycle is 2 years, with one 6-hour course in each cycle that is compulsory. The requirement is for 18 hours of continuing education from a list of courses approved by the Real Estate Council. The mandatory course was made available online for the first time in the 1997-1999 cycle. The 1999-2001 cycle mandatory course is just now being developed. As an added advantage, the Real Estate Council often uses the mandatory course when sanctioning licensees for inappropriate conduct. For example, if real estate agents do something unacceptable they may be fined, they may have their license suspended for a time, and/or they may be required to take a course on the code of conduct or ethics. Online course availability makes this type of sanction possible. Another benefit of the online course is that licensees who transfer from another province may challenge the licensing exams but may be required to take the mandatory courses from previous years to ensure they are up to date on Alberta provincial standards of conduct.

The online course was developed in a manner whereby the participants used a paper-based study guide for the content to be studied and the World Wide Web to access an assessment tool to verify whether the material presented in the study guide was read and understood. The assessment on the Web included true/false, fill-in-the-blank, and multiple-choice questions. Participants had to respond correctly to all of the questions to proceed to the next module of information on the Web. Only when all questions were completed correctly could the participants get to the Web page to certify completion. This page had a form that routed completion information to the

regulating body and only then was certification granted, enabling the practitioners to renew their license for the year.

This study was initiated to determine how well the online mandatory professional development course was received by the participants. Funding for this study was provided by the Alberta Real Estate Foundation, which is independent of organized real estate, government, and licensing authorities.

Research Activities

Activities undertaken in this study included the development of two survey instruments. The survey data were entered into FileMaker Pro (4.1v1) and exported to SPSS (10.0) for analysis. A reliability analysis was conducted for the online survey (Cronbach's coefficient alpha = .79) but not for the face-to-face survey, as the numbers were too low for a reliability analysis. Means and standard deviations for surveys were conducted using SPSS. Following is a description of the theoretical framework and the population and findings for each of the courses.

Theoretical Framework

The framework used for this study was the update model, with the assumption that some occupations, as well as practical and technical information, can be effectively facilitated through professional development activities that focus on content dissemination using a short-course format. Based on this assumption the update model seemed appropriate for real estate agents learning to identify the components of the *Real Estate Act* (rules, regulations, and by-laws). The update model is also in keeping with the Alberta Real Estate Council's goal for the professional development program.

Survey for Online Participants

The targeted participants for the online course survey were 500 Alberta real estate agents who participated in the online version of the course. Although there were more than 500 who completed the online course, a decision was made to limit the survey to the first 500 participants enrolled in order to keep within the proposed budget. Additional demographic data were collected on the survey including age, number of years as a real estate agent, level of education, reading abilities, and participation in other learning activities.

The survey instrument was pilot tested in October, 1999, with five Alberta real estate agents and two colleagues. Recommendations for changes were noted and made. The survey was implemented shortly after the offering

of the online course was closed in November, 1999. Included in the survey were questions pertaining to technological information, course design, perceived interest and satisfaction, and demographic data. The questions required either a ranking or a response on an attitude scale. Attitude scales were used because of their predictive value. One drawback of the use of attitude scales (i.e., Likert, Guttman, Semantic Differential, and Self-Rating) is that one can never be sure of the degree to which the participants' responses reflect their true attitudes, as they are self-reporting measures (see Borg & Gall, 1989). With this in mind, a decision was made not to use Likert-type scales or "indifferent" or "neutral" responses (means falling around the 3.5 range). To force an opinion from the respondents, a Thurstone-type scale was used. A Thurstone-type scale allows the individual to express agreement or disagreement with a series of statements about an object or issue. In addition to the survey questions, participants were invited to provide comments on the survey or through email to one of the researchers.

Of the 500 surveys that were sent, 204 were completed for a return rate of 40.8%. Included with each survey was a lottery ticket (Lotto 649) as well as a draw for five letter openers supplied by the Alberta Real Estate Foundation. We believe that these incentives (in particular the lottery tickets) enhanced the return rate.

Survey for Classroom (Face-to-Face) Participants

Although the focus of this study was the perceived satisfaction by real estate agents who participated in the Web-based course, we also investigated why others chose not to participate in the online learning option. The targeted participants for this group were 100 Alberta real estate agents who participated in the face-to-face course. For this survey, a random sample was provided by the Alberta Real Estate Association. The return rate for this survey (22%) was substantially lower than for the online participation survey. As in the first survey, demographic data were collected with regard to level of education, reading abilities, and participation in other learning activities in order to better understand any relationships between demographic variables and attitudes toward the course.

The second survey was pilot tested and implemented at the same time as the first survey (November, 1999). It included questions pertaining to technological information, academic and specific entry competencies, and demographic data followed by an open-ended question asking the reason(s) for not participating in the online course.

Findings from Online Participants

Most of the online participants were middle age (average = 46), male (61%), had been in the business for more than a decade (average = 12 years), and successfully completed the online course (99.5%). On the whole, the online participants were well educated (70% completed some post-secondary education) and typically enjoyed reading (89%). Finally, most of the respondents engaged in at least one professional development activity per year (84%) as well as leisure learning activities (81%). Prior research has shown that level of education and reading ability is an important predictor of success in distance learning endeavors (Moore & Kearsley, 1996). And success in learning endeavors, in turn, is also a predictor of a commitment to lifelong learning that may also be related to an interest in online learning (Collett, Kanuka, Blanchette & Goodde, 1999; Moore & Kearsley).

Technology Information

Technology related questions were asked because sometimes participants in online courses are dissatisfied with the experience, not because of the courses themselves, but because of the frustration they encounter in the delivery of the course. In part, this frustration may be attributed to the participants' lack of experience and/or technical problems encountered with the hardware and/or Internet connection (Collett et al., 1999). This section of the questionnaire attempted to get a sense of the technical skills possessed by and equipment used by the participants, as well as their comfort level. The data reveal that the majority (77%) of participants believed their computer skills were good. The data also revealed that slightly more than half (53%) of the respondents do their work on a computer in their home, whereas the rest (47%) work on a computer in their office. In addition, it is clear that an overwhelming majority (94%) work on a PC rather than Macintosh platform. Most participants (67%) used a dial-up connection to access the online course.

Course Design

Participants were very satisfied with course design, with only a small portion (13%) having difficulty accessing the course. Overall, the participants found the information easy to understand (95%), easy to read (95%), valuable (87%), applicable (82%), and interesting (81%). In addition, most (92%) perceived the computer-generated feedback as helpful. Case studies were ranked as the most useful online assessment activity by 52% of the participants, whereas fill-in-the-blank was ranked as the least useful assessment activity by 56% of the participants.

Perceived Interest and Satisfaction

An overwhelming majority (97%) were satisfied with the Web as a learning medium, found learning online interesting (94%), were able to control the pace of the course to best suit their needs (96%), and were able to control when they would work (97%). The most motivating reason for online participation was the ability to learn when and where they wanted. The majority (67%) preferred online learning to a classroom teacher. However, there was a split response (agree 43%; disagree 43%) as to whether or not participating with colleagues would add value to their learning.

Comments Submitted by Online Participants

Three main themes emerged from the comments with respect to the online course offered: (1) professional development was considered to be necessary and valuable, (2) the online questions were not effective at assessing learning, and (3) many respondents perceived the professional development courses as a way for the providers to increase their revenue. The following quote is an example of the general attitude shared by many of the participants:

Doing PD is a great idea and needed, but I think you need to know that there was a "cheat-sheet" going around—I completed the course in 10 minutes...it seems to me that the main reason these courses are offered is to make money...I certainly did not learn anything of relevance to me.

Findings from Classroom Participants

Similar to the online survey, most of the participants in the classroom course were between the ages of 35 and 54, well educated, and typically enjoyed reading. In addition, most of the respondents engage in at least one professional development activity per year and participate in at least one leisure learning activity per year. Again, similar to the first group of participants, a commitment to lifelong learning seems apparent.

Technology Information

Technology-related questions were asked in the second survey to get a sense of whether or not a decision to participate in the face-to-face course, rather than the online course, was due to a lack of technical skills, comfort levels, and/or equipment. The findings revealed that the majority (73%) of participants indicated that their computer skills were good, with most using a personal computer daily (85%). Most also had Internet access (91%).

Comments Submitted by Face-to-Face Participants

Two main themes emerged from the open-ended question with regard to the reason(s) for choosing not to participate in the online course: (1) a desire for a learning environment with interaction between and among other course participants and instructors, and (2) anxiety about doing a course online because of a perceived lack of the required computer skills and/or equipment. These data, at first glance, suggest that respondents are contradicting themselves since 73% indicated on the first part of the survey that their computer skills were good, with most using a computer daily. However a closer look reveals that, although they felt comfortable using a computer for work-related tasks (i.e., word processing or e-mail), many felt anxious about using a computer for learning activities.

Discussion

The data from this study suggest that there are both benefits and drawbacks to using the World Wide Web for professional development—though the benefits seem to outweigh the drawbacks. Demographic data indicate that almost all the participants were well-educated, enjoyed reading, and were mature adult learners. Research on distance education has shown that these characteristics are a good predictor of a successful technology-mediated distance learning experience (Billings, 1989; Moore & Kearsley, 1996). In particular, one of the best predictors of success in distance education is educational background of the participants. Because almost all of the participants successfully completed the distance learning activity, the findings of this study support prior research on the relationship between education level and success factors and further indicates this relationship is generalizable to continuing professional development.

Other demographic data reveal that most of the participants were good to expert at using a computer and most did not experience technical problems. Research on technology-mediated learning has shown that sometimes participants are dissatisfied with online learning not because of the courses themselves but because of a lack of technology skills (Anderson & Kanuka, 1997; Collett, et al., 1999). The findings of this study are in agreement with this prior research. Thus, it appears the level of success experienced with Web-based professional development is to some degree dependent upon the level of computer skills possessed by the participants.

In regard to the design of the course, the data indicate that a paper-based study guide followed by interactive assessment with computer-generated feedback on the Web is perceived by the course participants as an extremely

satisfactory medium for credentialled professional development. Specifically, the integration of both platforms seems to put to use the best in both media. Paper-based platforms for distance education have the advantages of being ubiquitous, transparent, non-threatening, easy to use, cost effective, and time effective (Bates, 1995; Willis, 1993). Willis cites the limitations of print-based technologies as being passive and self-directed with low or no feedback and interaction. These limitations, however, can be overcome when the Web is integrated with dynamic Web pages that provide assessment and generate feedback based on learner responses. These findings are consistent with other literature (Collett, et al., 1999; Dirkinson, 1997).

With respect to course administration and design, research has shown that isolation, difficulty of course content, lack of relevance to personal or career interests, and administrative requirements can adversely affect successful distance learning transactions (Calvert, 1996; Collett, et al., 1999; Moore & Kearsley, 1996). For example, if a distance-delivered online course has content that is too difficult, takes too much time and effort, or if learners become frustrated through an inability to handle administrative requirements, they will be less likely to complete the course. The findings from this study indicate that there was overwhelming satisfaction with respect to the course design and administration. In addition, few respondents indicated administrative problems with enrolling, receiving materials, or accessing the Web-based course. On-screen information was perceived as easy to read and understand, the information was considered by most to be valuable and applicable to their practice, and the computer-generated feedback after each question was perceived by most as helpful. These data, then, indicate that the design of this course was appropriate for this kind of professional development.

As previously noted, many scholars advocate the use of Web-based instruction. The main benefits claimed include consumer popularity and the ability to expand access to education and training by removing time, place, and situational barriers. The findings of this study support these claims. Most of the respondents, for example, felt they were able to control the pace of the course to best meet their needs, found learning online to be interesting, and were satisfied with the Web as a learning medium. The most motivating reason for participating in the online course was the ability to control when and where they learned that best suited their needs. An inconsistent finding, however, was that although most respondents indicated they preferred learning from the Web to a classroom teacher, there was a split response as to whether or not participating with colleagues adds value to their learning.

There are a number of possible explanations for this. First, it is well documented in the distance education literature that many distance learners experience isolation (Calvert, 1996; Collett, et al., 1999; Moore & Kearsely, 1996). It could be that feelings of isolation were felt by the online learners that are not felt when participating in classroom learning environments. Another explanation could be that there is perceived value in dialogue with colleagues but little perceived value in content dissemination from a classroom teacher. It is likely that the latter is a more plausible explanation for these findings since both the online course participants and the face-to-face participants offered additional comments supporting this. For example, one participant wrote the following message on the survey:

The online learning was more bearable with this kind of dry subject—in the classroom course you can't "click-click" your instructor to hurry up or disappear! ... The biggest drawback I encountered was not interacting with other members. I find this is rewarding, I can relate the information to the experience of my own and others.

Incorporating a discussion board or other interactive element into course design would provide an opportunity for such interaction and would promote professional development more consistent with the critical model (as explained above), rather than the up-date model. It is possible to use computer-mediated communication software to facilitate the kinds of instructional methods (e.g., small discussion groups, brainstorming, analogies, case studies, simulations, role play and reflection—also referred to as deep learning approaches) thought to facilitate critical thinking skills (see Collett et al., 1999). Research on the use of computer-mediated communication using deep learning approaches has revealed that it is possible to facilitate critical thinking skills and knowledge construction in online learning environments (Newman, Johnson, Cochrane & Webb, 1996). Data from this study indicate that the most preferred instructional method was the case study; as well, data indicate many participants value interaction with co-learners. Further research is needed to determine what uses of computer-mediated communication best facilitate learning aligned with the critical model.

Literature on using the Web for assessment indicates that there are problems with cheating using an online medium (Dirkinson, 1997). This study was consistent with these findings. Although this was not a question asked in the survey, comments written on the survey and sent by e-mail to the researchers indicated that cheating was occurring. Comments such as the

following were typical: "The assessment needs to be rethought ... One person in our office did the course and kindly wrote down the answers for the rest of us. I completed the online course and couldn't tell you a thing that was on it!" There are a number of solutions to this problem that have traditionally been used in distance education courses. One option is that the assessment could be given in a place where it is proctored. Alternatively, this problem might also be solved through a minor change of design on the Web pages. If both the questions and responses were to be randomized it would make choosing the correct response very difficult without reading the questions and corresponding material. An even better solution—although more costly—might be to have an auto-review program whereby the information is re-generated based on the participants' initial errors prior to them being allowed to re-challenge the test. Once the information is reviewed and the participant feels ready to be reassessed, comparable, though not identical, questions can be regenerated. This routine can be used until the participant scores correctly on all the questions.

Although our findings are consistent with other published studies in the distance and online learning literature, our findings do conflict with some research reported on the perceived value of online learning, from the perspective of participants. Research in this area has revealed that many adult learners are not enthusiastically embracing technology-mediated distance learning. Specifically, research has shown that many learners participating in continuing education, while needing more flexible alternatives, do not necessarily want to use technologies and often experience frustration with both the technologies and distance-delivered instruction (Hara & Kling, 1999; McGettigan, 1999). The outcome of this study appears to be in conflict with these findings in that 97% of participants were satisfied with the Web as a learning medium. A possible explanation for this finding could be that the type of professional development offered in this online course meets the needs of this population. The population for this study was people who were, typically, successful in their field, had considerable experience, and were well educated and technically competent. In addition, the professional development course in this study was based on the update model, where the purpose was to ensure that participants have a common knowledge base of information required for responsible practice. It is possible that the majority of these successful practitioners may have already been knowledgeable about the content, but found responding to the questions in the online course was the easiest and most efficient way to gain the necessary credential. The online course, then, provided an opportunity for practitioners who were

already knowledgeable about course content to gain credentials without having to spend considerable time in a face-to-face setting reviewing information that they already knew. At the same time, this format also provided the governing body with evidence—test results—that the practitioners knew the information prior to awarding them their credential. Comments submitted by the online course participants support this explanation. For example, one participant commented:

I am already very familiar with the course content, so I simply went into the World Wide Web course site and responded to the questions and got my completion certificate. Prior to this online course, I would have had to sit through a weekend of boring classes and review information I already know. For this reason, online courses have my vote!

Another theme that emerged was that many of the participants believe the goal of professional development was to generate revenue for their professional association. Specifically, although many comments indicated that professional development was considered necessary and valuable, it was also perceived as an income-generating opportunity by the offering association. The following comment is indicative of the general sentiments on this issue:

Doing professional development is a great idea. Doing it on the Web is an even better idea ... It took me 10 minutes to get my “congratulations” notice. Yes, this Web course is definitely the way to go for me. And a good way for [association] to make money. Is that the point of all this?

Support for the idea that professional development is big business and that there is an increasing amount of money to be made in continuing professional education can be seen in large corporations, such as IBM, which are now offering this service. Cervero (1998), for example, commented in a keynote speech, “I assume there must be a great deal of money to be made in continuing education because businesses are beginning to directly compete as an independent, for-profit provider of continuing education with universities and associations” (p. 5). However, if professional development is to have meaning and relevance for those who participate, benefits other than generating revenue for the sponsoring associations must be made clear.

Finally, the data from this study indicate that classroom (face-to-face) course offerings should continue to be provided for participants who do not have the equipment or skills necessary to fully participate in online courses, as well as for those who value interaction between other course participants and their instructors. Following are a few examples of the kinds of comments

received in the open-ended section of the questionnaire for the classroom participants:

"I do not have more than a 486 computer and I do not deal with Internet and email or any other online services whatsoever."

"Although I currently own a computer, I am slowly becoming comfortable and knowledgeable about how it functions. I guess I could have taken the online course but because I am not of the computer generation, I tend to shy away from them. Perhaps that will change in the next little while, but until then I will not do the online course."

"I need to be in a classroom atmosphere when it comes to the development courses. The interaction, communication and experience with other members, I find is more rewarding. I can relate the information to experiences of my own and others. I need human feedback. I can't get that from a computer, it does what I tell it to do, or I simply answer yes or no or whatever. Anyone being in this business needs to learn from experience of others as well as themselves. Classroom atmosphere keeps me in mode. Computers shut off with a button. It would be too tempting for me to say LATER!"

These comments indicate that not only do some participants not have the necessary computer equipment and skills to participate, but that human elements, such as learner-to-learner and learner-to-instructor dialogue and feedback, are valued.

Conclusion

Many professionals wishing to participate in continuing professional development activities experience time, place, and situational barriers. Providers of professional development who are exploring the use of technology-mediated learning are discovering that Web-based learning can remove many of these barriers. The outcomes of this study are consistent with these claims. Specifically, the findings of this study indicate that Web-based learning has the potential to be an excellent medium for facilitating credentialed and mandatory professional development and is valued for its ability to "time shift," resulting in the removal of time and place barriers.

The data from this study also indicate that the goals of the providers and the goals of the participants were not entirely aligned. Specifically, many participants expressed their goals as an opportunity to gain a better understanding of the issues presented, whereas the goal of the provider was to update the participants with new and changing information. As mentioned

in the discussion section, there was a desire by some respondents to participate in a more interactive environment with discussion between and among co-learners about deeper issues relating to their practice. Likewise, the most preferred instructional method was the case study, which indicates a preference for a more critical approach to learning the course content. In the discussion section we also suggested that the use of computer-mediated conferencing may result in movement closer to this goal. Reflection on this data leads us to question whether the update model is ever appropriate for professional development, regardless of the occupation and content, in that the goal of many participants is to improve their practice. This, in turn, begs the following question: *What is the point of increasing access if it is not worth delivering (i.e., it does not improve practice)?* The conclusion we have drawn here is that computer-mediated communication needs to be explored further as a platform for delivering continuing professional education. Computer-mediated communication is a technology that not only removes time and place barriers, but can also employ the kinds of instructional methods necessary to offer professional development grounded in the critical model.

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