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**Creating appropriate online learning environments for
female health professionals**

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Abstract

Abstract: In this study, the experiences of seven female health professionals learning online are examined and, in this context, the implications for online course designs and future research are discussed. The instruments of data collection include individual telephone interviews, journals written by the participants during online courses, and e-mails exchanged by the participants and researcher. The principles of qualitative research are integrated into the process of collecting and analyzing the data. Participants identified lack of face-to-face interaction and overload of work as major challenges to learning online. Increase in confidence and the opportunity to belong to a community of learners were cited as rewards of learning online. In addition, the participants identified preferences for contextual and experiential learning, and for learning environments that foster collaboration. Participants agree that interacting with other classmates, building local support, and developing a mentoring relationship with instructors are key aspects of a successful learning experience.

Résumé: Dans cette étude, on examine les expériences de sept femmes professionnelles du domaine de la santé qui apprennent en ligne et, dans ce contexte, on discute des répercussions sur la conception des cours en ligne ainsi que sur la recherche future. Parmi les instruments utilisés pour la cueillette de données, on trouve les entrevues individuelles par téléphone, les journaux tenus par les participantes pendant leur cours en ligne ainsi que les courriels échangés entre les participantes et le chercheur. Les principes de la recherche qualitative sont intégrés dans le processus de cueillette et d'analyse de données. Les participantes ont mentionné que les plus grands défis de l'apprentissage en ligne sont le manque d'interaction en vis-à-vis ainsi que la surcharge de travail. L'augmentation de la confiance et l'occasion de faire partie d'une collectivité d'apprenants sont indiqués comme des points forts de l'apprentissage en ligne. De plus, les participantes ont indiqué préférer l'apprentissage contextuel et expérientiel ainsi que les milieux d'apprentissage qui favorisent la collaboration. Les participantes conviennent que l'interaction avec d'autres condisciples, le fait de pouvoir compter sur un soutien local et l'élaboration d'une relation de mentorat avec les instructeurs sont essentiels à une expérience d'apprentissage

réussie.

Introduction

Online learning is a reality in Canada. In 2001, 57 percent of Canada's 134 colleges and universities offered online courses. Combined, these institutions offered almost 3000 online courses, ranging from one to 340 such courses for each institution (Advisory Committee for Online Learning, 2001). Health professionals constitute a growing group taking advantage of the flexibility offered by online learning (Chapman 2000; Dixon, Horden, & Borland, 2001). Most professional associations that regulate health professions in Canada require that their members undertake education periodically to update their skills according to changing demands in the field of health (Zimmerman, Barnason, & Pozehl, 1999). Because females constitute the majority of health professionals in Canada, there is a strong possibility that the number of women seeking online post-secondary courses will increase significantly in the near future (Statistics Canada, 1998). In this context, research that focuses on online learning from a female perspective has become relevant to the design and delivery of online courses.

Literature Review

Online learning at its very best is considered a self-directed approach in which the student plays an active role in the learning process (Chapman, 2000). In other words, instead of passively receiving information, students need to be able to process information and express their ideas independently (Dixon et al., 2001; Zimmerman et al., 1999). Instructors play a facilitator role in online environments which includes helping students to keep focused on their learning, encouraging group work, providing constructive feedback, assisting with the technology, or referring students to the academic resources responsible for dealing with technological issues (Mills, 2000).

Logistical and schedule flexibility are considered by participants to be the main reasons for the growing popularity of online learning among female health professionals (Chapman, 2000; Dixon et al., 2001; Soon, Sook, Jung, & Im, 2000). This specific group needs to accommodate education into their busy schedules, which usually involve responsibilities in addition to being a student, such as raising a family and shift work (Kramarae, 2001). Logistical flexibility can be extremely beneficial to students living in rural areas who wish to pursue further education. Furthermore, the logistical flexibility offered by online learning can facilitate partnerships between institutions all over the globe, providing students with more program options (Zimmerman et al., 1999).

Although learning online offers the advantages of logistical and schedule flexibility, it also poses challenges as a result of the geographical distance between students and academic institutions. Students report anxiety about technology, overload of work, lack of visual cues, and lack of spontaneity in the communication and feelings of isolation (VandeVusse & Hanson, 2000). The way students perceive and deal with these challenges is a result of the interaction between their learning preferences, gender, and the pedagogies to which they are exposed (Cravener, 1999).

Learning preferences relate to the different ways learners prefer having course content presented and taught (Carnwell, 2000; Yuliang & Ginther, 1999). These preferences are usually developed based on the pedagogies and social contexts to which the learners were exposed. Furthermore gender, age and culture may also play a role in the development of these learning preferences (Holton, Swason, & Naquin, 2001; Merriam, 2001). For example, the way women use technology as learners or teachers is embedded in historical, social and cultural values (Campbell & Varnhagen, 2002). Due to the fact that males were primarily responsible for the developments in the field of information technology, technology tends to reflect androcentric learning preferences, such as preferences for learning about abstract concepts and preferences for objective and quantitative knowledge (Burge & Lenskyj, 1990; Stanley-Spaeth, 2000). These characteristics are not always congruent with female learning preferences. Campbell (2000) and Smith (2001) observed that in both face-to-face and online environments, women tend to prefer online designs that foster collaborative, contextual and well-organized teaching approaches.

According to Campbell (2000) and Gillis, Jackson, Braid, MacDonald and MacQuarrie (2000), constructivist pedagogies such as situated learning seem to best accommodate the learning preferences of female students because in such environments, learning will occur through collaboration, negotiation and integration of prior knowledge to the new information (Dolmans, Volffhagen, Van Der Vleuten, & Vijnen, 2001; Jonassen, 1995a, 1995b). Moreover, these pedagogies can increase female students' motivation to learn because the problems proposed are derived from real situations and, therefore, are perceived as relevant to practice (Gillis et al., 2000).

As previously stated, learners bring to online environments a variety of learning preferences which are the result of the interaction among previous learning experiences and social aspects such as gender. However, it is also important to underline that these learning preferences are not always congruent with the demands of learning online. For this reason, students will often feel the need to adapt their learning preferences and develop new skills

to enhance their learning and their performance as students. These adaptations are possible and can be facilitated in the online environment by constructivist pedagogies and the provision of the appropriate level of support as discussed in this study.

Methods and Procedures

The Sample

The participants of this study were seven female health professionals enrolled in a distance Master's program which was primarily delivered online. A face-to-face orientation session at the beginning of the program was offered to the students. The instructional design of the program involved assigned readings, weekly bulletin board discussions, individual and/or group assignments, and teleconferences. All of the participants were in the last year of their program, and therefore, enrolled in different elective courses due to their research interests. The researcher was a colleague of the participants in the core courses taken during the first years of the program.

Inviting Prospective Participants

The prospective participants were contacted by e-mail or by telephone, following a list of contact names created by the researcher during her time as a Master's student in the same program. A consent form explaining the study in details and the participants' rights was signed prior to beginning of the study.

Instruments of Data Collection

In qualitative research, the methods of data collection should facilitate the process of reflecting and interpreting the experiences lived by fostering collaboration between the researcher and the participants. In this study, the experiences of seven female health professionals learning online were understood and interpreted as they were articulated in individual telephone interviews, journals, and e-mail messages, as described next.

Open-ended questionnaire and individual telephone interviews.

The open-ended questionnaire was created as a guide for the individual open-ended interviews (see Appendix). This questionnaire was sent to the participants a week before of the scheduled interview to provide them with the opportunity to reflect in advance about their experiences as online learners. The individual open-ended interviews took place over the telephone and lasted approximately 60 minutes each. The decision to use telephone interviews in this study was based on the wide distribution of participants across Canada and on the affordability of the method. The participants received a copy of their own transcript as an e-mail attachment, having the opportunity to withdraw, clarify, or elaborate on comments by e-mail or by telephone according to their convenience.

The main goal in conducting telephone interviews was to communicate synchronously with the participants. According to Valente and Luzi (2000), synchronous communication tends to be more spontaneous and less informal. Therefore, the identification of emotion and feelings through the voice tone and inflexion used during the conversation tends to be easier.

E-mail messages exchanged between researcher and participants.

E-mail communication between the participants and researcher during the study was also considered research data. The main goal in communicating with the participants via e-mail was to create the notion that data collection in qualitative studies is a process of facilitating interaction and building knowledge through constant communication and negotiation. The e-mails exchanged between the participants and researcher facilitated the understanding of their life contexts. In these e-mails, not only information about the study was shared, but also personal life aspects such as family and work, and their influence on their experiences as online learners. The exchange of e-mails between the participants and researcher was extremely helpful during the process of collaboratively analyzing the study findings. Also, it was useful to ensure that the perspectives of the participants were respected and valued as knowledge.

Journals or notes written by the participants.

In some online courses taken by the participants, journals and individual notes were part of the instructional design. The journals written by the participants and researcher constitute narratives written during the moment they were experiencing online learning. The process of writing these journals involves reflection and self-evaluation. Moreover, the journals constitute powerful instruments to facilitate personal growth and to understand the context in which the experience occurred. The goal in using these journals was to compare the similarities and differences of the experiences lived in the past and present and to examine if the participants' perceptions about learning online changed during the years and according to their life contexts.

The three data collection instruments applied in this study—individual telephone interviews, journals and e-mail messages—facilitated collaboration, honoured participants' perspectives, and contributed to the understanding of the participants' contexts.

Limitations and Implications of the Data Collection Instruments

According to the data collection instruments applied in this study, it was anticipated dealing with the following limitations:

1. Participants' tendency to focus on what is being asked instead of bringing new information to the study: In order to minimize this limitation, the questionnaire was structured in an open-ended manner to provide the participants with the opportunity to explore their experiences as online learners and to talk about the themes that are relevant to them (Cresswell, 2003).
2. Participants' difficulty in conveying their thoughts through writing: Considering that writing is a usual form of communication in online courses, it was assumed that participants would be able to express themselves in writing with little difficulty.
3. Lack of visual communication: In all the instruments of data collection used in this study, lack of visual communication was considered the most difficult limitation to control (Valente & Luzi, 2000). This limitation is expected in research involving distance students due to the geographical distance between participants and researcher and the affordability of communication media which do not involve face-to-face interaction (Gillis et al., 2000). This limitation was controlled by asking the participants to check their transcripts to ensure that no aspects of the conversation were missed or misunderstood due to the lack of visual communication.

The combination of these three instruments of data collection facilitated viewing the participants' perspectives through different lenses, providing a comprehensive understanding of their experiences (Wildy, 1999) and minimizing the limitations previously described (Cresswell, 2003).

Data Analysis

The data gathered was coded by using the computer software Microsoft Excel. In order to identify the major themes in the data collected, a holistic approach was applied to the interview transcription to isolate the main thematic aspects (Cresswell, 2003). By using this approach these five major themes were identified: (a) the reasons for learning online, (b) learning preferences of the participants, (c) challenges of learning online, (d) addressing the challenges of learning online, and (e) the rewards of learning online.

In this preliminary coding stage of the data analysis, the threads of the interview transcriptions were coded according to the five major themes previously identified. Once this preliminary analysis was finished, a selective approach (Cresswell, 2003) was applied to uncover interrelated themes and to isolate phrases or statements that were essential to interpret the experiences of the participants.

In order to provide context for the findings and to help the reader understand the participants' backgrounds and perspectives on online learning, brief descriptions of each participant were created:

Participant 1: A full-time recreation therapist in Western Canada, married with two very young children. In her story, she talked about the challenges of being pregnant during the online program while working full-time. During the program, she valued the flexibility that online learning offered to her. She thought that instructors should present the course content in a variety of ways and this variety should also be reflected in the assignments. Moreover, she viewed technological support as crucial for students to perform well in online courses.

Participant 2: A full-time nurse, with a managerial position in Western Canada, married with four children. This participant already had some experience with distance learning. In her story, she mentioned the challenges of being a student and having a demanding job. She considered her good organizational skills and motivation the reasons for her success in online learning. Although she understood the advantages of using a variety of communication media in the delivery of online courses, she also thought that such an approach could reduce flexibility, which in her opinion is the major advantage of online learning.

Participant 3: A full-time health promotion consultant in Eastern Canada, single. In her story, she talked about the rewards of belonging to a community of learners. She felt that online learning suited her because she is an introverted learner who prefers to reflect before coming forward with an answer. Also, she pointed out that online learning provides adult learners with the opportunity to be in control of their learning. She thought that instructors could support learners by being constantly present in the bulletin board mediating the discussions.

Participant 4: A part-time health educator in Western Canada with two adult sons and also taking care of aging parents. In her story, she talked about the flexibility offered by online learning for students living far from the universities and about how her confidence as a professional increased due to the knowledge and skills she gained during the program. She thought that instructors should acknowledge the students' professional and academic backgrounds in order to provide the right amount of support. She developed her own source of local support by starting periodical meetings in her city for distance students interested in getting together to share experiences.

Participant 5: A part-time community nurse in Western Canada, single mother of a toddler. This participant already had some previous experience with distance learning. In her story, she talked about the importance of having a mentor. She felt that the lack of face-to-face interaction was the reason why she was not able to develop this mentoring relationship with an instructor. She said that she considers learning a social experience and prefers learning environments that foster experiential learning.

Participant 6: A full-time health educator, in Eastern Canada, married without children. In her story, she talked about feelings of isolation caused by the lack of face-to-face interaction. She pointed out the need to create strategies to best support online learners. She said that she considers herself a visual learner and stated that most online environments are not always supportive of visual learners. She thought that instructors could support students and improve their motivation by promptly answering students' questions and by providing students with constant positive feedback.

Participant 7: A full-time nutritionist in Western Canada, married with one toddler and pregnant with her second child. In her story, she talked about the overload of work in online courses in comparison to face-to-face courses. She said that she prefers learning in a well-organized environment in which the learning goals are clearly stated and the main aspects of the course content are presented in a logical way. She thought instructors should be constantly involved in online discussions, mediating and summarizing them, and she felt that the addition of visual information and communication media could enhance the learning experience for distance students.

The discussion of the results was based on collaboration between researcher and participants and on the literature reviewed in this study. Once the researcher finished identifying the themes, the participants had the opportunity to review and check them according to their reality as online learners. Five out of seven participants provided valuable feedback which was incorporated into the findings of the study. Considering that one of the goals of the study was also to facilitate reflection on the experiences lived by the participants and to advance the existing knowledge about gender issues in online learning, the study data analysis also presents the implications of the findings for online learning and questions for further discussion.

The Reasons for Learning Online Geographical and schedule flexibility.

Most of the participants decided to become distance students because of the geographical and schedule flexibility offered by online learning. They appreciated the fact that they were able to pursue additional education without having to move to another city, quit their job or be away from family while attending classes. Especially for the participants with young children, online learning represents a chance to pursue further education without being away from home. As one participant put it,

Distance Education enabled me to continue full-time employed as I could fit my studies into my work schedule better than rigid schedules of on-campus university classes. Having children still at home, this flexibility also enabled me to meet all my home obligations. (Participant 2: Nurse in Western Canada, e-mail, August 27, 2003)

Additionally, according to the passage quoted below, online learning also represents a valuable opportunity for individuals who live in remote areas to pursue additional education without having to leave their communities: "I live a very long way from the university and I was not prepared to leave my family, but I wanted to do a Master's degree. So, distance learning was the only alternative for me" (Participant 4: Health educator in Western Canada, interview, August 20, 2003).

However, there were also several participants who live in big centers who decided to enrol in online learning because of the characteristics and quality of the program offered online or because they found it more comfortable and convenient to pursue their education from home and not to have to commute to the university campus and spend several hours attending lectures. One of these urban participants explained her reason for choosing to study online: "It was just a great program and I guess the main thing was that I wanted to maintain my life here and not move to a different city" (Participant 1: Recreation therapist in Western Canada, interview, August 9, 2003).

These results relate to the findings in the studies conducted by Chapman (2000) and Zimmerman et al. (1999), in which health professionals also identified online learning as flexible. However, participants in those studies seemed to focus mostly on the geographical flexibility. In the case of this study, the participants equally valued the geographical and schedule flexibility offered by online learning, and this understanding of flexibility brings the perspective that online learning can be an attractive option for health professionals living in both rural areas and main cities. This idea challenges the notion that online learning is only for individuals living in remote areas who otherwise would not have access to a university.

Previous experiences with distance education.

Some of the participants interviewed, such as Participants 2 and 5, already had some experience with distance education, which, in combination with the flexibility offered by it, made them willing to try distance education again. It seems that students who were previously successful in a distance program are more likely to try it again. As one participant put it, "I had some experience with distance education before So, I was comfortable with doing it" (Participant 5: Community nurse in Western Canada, interview, August 13, 2003). The previous distance courses taken by some of the participants followed the correspondence style with less interaction with classmates and instructors. One participant explained, "My prior experience with distance learning although the more traditional correspondence style, was very positive, so I sought out a distance program for my Master's" (Participant 2: Nurse in Western Canada, e-mail, August 27, 2003).

In the literature reviewed, no link between the previous experiences of distance students and the role that these experiences played in choosing distance education again was found. However, in this study, Participants 2 and 5 related their choice to become distance students to their previous experiences and they also frequently compared the program they had previously with their current one. As the number of online programs offered in Canada increases, the chances of having students enrolled several times in online programs will also increase. As a result, these students may bring their previous experiences with online learning to the courses they are currently taking.

Prior experience with online learning represents both an advantage and a challenge for instructors and course designers. The advantage is that students may bring some expertise to the online environment in terms of dealing with the technology applied in the delivery of such courses. The challenge is that students may also bring expectations regarding how the course should be designed and taught. Especially for instructors teaching online, knowing in advance how many students in a class were previously enrolled in online learning, what type of learning environment they were exposed to, and what kind of experience they had can help them to deal with the students' expectations.

Learning Preferences of Participants Needing structure.

When asked about their learning preferences, the participants mentioned that they need some structure regarding the course content. Students can feel lost in the large amount of readings if some structure is not presented by the instructor. Participants appreciated having notes for each course presented in a logical sequence using the headings and subheadings format. According to them, sometimes it was difficult to identify in the readings what was essential for their learning. They argued that in a face-to-face class situation they would have the lecture notes to look at and they think these notes are sometimes missing in online courses. Participant 7 commented on the value of having helpful supporting materials available online:

It's really helpful for the learners to have some sort of summary at the end of each unit or chapter because you don't really get much interaction with the professor. So, it's nice to hear or to see from their viewpoint what the key points are. (Participant 7: nutritionist in Western Canada, interview, August 21, 2003)

Other students interviewed talked about the need for structure in terms of having the instructor setting up deadlines for readings, online discussion and assignments. They agreed that having these deadlines helped them to stay focused on their learning:

I found the combination of the online forum with the weekly discussions and the assignments with the deadlines critical for me to complete, to get through the courses. I have a really, really busy life, so those force me into finishing things. (Participant 4: health educator in Western Canada, interview, August 20, 2003)

The need for structure expressed by the participants in this section can be classified into the following three categories:

1. **Cognitive:** The use of advance organizers that display course information in logical and sequential manner, emphasizing the learning goals and the main ideas of each unit.
2. **Contextual:** The use of examples from the practice to illustrate the concepts learned, placing theoretical concepts within a real context.
3. **Temporal:** A schedule of tasks to be performed and realistic deadlines, giving the students chances to accommodate their studies into their busy lives.

It seems that in courses early in their programs, students need more structure to guide their learning. Students felt that they needed less structure in courses taken towards the end of their programs because they had accumulated enough knowledge regarding the program content and they were used to the format of online courses. They believed that, at this point, too much structure would compromise the flexibility of online learning. Participant 1 commented on how she would have preferred less structure in one of her final courses:

I guess in the early courses, the structure was helpful because you don't really know what

is going on. ... So, considering all the knowledge and experience that we had, I think for a capping exercise it should have been much less structured for a course like that.
(Participant 1: Recreation therapist in Western Canada, interview, August 9, 2003)

These findings also relate to the literature on gender and adult learning. McConnell (1997) and Smith (2001) conclude that female learners tend to prefer well-organized course designs in which the expectations of the instructors regarding the assignments and learning goals are clearly stated. Especially for distance students starting their programs, understanding what is expected from them can reduce the feelings of anxiety and help them to concentrate on their learning goals (Dixon et al., 2001; Soon et al., 2000).

Having the course content presented in a variety of ways.

The participants interviewed appreciated when the course content was presented in a variety of ways. As one participant put it, "I like to see [a] mix of reading and discussion, and projects or papers. ... I really appreciated when instructors were creative in how they were trying to present the material" (Participant 4: Health educator in Western Canada, interview, August 20, 2003).

According to Carnwell (2000) and Smith (2001), learning preferences can suffer influences according to the types of learning strategies to which students are exposed. For example, Participant 6, who considered visual information essential for her learning, commented that the online environment was not always supportive of her learning preferences;

Yeah, there were times when I wanted to draw something out and I couldn't, so the better alternative that I used was an analogy, right? ... I use a lot of analogies ... and I would like more teachers using analogies, so that I could draw a picture in my mind.
(Participant 6: Health educator in Eastern Canada, interview, August 5, 2003)

The use of analogies by Participant 6, a health educator in Eastern Canada, illustrates the development of a new learning skill to adapt to the demands of learning in an environment that uses mostly verbal communication.

Furthermore, students may not present just one learning skill; they may present a combination of learning skills, applying these skills according to the learning environment to which they are exposed (Carnwell, 2000). In this context, learning environments in which the course content is presented in a variety of ways will be supportive of a variety of learning preferences and will also provide students with opportunities to develop new learning skills to cope with the new learning demands.

Participant 1 also mentioned that the assignments should also reflect this same variety, not focusing on just one aspect of learning:

You know, the assignments ... some of them were quite, kind of boring and similar, I mean just you know, write three research papers for a course. Other courses that I took, for example, ... had a good mix of assignments, one was a research paper, one was a kind of personal journal article thing ... and the third one was a small group exercise ... and we had to write a paper. (Participant 1: Recreation therapist in Western Canada, interview, August 9, 2003)

The participants agreed that the current online designs seem to privilege students who learn through reading and writing more than students who learn through visual information or students who prefer to talk and hear about the theory being taught. Carnwell (2000) suggests that instructors and course designers should match course materials, teaching strategies and learning assessment methods to the variety of learning preferences presented in a classroom. Other authors suggest the use of visual and audio media in combination with written materials and also a combination of practical and theoretical assignments (Vician, 2000; Wadell, Tronsgard, Smith, & Smith, 1999). Participant 1, a recreation therapist, seemed to agree that having the course content presented in a variety of ways could help her to keep motivated and develop new learning skills, as discussed by Smith (2001).

That would be helpful, I mean, I don't know what they are doing now with the visual stuff, but yes, somewhere where everybody can go and watch an instructor working through a problem because it's hard to figure out this kind of stuff alone or just have him or her, the instructor, talking about it in a posting. (Participant 1: Recreation therapist in Western Canada, interview, August 9, 2003)

According to Carnwell (2000) and Smith (2001), it is a misconception to think that strategies for student assessment, particularly strategies for designing assignments, should not follow the same diversity recommended for the course material and course content. Presenting the course content in a variety of ways and then providing students with just one way to assess their learning is an unfair and inexact way to measure what the student has learned. As a consequence, students and instructors will not be able to identify strengths and areas for improvement and development of new skills.

The Challenges of Learning Online Overload of work.

The social context of female health professionals learning online is crucial to understand why overload of work was one of the most common complaints identified by the participants. Some participants analyzed overload of work in online learning from a course design perspective while others analyzed it from the social perspective of female students having to fulfill roles other than being a student.

According to the Participant 7, from a design perspective, it takes more time to learn and perform successfully at a distance than it would take if they were taking the same course on campus because of the lack of face-to-face interaction:

It was my experience that the time commitment was a lot greater in the distance delivered courses because, you know, you have to spend your own time reading the lecture notes if there are those, you have to spend your own time reading and preparing for the week ahead. Plus, you have to spend extra time conferencing with your classmates and instructors. (Participant 7: Nutritionist in Western Canada, interview, August, 21, 2003)

According to the female social context perspective, the workload of the online courses added to students' family and work responsibilities can be overwhelming especially for women with young children living in the household, such as Participants 1, 2 and 7, or for women taking care of aging parents, such as Participant 4. Participant 1 spoke about her experience of feeling somewhat overwhelmed balancing her various responsibilities:

Well, at one point, I was working full time, taking two courses and I was pregnant with my first child. So, it was very challenging I think time wise and energy wise to meet the demands of two online courses. (Participant 1: Recreation therapist in Western Canada, interview, August 9, 2003)

Participant 2 recounted how her particular work situation impacted her studies: "For example ... working endless hours and endless days on the inpatient hospital units, filling in for striking nurses one time, and striking support staff, the other. It was a challenge to keep up during these times" (Participant 2: Nurse in Western Canada, e-mail, August 27, 2003).

Participants suggested that instructors should review the amount of readings per unit and have realistic expectations regarding their participation in online discussions. Also, they felt that it is important for instructors to have some flexibility regarding due dates for assignments, as illustrated in the following interview excerpt:

Although I don't think that all online learners continue to work, but I would think that because of the flexibility that online learning offers that a lot of people are working. So, that is a big thing that the instructor needs to think [about] when designing courses like this. (Participant 1: Recreation therapist in Western Canada, interview, August 9, 2003)

Participant 7 commented,

I think that the readings have to be realistic; I mean there shouldn't be so many readings that the student feels totally overwhelmed. Also, the requirement for online submission like discussions with other students, I think it has to be realistic as well, especially if there are a large number of students in a class. (Participant 7: Nutritionist in Western Canada, interview, August 21, 2003)

The findings of this study relate to those of Soon et al. (2000) in which students also considered online courses time consuming due to the large amount of writing and reading required. According to the participants in both studies, a great extra amount of work is added when students cannot express their ideas verbally and hear other students' ideas. However, Soon et al. did not link overload of work to gender as did Gillis et al. (2000) and Kramarae (2001) when they talk about the challenges women face to accommodate education, professional life and family responsibilities, especially raising young children and taking care of aging parents.

The needs of female students can be accommodated in the online environment through: (a) constant negotiations with instructor and realistic expectations regarding readings, discussions, and assignments; (b) well structured course designs which value students' experiences and situate learning in a real context; and (c) support systems that involve classmates, instructor and academic institutions (Campbell (2000); Driver, 2002; Gillis et al., 2000; Kramarae, 2001).

The lack of face-to-face interaction.

Although the participants mentioned that the asynchronous online discussions provided them with the opportunity to explore the topics under study in depth, they also noted that the lack of face-to-face interaction was often a barrier to their learning experience and to their relationship with the instructor.

Participants 1 and 2 also felt that courses, which need visual demonstration of the theory, are not suitable for online learning because online courses still rely mostly on reading and writing. Especially in these courses, if visual strategies are not applied, the students will spend more time trying to understand the theory taught than they would have in face-to-face instruction. Participant 1 elaborated on this problem in relation to a statistics course

face instruction. Participant 1 elaborated on this problem in relation to a statistics course she took online:

For example, the statistics course we took, I thought quite difficult to deliver online. In my undergrad course I took at the university in a real classroom and it was much easier for me because the instructor could work through problems in class and then after class we used to get together in small groups and work on stuff. (Participant 1: Recreation therapist in Western Canada, interview, August, 9, 2003)

According to the participants, the lack of face-to-face interaction can also influence their relationship with the instructor. Participant 6, a health educator and visual learner, felt that misunderstandings can occur more often in online communication than in face-to-face communication: "And there was one time ... when this professor, I felt didn't understand my ... point of view and maybe a face-to-face conversation might have clarified the issue where our e-mails back and forth didn't seem to work" (Participant 6: Health educator in Eastern Canada, interview, August 5, 2003).

Participant 6 also felt that building a mentoring relationship with the instructor is not as easy online as it is in face-to-face instruction. As the following interview excerpt indicates, the participants felt that if they were physically present on campus it would be easier to get more support from the instructors and to establish a mentoring relationship that would be useful as they advance in their academic life:

I think that the professors are less committed to you because they don't see your face; they don't see your disappointment, your happiness, your emotions. You know, if you are really excited about a program or excited to tackle your thesis, they can't see that emotion. (Participant 6: Health educator in Eastern Canada, interview, August 5, 2003)

It is interesting to note that the participants appeared to think that learning by distance can bring more challenges to their relationship with the instructors than to their relationship with their classmates. It seems that students are able to build relationships with classmates even without face-to-face interaction, but they believe they are not able to do the same with their instructors. Participant 5 commented,

Most of the challenges that I encountered, I boiled down to the fact that I just never learned from a mentor ... because, you know, I didn't have the opportunity to develop a relationship with anyone [any instructor] because I was a distance student. (Participant 5: Community nurse in Western Canada, interview, August 13, 2003)

Valente and Luzi (2000) present the lack of visual cues, the level of structure, and the lack of spontaneity in online communication as barriers to social interaction online in general. These authors did not, however, talk about how these barriers can impact distinctly the interaction among classmates and the interaction between students and instructors. One possible explanation for why the lack of face-to-face interaction may impact distinctly the interaction among classmates and the interaction between students and instructors is that distance students acknowledge the barriers of online communication and they assume that the instructor teaching online also teaches on campus where these communication barriers do not exist. As a result, it is more likely that, according to Participant 3, the instructor will prefer to build a mentoring relationship with the students they can meet face-to-face:

Because if you are physically there, on the campus, then you are more of a constant reminder. You could camp out on [the instructors'] door [step]s or keeping going to their office until they talk to you. And so, you can make your presence felt more. The distance eases the fact that you can be placed on the side. (Participant 3: Health promotion consultant in Eastern Canada, interview, August 8, 2003)

Another interesting aspect was that themes related to technology anxiety basically did not come out in the interviews. One explanation could be the fact that the participants interviewed were towards the end of their program; therefore, they probably would not perceive technology as a challenge anymore. Another reason could be that students are entering online programs with more knowledge regarding the technology applied in the delivery of online courses.

Addressing the Challenges of Learning Online ***Building local support.***

Another strategy adopted by distance students to cope with feelings of isolation and issues regarding lack of face-to-face interaction is to build local support. This local support can usually come from professors in the local university, as indicated by Participant 6, and from fellow distance students who live in the same city, as discussed by Participants 1 and 4. Participant 6 recalled seeking out local support for one of her courses: "So, for instance, for that particular course, I actually talked to a research methodology professor at the local university here because, again, I just felt like I needed more support" (Participant 6: Health educator in Eastern Canada, interview, August 5, 2003). Another participant recounted how she developed a mutually supportive relationship with a student peer:

During the second term there was another woman that I met during the orientation [who lived in my city] and she was quite supportive, we talked on the phone and we actually got together to meet and discuss the assignments. (Participant 1: Recreation therapist in Western Canada, interview, August 9, 2003)

Participant 4 explained how she started a local study support group of distance learners:

I also started a study group in town with a bunch of [students] who are working on distance courses and we get together for breakfast once in a while. ... So, that was very important as a distance student to try to connect with people that I could contact locally who are also going to school. (Participant 4: Health educator in Western Canada, interview, August 20, 2003)

Participant 6 noted that it is not always possible to find local support because it depends on having instructors in the local university and students in the same city willing to provide this support:

Yes, I did yes, but not everyone will be able to do it. You [need to have] either a university or someone who is specialized in your community. So, I was lucky because I was able to find that here. (Participant 6: Health educator in Eastern Canada, interview, August 5, 2003)

The theme of local support appears in the literature on online learning as collaboration among academic institutions. Nolan, Morrison, Riegel and Thomason (1999) discuss the experience of nursing students getting local support in order to graduate in the practical component of their programs. According to the participants and these authors, local support can represent a great opportunity to have different academic institutions working collaboratively and to have students more satisfied with the level of support received. The study by Wadell et al. (1999) reinforces this notion, and the authors provide a successful example of how different academic institutions can cooperate and deliver high quality online courses for health professionals.

Having the instructors understanding their role.

The distance students interviewed related some of the challenges of studying online, such as lack of support and feelings of isolation, to the instructor's level of experience in teaching online:

It came down to actually the instructor, and one piece of that is the instructor's comfortable level with teaching online. The ones who were more experienced tended to interact online better I think that it may take another 10 years until we get to the point when we get professors in online courses that are [completely] comfortable with that and know what they are doing." (Participant 3: Health promotion consultant in Eastern Canada, interview, August 8, 2003)

Participant 3 also felt that it is the role of the faculty offering the online course to ensure that the instructors understand the peculiarities of teaching online and their role in the online environment: "And so, if you have a new instructor to look at things, make sure this person [will] have support from someone else in the faculty who is more experienced with dealing with online to help them out" (Participant 3: Health promotion consultant in Eastern Canada, interview, August 8, 2003).

In these comments, it appears that when students talk about the role of the instructor, they are actually talking about their expectations as students. In the following interview excerpt, Participant 5 explains that distance graduate students need an instructor who is also a mentor and she explains what being a mentor means: "So, I think she [one of her instructors] is a very good mentor because she sees the bigger picture about what my needs are as a learner and she is really challenging me and pushing me towards that" (Participant 5: Community nurse in Western Canada, interview, August 13, 2003).

Having instructors understand their role in the online environment is a theme that also appears in the work of Kanuka (2001) and Mills (2000). According to the participants, instructors seem to have different roles during different stages of the program. For example, instructors teaching students in the beginning of the program may need to play a nurturing role to deal with students' feelings of anxiety and insecurity. Instructors teaching students in the middle of the program should have a challenging role, pushing students to move further on their learning. Instructors teaching students in the end of the program should have a peer role, working collaboratively with students more as colleagues in the field than as instructors.

Using a variety of communication media.

The participants felt that the use of a variety of communication media can minimize some challenges of online learning such as the lack of face-to-face interaction and the overload of work. One student commented, "I think the conference calls were really important, for me, to hear people's voices and to have that opportunity to have a bit of a discussion" (Participant 4: Health educator in Western Canada, interview, August 20, 2003). Participant 6 also stressed the value of communication by telephone:

Students should have access to various [media] of reaching the professors. ... e-mail isn't always the best way because if you can't be face-to-face, I think the next best solution is over the phone, right? So, that should be made available to the students. (Participant 6: Health educator in Eastern Canada, interview, August 5, 2003)

In these interview excerpts, the participants suggest the use of the teleconferences in combination with e-mail if students cannot meet face-to-face with the instructor. The use of teleconferencing provides students with the opportunity to communicate their thoughts synchronously and hear each other's voices.

The use of video conferencing was also suggested by the participants especially for courses which involve statistics. It seems that when statistics are involved, students need to have their questions answered immediately, otherwise, they feel held back and frustrated. One student commented,

I wouldn't have minded one or two sessions when we had the class together. I know that is possible now with some of the online technology. I think particularly for that research course, a couple of those would have been helpful. (Participant 4: Health educator in Western Canada, interview, August 20, 2003)

Although the students considered the blend of different types of communication media a strategy to cope with the lack of face-to-face interaction and overload of reading and writing, they also agreed that having too many videoconferences or teleconferences can interfere with the flexibility of online learning. Participant 4 put it this way: "What I like about online learning is the flexibility and as soon as you got a bunch of classes and conferences calls and a lot of commitments when your time is tied up, it becomes less flexible" (Participant 4: Health educator in Western Canada, interview, August 20, 2003).

The strategy of using a blend of different types of communication media, which combines video and audio, to cope with overload of work, lack of visual communication and feelings of isolation is also cited in the studies of Wadell, et al. (1999) and Zimmerman et al. (1999). In these studies, the participants expressed their concerns about finding the right balance between flexibility and the use of different types of communication media. Another aspect to take into consideration when deciding about using a variety of communication media is equity of access. For example, students living in areas with unreliable access to the internet, students who cannot afford the latest advanced technology, and students with hearing disabilities or visual disabilities may not benefit from the use of a certain technological media (Ahola-Sidaway & McKimmon, 1999). Once more, to understand the principles of adult education (Holton et al., 2001; Jones, 2001), the concept of learning preferences (Carnwell, 2000; Smith, 2001), and the students' social contexts (Kramarae, 2001) is crucial to choose the optimal mix of technological media to best meet pedagogical learning goals.

The Rewards of Learning Online Making theory and practice connections.

All of the participants interviewed were health professionals working in the field; therefore, they appreciated the opportunity to immediately apply what they learned to the workplace and to use examples from the workplace to illustrate their learning. As one student put it, "[T]he reward for me was that what I was learning was so practical and relevant to the work that I was doing that I could integrate them both and I really liked that" (Participant 7: Nutritionist in Western Canada, interview, August 21, 2003). Another student commented,

Some stuff that I learned during the ... program I was able to apply at work and some of the stuff that I learned at work I could use in my courses. So it's kind of cyclical and actually kind of helpful. (Participant 1: Recreation therapist in Western Canada, interview, August 9, 2003)

In situated learning pedagogies, students are encouraged to develop critical thinking by activating experiences from similar situations they encountered in the workplace and elaborating knowledge based on both previous knowledge and new information (Wadell et al., 1999). In this study, the participants tended to master their ability to engage in critical thinking as they moved forward in their programs. Participant 2 commented on what she saw as a "shift from knowledge acquisition to critical thinking" as she progressed through her program:

I think that the progression of the classes, and the professors, class to class, really facilitated the shift from knowledge acquisition to critical thinking. It became more of an expectation, in later classes, and the way they [or the other students] directed the discussion made all this stuff really become a priority. (Participant 2: Nurse in Western Canada, e-mail, August 27, 2003)

By helping people at work with the theory learned and by sharing with fellow students examples from their workplace, participants felt helpful and valued as students and professionals. Participant 4 reflected on the rewards of applying her newfound knowledge in her workplace: "I think personally what I got most was the thrill to be able to share what I was learning with people that I work with to help people start to make sense of things" (Participant 4: Health educator in Western Canada, interview, August 20, 2003). Participant 2 commented on how she felt more and more compelled to apply her learning to her practice as she progressed through her courses:

Later on, it became more about taking this theory and creating a health promotion practice that truly reflected the theory ... it was more about, "How can I apply this in the real world?" "How can I be true to the principles I am learning?" It went from pure knowledge acquisition to critical thinking, to imagining real praxis. (Participant 2: Nurse in Western Canada, e-mail, August 27, 2003)

As their comments indicate, the participants perceived online learning as responsible for improving their performance in the workplace. Once more, it is important to emphasize that the situated learning pedagogy played an important role in this finding. This pedagogical approach situates the theoretical concepts learned in the real world, encourages students to bring examples from their workplace to illustrate the concepts learned, and uses the workplace a source of knowledge (Gillis et al., 2000; Jonassen, 1991).

Belonging to a community of learners.

The participants interviewed considered themselves members of a community of learners. As a community of learners, they developed strong feelings of collegiality and cooperation, as indicated in the following comments from Participant 3:

You know ... that was really good and all of these connections you made with people who are literally spread all across the country, but who are your colleagues in the field and [whom] you wouldn't have otherwise ... and [in] that particular group of people the discussion was so good that basically carried itself and so for me it was very much a feeling of collegiality and really being able to learn from each other and that really, I felt, gave a lot of momentum to the course. (Participant 3: Health promotion consultant in Eastern Canada, interview, August 8, 2003)

It seems that participants' need to transform their learning into a social experience and the challenges faced by them during their program brought them together as in a community. Participant 6 commented on the rewards of being part of a community of learners: "I think that was a rewarding experience in that we on our own took the initiative and started a group where we help each other through the internet" (Participant 6: Health educator in Eastern Canada, interview, August 5, 2003).

Some of the students interviewed felt that their interaction with other classmates at a distance was actually deeper and friendlier than it would have been in a face-to-face classroom because they got united by the objective of overcoming the challenges and having a successful learning experience. For example, one student commented,

I learned about what other people would share too about their experiences, which was nice. By the end of the class, if you kept the class fairly small you are able to kind of understand everybody's personality, just through written work. (Participant 6: Health educator in Eastern Canada, interview, August 5, 2003)

The participants felt that in a face-to-face instructional setting, less time is spent in discussions and more time is spent listening to lectures given by the instructor. For this reason, the students have less opportunity to share their deep thoughts. Some personality characteristics such as introversion and extroversion may also play a role in the interaction among students in a face-to-face classroom. As Participant 3 reflected,

You may not get to know them as well on their deeper level if they aren't the ones that speak out in [a regular] class. So, if they are not the ones that speak out in class then you wouldn't get to know their deeper thoughts. (Participant 3: Health promotion consultant in Eastern Canada, interview, August 5, 2003)

Despite the challenges of learning online previously discussed, all the participants experienced online personal, academic and professional growth as a result of being an online learner. For example, participant 3 explains:

That was really good and all of these connections you made with people who are literally spread all across the country, but who are your colleagues in the field and you wouldn't have otherwise, you know... Yeah, there are good days and bad days. (Participant 3: Health promotion consultant in Eastern Canada, interview, August 8, 2003)

Walter (1999) defines community in three different ways: (a) as functional spatial units meeting basic needs for sustenance, (b) as units of patterned social interaction, and (c) as symbolic units of collective identity. According to the findings of this study, online learners developed a community based on their common objective of achieving high quality learning and based on their need for support. Although they were not geographically connected, the participants in this study were connected by their identity of being female health professionals trying to deal with the challenges of online learning (Gillis et al., 2000; Kramarae, 2001).

The findings of Driver (2002) and Graham and Scarborough (2001) also reinforce the fact that belonging to community of learners is a crucial aspect in increasing success and satisfaction for students learning online. However, it is not realistic to expect that a community of learners will be formed if the appropriate pedagogy is not applied. Dolmans et al. (2001) and Jonassen (1991) suggest that in learning environments where a situated learning pedagogy is applied, the chances of having learners working collaboratively as a

community increase because this pedagogy emphasizes group work as one of the main strategies to complete the learning tasks proposed.

Conclusion

In this study, female health professionals chose online learning because they appreciated being able to accommodate education in their busy lives, which combine different responsibilities such as having a career and raising a family. Both challenges and rewards were part of their experiences. Most of the challenges seemed to be a consequence of the lack of face-to-face interaction in the online environment. In terms of rewards, participants described making theory and practice connections and belonging to a community of learners as the best rewards of learning online. They identified constructivist pedagogies such as situated learning, which foster collaboration and the direct application of the theory into practice, as the most appropriate for their learning preferences. Finally, they felt that a successful learning experience depends on the level and quality of the support provided by instructors, fellow students and academic institutions.

Besides improving the understanding of how female health professionals prefer to learn, the findings of this study shed light on several specific issues such as the relationship between instructors and students in online learning environments. In this context, some relevant questions for future reflection include:

1. Does the lack of face-to-face interaction influence the relationship among classmates and between students and instructor in the same way? If not, what are the main differences?
2. If a variety of communication media are made available for instructors and students, will students be able to build the mentoring relationship with instructor that they wish?
3. Why does it appear to be so important for female distance students to develop a mentoring relationship with their instructors?

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Appendix

Open-Ended Questionnaire

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1. Why did you decide to become a distance student?
 2. How would you describe yourself as a learner (or your learning preferences)?
 3. Give me an example of an online course that you took during your program that you think was supportive of your learning preference? Explain why:
 4. Tell me about the most rewarding situation you experienced as a distance student?
 5. Tell me about the most challenging situation you experienced as a distance student?
 6. Try to remember your experiences at the beginning, middle and end of your distance program.
 - (a) What changes did you experience as a student?
 - (b) Why do you think that these changes took place?
 7. Based on your experiences as distance student, what aspects do you think are important to take into consideration while designing online courses?
 8. Would you recommend distance education to a friend? Why?

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