

Canadian Journal of Learning and Technology
Volume 30(2) Spring / printemps 2004
Graduate Students' Experiences of Challenges in Online
Asynchronous Discussions

Elizabeth Murphy

Elizabeth Coleman

Authors

Elizabeth Murphy (emurphy@mun.ca) is Assistant Professor in the Faculty of Education at Memorial University of Newfoundland, Canada. Correspondence concerning this article should be addressed to Elizabeth Murphy, Faculty of Education, Memorial University, St. John's NL, Canada, A1B 3X8

Elizabeth Coleman (Liz.Coleman@uccb.ca) recently completed her studies in the Master of Education (Information Technology) program offered jointly by Memorial University and the University College of Cape Breton. She has an engineering degree from the Technical University of Nova Scotia.

Abstract

This paper presents one of five categories of findings of a qualitative study of students' experiences of challenges encountered in a web-based graduate program. The findings relate to the category of experiences with online asynchronous discussions. Data collection relied on a discussion, questionnaire and interview all conducted within WebCT™. The category's findings were grouped into four sub-categories of challenges as follows: student behaviour; text-only, online communication; purpose and quality of the discussion; and forum features. Challenges related to students' behaviour included domination of the discussion by individual students or groups of students resulting in feelings of exclusion, frustration and inadequacy. Text-only communication caused difficulties related to misinterpretation and conveying and deriving intent. Challenges related to the purpose and value of the discussion resulted from low quality and high quantities of postings to meet grade requirements. Technical features that presented challenges included the inability to delete messages.

Résumé: Cet article présente l'une des cinq catégories de résultats provenant d'une étude qualitative de l'expérience qu'ont eu des étudiants de

second cycle des défis rencontrés dans un programme basé sur l'Internet. Les résultats concernent la catégorie des expériences qu'ils ont eues au cours de discussions asynchrones en ligne. Les données recueillies proviennent d'une discussion, d'un questionnaire et d'entrevues, le tout effectué dans WebCT™. Les résultats de la catégorie ont été regroupés en quatre sous-catégories de défis, qui sont les suivantes : comportement des étudiants; communication en ligne en texte uniquement; but et qualité de la discussion; et caractéristiques du forum. Parmi les défis liés au comportement des étudiants, on retrouve la domination de la discussion par un étudiant ou par des groupes d'étudiants, créant un sentiment d'exclusion, de frustration et d'infériorité chez les autres. La communication en texte uniquement a créé des difficultés liées aux erreurs d'interprétation, ainsi qu'à la difficulté de faire passer et de comprendre les intentions. Les difficultés liées au but et à la valeur de la discussion résultaient de la piètre qualité mais de la forte quantité de messages afin de satisfaire les exigences du diplôme. Quant aux caractéristiques techniques présentant un défi, il y avait celle de l'incapacité à supprimer les messages.

Introduction

Many benefits have been associated with the use of online asynchronous discussions in the context of teaching and learning. One of these benefits relates to a shift in locus of control in favour of the learner with less domination of the discussion by the teacher (Althaus, 1997; Olaniran, Savage & Sorenson, 1996). Unlike in the face-to-face discussion, there is typically no requirement for turn taking and individuals respond, not according to a preimposed order, but on the basis of their interest in the topic (Murphy, 2001). Participants in an online discussion need not wait for permission to read and respond to each other's contributions. They contribute at their own pace (McComb, 1993; Morgan, 2000). The benefit of contributing at their own pace means that they have time to reflect on their and others' comments. Both slow and shy responders benefit from an equalizing effect (Ortega, 1997) that derives from being able to control the pace of one's interaction and communication.

The online asynchronous, text-based discussion also provides benefits that result from freedom from temporal and spatial constraints. The time- and place- independent nature of this form of online communication facilitates self-directed learning (Harasim, 1990) and supports more interaction and flexibility in communication (McComb, 1993). The lack of physical presence shelters against what Feenberg (1987) refers to as "status signalling" and "social games" (p. 174) and means that issues of race, gender,

accent or status do not influence the online discussion in the same way that these issues might affect a face-to-face discussion (Warschauer, 1997).

Other benefits that have been identified by researchers include opportunities for constructing and negotiating meaning (Lapadat, 2002), engaging students in meaningful online dialogue (Biggs, 1999), promoting critical thinking processes (Aviv, Erlich, Ravid, & Geva, 2003; Newman, Johnson, Cochrane & Webb, 1996), and achieving higher levels of abstract cognitive processes than in face-to-face communication (Heckman & Annabi, 2003). Other benefits include more careful, formal and reflective responses (Heckman & Annabi, 2003) and an increased motivation to participate and to write well due to the presence of a real audience and purpose for communicating (Biesenbach-Lucas, 2003; Lapadat, 2002).

These numerous and varied benefits reflect the experience of learners communicating and interacting in online asynchronous discussions. Part of that experience includes encountering challenges in addition to benefits. A variety of challenges have been identified with online discussions particularly in relation to the experiences of learners. Wiesenberg and Hutton (1996) observed some of the challenges related to computer-mediated communication (CMC) experienced by learners in graduate-based courses. These included the amount of time involved in participating in online conversations and the challenges of communicating without visual cues. The authors also noted in general a challenge related to teaching and learning in a "more student-centered, collaborative and egalitarian learning environment" (¶ 38).

A study by Burge (1994) of Master of Education students enrolled in a web-based distance program identified challenges that related to peer interaction, difficulties associated with handling and managing large quantities of information and discussion fragmentation. Other challenges included the lack of visual and aural cues, working collaboratively, deciding why, when and how to contribute and feeling out of sync with the discussion.

Tiene (2000) conducted a survey of advantages and disadvantages of online discussions. Unlike Burge's (1994) study, Tiene found that while the "body language and facial expressions were important forms of communication" (p. 379), for students only "a tiny majority" considered the loss of visual cues to be a disadvantage. However, a majority of the survey's respondents indicated that they preferred a face-to-face discussion to an online one. Some of the anecdotal comments provided in the survey referred to challenges related to the inconvenience of not having a computer at home, a lack of spontaneity, the volume of messages, difficulties establishing momentum in the discussion, digressions, and the lack of voice and facial expressions.

Some other challenges noted by researchers include keeping the discussion on topic (Beaudin, 1999; Romiszowski, 1995; Winiacki, 1999), procrastination in responding to postings and disorientation (Hew

& Cheung, 2003), low rates of interaction and dialogue (Guzdial & Carroll, 2002) sustaining the momentum of the discussion (Beaudin, 1999; Winiecki, 1999), misinterpretation (Weatherley & Ellis, 2000) and use of primitive discourse structures by discussants (Turoff, Hiltz, Bieber, Fjermestad & Rana, 1999). Biesenbach-Lucas (2003) identified a number of challenges to communication in discussions including "perceptions of forced, unnatural interaction promoted by the asynchronous discussions and lack of topic prompts, the requirement to make connections to prior postings, and the frequency of required contributions to discussions" (p.24).

Oliver and Shaw's (2003) investigation of strategies for encouraging student participation in discussions identified and explored factors that encouraged and inhibited student participation. In their analysis of the patterns of posting, the authors found that: "students were 'playing the game' of assessment, making the posting that earned them marks but rarely contributing otherwise" (p.64). The authors concluded as well that "contributions were not strongly interactive" (p.56).

The identification of the benefits and challenges experienced by learners in online asynchronous discussions provides insight into their potential contribution to teaching and learning as well as into their limitations and inconveniences. Overcoming the challenges related to this new medium of communication and interaction will support easier and more effective realization of the benefits. For this reason, we need to continue to gain an understanding of the types of challenges that learners experience when they make use of this medium to communicate and interact. This need to understand the challenges becomes more pressing as distance education offerings continue to rise and online discussions become a more common feature of teaching and learning. There is also a need to investigate these challenges in a variety of contexts and with different learners in order to appreciate the many and complex ways that the challenges may manifest themselves for learners.

The purpose of this paper is to provide insight into the challenges that a group of learners experienced with online discussions. The paper provides insight into the types of challenges they experienced, how these manifested themselves, and how the challenges relate to some of the benefits of online discussions outlined in the literature. The challenges also provide insight into how individuals interpret their experiences of learning, interacting and communicating using the new medium of the online discussion. Knowledge of these challenges can be applied in the design, structure and moderation of online discussions to minimise or even eliminate the inconveniences and limitations posed by use of these technologies in teaching and learning. Learners themselves can be instructed how to overcome the challenges related to online discussions in order to maximise the benefits they might derive from these forms of interaction and communication.

Methodology

The findings presented in this paper are from a study by Coleman (2004) of the barriers and challenges encountered by learners enrolled in a masters-level, web-based program offered jointly by two Canadian institutions. Five categories of challenges were identified as follows:

1. Use of discussion forums
2. Learning to learn online
3. Involvement/Role of Instructor
4. Need for Support
5. Lack of Social Interaction

This paper reports on the findings in the first category of *Use of discussion forums*.

The 20 participants in the study were all working towards a Master of Education in Information Technology. This program is delivered online using WebCT™ although students can opt to complete some courses in face-to-face mode. Participation was solicited through a Graduate Education Society mailing list. Consent was provided using email. Data were collected using a private WebCT™ shell and standard email. The study relied on three phases of data collection with each phase designed to inform the questions for the following phase.

A two-week long online asynchronous discussion was used in phase one with the researcher as moderator. The first question posed by the researcher served to initiate dialogue among participants and asked them how they would describe their experiences as a learner in web-based courses. Participants responded to the question and, in doing so, highlighted their own experience in relation to both the original question and the comments of other participants in the discussion forum. The researcher as moderator observed and intervened in order to stimulate discussion, clarify comments or to encourage participants to elaborate on their interpretations of their experiences. During the second week, the researcher posted a summary of barriers and challenges identified by participants up to that point. Participants were invited to add to or comment on any of the items listed in the summary.

After participants had posted their comments related to the summaries, an interim analysis was conducted of the discussion content. As Miles and Huberman (1984) explain, this type of analysis "lets the fieldworker cycle back and forth between thinking about the existing data and generating strategies for collecting-new often better quality-data" (p.49). The analysis led to the creation of nine categories of challenges one category of which related to participation in online discussions. For each of the nine categories, a list was made of the various challenges noted by participants. In the questionnaire, each category and its lists of challenges was presented to participants with the following request: "Please comment further on any or all of the issues listed on the basis of what is most relevant to you".

Following administration of the questionnaire, an analysis was conducted of the data and the nine categories were reduced to five. The final phase of data collection involved interviews conducted using the chat feature in WebCT™. Questions for this phase were based on the interim analysis and were designed to encourage participants to clarify and elaborate on their experiences and to provide them with an opportunity to discuss issues not yet raised, e.g. "Can you talk to me a bit more about your experiences as a web-based learner? Are there some issues that have not been brought up yet". Specific questions included items such as: "Can you talk about your early experiences of having to post to a discussion forum?"

The final analysis took place following the interview phase of data collection. At this stage, all of the data collected was aggregated, re-examined and coded based on key statements. This coding led to the generation of categories representative of all three phases of data collection. The categorization involved the placement of smaller, raw pieces of coded data into groups (Miles & Huberman, 1984) on the basis of the frequency with which they occurred and the importance assigned to them by participants. Five categories were isolated and each category was further divided into sub-categories. This paper reports on the first category of *Use of the discussion forum*. The findings related to this category as well as its four sub-categories are presented in the following section of the paper.

Presentation of the Findings

This study reports on the category of students' experiences of challenges related to participation in online asynchronous discussions. Following data analysis, all statements within this category were grouped into four sub-categories of challenges as follows:

1. Student behaviour;
2. Text-only, online communication;
3. Purpose and quality of the discussion;
4. Forum features.

The presentation of the findings is organised according to the sub-categories and is designed to provide insight into the nature of the challenges experienced.

Challenges Related to Student Behaviour

This sub-category groups statements related to participants' experiences as they described them in relation to the behaviour of others in the discussion. The statements refer to domination of the discussion by individuals, and behaviour that results in an individual feeling excluded from a group. Regarding the domination of the discussion, one individual commented as follows:

I think the forum can become very frustrating when other students are dominating the discussion or making postings daily (...) Usually it is the same group of students who have these large discussions throughout the course and it ends up making the rest of us seem inadequate and/or not involved and this can become frustrating. Not that I am saying no one should

respond in detail, hey if I miss a few days it is my problem, but several courses I have taken, particular students have got carried away with posting on the forum and it is very frustrating and time consuming to read all the comments and then try to keep up with replies etc.

The perceived domination of the discussion resulted in expressions of feelings of exclusion. In this regard, participants referred to being "very alone", to "feelings of being an outsider", and feeling "discouraged from participating when others exclude them from the conversation". One participant found this exclusion impacted on his participation: "It is hard to discuss when nobody responds to your posts or emails". Another participant expressed frustration with being excluded from the discussion and from feeling "inadequate when postings were unanswered or responded to in a negative fashion". In addition, one participant remarked on the experience of "assertive" behaviour as illustrated in the following quote:

I have experienced what I have perceived as rude comments and have witnessed classmates getting rudeness projected towards them and I find it frustrating. I think that people use the online format to be more assertive than they would be in person.

The behaviour of students in the forum, led one participant to propose a code of conduct for participation in discussions:

We all seem to agree that the professor/instructor in online courses has a responsibility with regard to maintaining order within discussion forums. I believe that there is also an onus on the students in the course as well. Since all professors don't give rules to follow perhaps there should be an unwritten code of conduct that students follow. I'm thinking here of not dominating a topic, limiting word count, etc. (...) Students too should take some of the responsibility for their actions within forums, perhaps a joint effort may lead to effectiveness within this medium.

Challenges Related to Text-Only, Online Communication

The characteristics of the text-based, online medium or environment in which the interaction and communication take place can present limitations for the discussants. Participants characterised the text-only medium as one that presents opportunities to misinterpret and to be misinterpreted. These opportunities were referenced in relation to posting a comment as well as to replying to someone else's comment or reading the replies of others. In this regard, participants noted that it was very difficult at times to "discern the flavour of a reply", to "read into responses" or avoid taking "a comment the wrong way".

Participants' descriptions of the challenges were frequently presented in terms of a comparison between communication online in a text-only format on one hand and face-to-face communication on the other. The online medium of communication was characterised as one limited by text-only communication. The limitations of this type of communication include not being able to "read the emotion" that would be visible in a face-to-face context of communication:

This is an impersonal medium. Interpretation becomes a real issue, and I have had first hand experience with that ... If you are in a room, you read the emotion, you sense the confrontation, or get the joke. It is not always possible to read what is being given to you.

The limitations also include the absence of gestures. Understanding, interpreting and perceiving become challenging under these circumstances as the following comment indicates:

I have difficulty with text only. Personally, I need to gauge the non-verbal gestures in relation to the verbal in order to fully understand the message. In text-only communication too much is left to assumption, which can cause major communication problems because of misperceptions.

The absence of gestures, as well as the absence of voice and facial expressions, represents further limitations of the text-only medium. The following participant explained how these limitations make it more difficult to derive meaning in communication:

The missing element is the face to face with the people. Nothing can take the place of discussion of a hot topic over coffee, or a lively debate, complete with interruptions, emotion, etc. The environment provides the capability to discuss, but in a sterile, very civilised, fashion. It is also difficult, sometimes, to discern the flavour of a reply. We rely on our senses a great deal in deriving intent and meaning from a conversation. Text is fraught with interpretation errors; the connotation of a statement lost in the message itself. Without the aid of sound, or facial expressions, "meaning" takes on a whole new meaning.

Determining intent in text-only communication is made difficult without the additional cues relied on in face-to-face communication such as expression, gestures and tone. Without these cues, as another participant remarked, "The tone and language of a response could be taken as it was not intended". The inability to determine intent results therefore in misinterpretation and confusion of meaning for some discussants as the following remark illustrates:

It can be very difficult to determine the intended message that is being sent by the teacher and other classmates. I have experienced what I have perceived as rude comments and have witnessed classmates getting rudeness projected towards them and I find it frustrating. ... It should be noted that often the sarcasm is only implied and the writer may not have intended the message to be rude. This makes the online forum very difficult as you must not only take each message with a grain of salt but you have to read each one with a grain of salt as well.

The difficulties described by participants are not only related to trying to understand and interpret the tone and meaning of another person's message. As the following comment reveals, discussants can also experience difficulties in ensuring that their own messages are not misinterpreted:

[I] think about how others interpret my comments in the forum. I can't be certain that I have not offended folks in my replies without meaning to. I can be a very curt communicator at times, so it is important not to try and read things into my writings. What may seem rude may just be confusion on my part.

Problems with interpretation arise as well in contexts where someone has replied to a message. In such cases, the original sender may experience difficulties "reading the response" or interpreting how the other has interpreted the initial message that is being responded to:

I found it was difficult to read into the responses to [my] posting. Sometimes I would take a comment the wrong way. I learned to not read so much into it if it felt negative and I also learned it may be better to leave the computer and respond later for fear [my] response may come across as negative.

Text-only communication presents difficulties both for interpreting responses as well as for interpreting the lack of response: "Not having postings responded to or, even worse, having someone completely contradict what you were saying can sometimes be difficult when not accompanied by nonverbal cues". The absence of a reply might be interpreted as a reflection on the message itself. In this regard, one participant revealed the following: "[I]f they did not respond to my posting, then it must have been a dumb thought". Another remarked that he felt "nervous and jittery" when he posted something and no one responded. Another experienced a sense of "being inadequate" when postings were unanswered.

Challenges related to the purpose and quality of the discussion

This sub-category groups statements related to the purpose and quality of the discussion. Participants questioned the value, purpose and quality of the discussion particularly in relation to requirements to post or reply for grading purposes. Challenges were noted as well in relation to a lack of direction and organisation of the discussion as the following statement illustrates:

Frustrations are vented continuously in some courses on the lack of direction and organisation. After being in a course where the discussion was useful, it is frustrating to be in a course where there seems to be no useful purpose for it.

The following quote provides insight into how the quality of the experience was lessened because of lack of direction and purpose:

There was one course where there was a great reliance on the discussion forum - but without direction as to the subjects to be discussed - perhaps a broad topic was given only. This was extremely confusing... Apart from a socialising function, the discussion forum did not tend to serve a valuable purpose, yet each visit and each response or posting was measured and counted in the final marks. While I know there were some very good discussions on some topics as we went along, there were also a great many postings which took time to read and added little to our understanding nor did they give us pause to think or object.

The quality of the experience was compromised as well, according to others, by the requirement to post in order to receive a grade. This requirement led some to conclude that such discussions were of little value in terms of promoting learning:

I found the forum can become very frustrating when you are required to respond to a certain number of responses and questions. I find this can be a waste of time when you are merely answering for the sake of meeting the quota and thus the answers are not in any way helpful in the actual learning.

The quality of the discussion declines when responses are "forced" by the course requirement to post in relation to a quota. Not surprisingly therefore, one participant commented as follows, "I would like to see the forum as more of a learning environment than as another opportunity to grab points". Requirements to post result in what one participant described as "dull" discussions:

I question the value of forced responses (e.g., read and respond to at least two classmates' postings before the end of the week). These forums (fora?) tended to be incredibly dull. The most stimulating discussion forum I've been a part of had no requirement to post a certain number of times or respond to a certain number of messages (although participation did form

a component of the course grade). Discussion flowed from interesting, stimulating prompts leading to a genuine sharing of opinions and development of ideas.

Required or "forced" postings were associated by some participants with superficial comments that contributed little to the discussion in general and to learning in particular: The following quote illustrates how the discussion can consist of postings of little more value than "noise":

I have experienced and personally have posted responses at times just to satisfy the course requirement. I think that there should not be so much weight on the responses. I think satisfying the requirement sometimes means only putting in "Great job, interesting point, keep up the good work". ... Responses should be encouraged but not made mandatory. This would reduce the noise and improve the learning.

Another individual articulated the same difficulty related to achieving quality in the discussion when postings are required:

It isn't useful if there are very general instructions to post a certain minimum of comments during the course. This tends to produce very general comments and "me too" additions. They don't add a lot of depth or new knowledge to the topic.

Experiencing value from the discussion becomes difficult when the postings and replies of others do not represent meaningful contributions. As the following remark illustrates, the quality of postings can be uneven and not all discussants provide responses that contribute positively to the learning experience:

It seems like there are only a handful of students willing to respond meaningfully to someone else's post rather than simply stating their opinion to meet the participation requirement. If every student posts a note about a reading in one thread, I'll usually skim through them as quickly as possible, then respond to the one (maybe two if I have the luxury of time) I find most interesting. The variation in quality is obvious when you look down a thread, and you start to see that you're more interested in the posts of specific people.

The lack of quality can be related to the depth of the posting or precision of the comments. One individual argued that, "Vague comments, agreeing with my points without critique, or simply stating opinion, didn't really count, in my estimation, as valid response". In the following quote, one individual presents a perspective on the relationship between "real learning" and valid or "thoughtful responses":

Although an individual thread may contain many messages, the majority of the posts are often not responding in any depth to previous posts — they'd make more sense as new threads. When an online conversation does break out, I feel like real learning is taking place. We probably all learn more when there's a back-and-forth exchange of information and opinion, but perhaps most of us don't have time to respond thoughtfully to many posts.

The lack of quality in participants' postings and replies may have resulted from a sense of "pressure" not only to meet course requirements but to keep up with other students in the course. One participant shared his experiences in this regard:

I felt that I was contributing just fine, until I would check the site again after and see some people made numerous contributions, and some went on and on and then it took so much time to read them all, catch up and also I felt pressured to make more comments, it was like a cycle.

This "cycle" of numerous postings was identified as a problem by another participant who noted that he felt "the pressure to post something daily". The pressure presented challenges to maintaining the same pace as other discussants as the following quote illustrates: "I often felt like others were spending a lot [sic] of time on the computer, making comments etc, time that I did not have, and thus I often felt like I was slipping behind".

The pressure to post in order to keep up with others combined with course requirements to post resulted in workload difficulties. One participant expressed discouragement from having to deal with "hundreds of postings" and "from trying to read them all". The quantity was also questioned in relation to the lack of value that it added to the experience: "There were also a great many postings which took a long time to read and added little to our understanding". Challenges with the quantity of postings results from having to read and reply as the following statement indicates: "... it is very frustrating and time consuming to read all the comments and then try and keep up with replies, etc".

Participants described postings, not only as numerous, but also, as long, "essay length postings". The length of postings presented difficulties in terms of keeping up with the course requirements as one participant remarked: "In one course, individuals were making daily postings of in excess of 800 words. It became difficult to stay on top of the forum and other requirements of the course". One participant described these discussions as "out of control" and another remarked that "it's like eavesdropping on 25 conversations all at the same time, 24/7!".

The length of the postings presents challenges to the quality of the discussion. In addition to the time involved in reading long postings another participant commented, "lengthy postings" did not "inspire me to contribute my ideas". The lack of balance between quantity and quality was described by one participant as resulting from the attitude of discussants in the forum: "I think one of the big problems is keeping up with the large number of postings on some discussion forums. Many students seem to be more concerned about the quantity of their postings than the quality".

Challenges Related to Forum Features

This sub-category regroups statements related to forum features. One feature highlighted by participants and related to the WebCT™ learning management system is "the inability to edit and delete messages". One participant remarked that this "is a very frustrating feature". Another participant described this limitation of the technology as follows: "I've fallen victim to not being able to change a posting mistake that made me feel like a 'fool' throughout the entire course". Another participant described this inability to delete messages as "frustrating" as it "clogs the system with too many messages". Another participant remarked as follows: "Several times I have posted things and would like to add to the comment or revise something. The only way to do this is to reply to your own posting, however, this breaks your message up". The

inability to change or delete postings limits the participation of some discussants as the following statement reveals: "Often I think of something I should have added, but because I would have to post another message, I don't bother. I figure there are already far too many to sift through, why add another?" In the following quote, one individual provides an explanation of why changing or deleting a posting can be necessary:

There is a definite need for changes in system to increase its functionality. The inability to edit and delete messages after posting was frustrating and disconcerting at times, especially after discovering a post contained an error and I had to go back and do the thing all over again or try to: a) explain what I said that was wrong, b) say what I meant to say, c) explain my argument again, d) make the correction before someone else (like the prof) found it, e) make the correction before someone responded to it and confused the issue even more.

An additional feature commented on by participants relates to navigation among messages. As one individual noted, "Moving around among the messages is awkward". The awkwardness may result in part from limitations on movement in the forum as the following statement explains. "I've lost so many great ideas because I wasn't able to flip back and read through a discussion posting while composing - poof they're gone!" This limitation was described by one individual as a "real annoyance and time waster". Another individual described the problem in these terms: "This has been a source of frustration for me. You reply and need to go back to get the person's name or reference a point they made and you bump out of the message you are composing when you click on their posting". Another participant described how this limitation negatively affected his experience in the discussion forum:

The discussion forum has a few minor design quirks that consistently annoy me, like the inability to flip back and read through discussion postings while composing a message, and the way it returns you to the top of the listings when you click to expand a thread, so you have to search through the list of postings to find where you were.

Discussion of the Findings

This paper began with a presentation of some of the benefits associated with online asynchronous discussions. This section of the paper reconsiders these benefits in relation to the four sub-categories of challenges in order to appreciate how the medium presents characteristics that can result in both benefits and challenges.

The online discussion was described as a medium in which communication is flexible (McComb, 1993), equalized (Ortega, 1997; Warschauer, 1997), characterized by less teacher domination (Althaus, 1997; Olaniran, Savage & Sorenson, 1996) and by lack of requirements for turn-taking (Murphy, 2001) or for permission to respond (McComb, 1993; Morgan, 2000). It is a medium that allows for a shift in the locus of communication, interaction and control from the teacher to the learner or from the one-to-many, teacher-to-students' mode to a many-to-many, students-to-students' mode.

However, while this shift can be potentially beneficial, so too can it be problematic if it is not managed effectively or if learners are ill-prepared or ill-guided to engage in many-to-many forms of interacting, communicating and learning. The category of challenges labelled *Student behaviour* highlighted a perceived domination, not by the instructor, but by other students. The feelings of exclusivity, discouragement and frustration expressed by some participants in relation to the behaviour of other students indicate that some learners may not be prepared to adjust to a shift from a one-to-many form of interaction to a many-to-many form.

Without that preparation, the shift in control away from the instructor is not necessarily a beneficial one but simply a different and possibly more complex and frustrating form of control and domination of communication and interaction. Likewise, the lack of requirement for turn-taking and for permission to respond can result in equally frustrating and difficult experiences for learners. Participants' descriptions of postings to which no one replies or which are responded to in a negative fashion suggest that a lack of turn-taking or permission may not be beneficial in all contexts or under all circumstances. A lack of requirements can also result in "out of control" discussions in which individuals feel as if they are "eavesdropping on 25 conversations all at the same time, 24/7."

Another important characteristic and benefit of the online discussion is its time and place independence (Harisim, 1990) freeing learners of the requirement to share physical space and communicate synchronously. This lack of co-presence avoids the negative influence that race, gender, accent or status might have on the discussion (Warschauer, 1997). Yet this same freedom from co-presence results in a different set of difficulties that arises in the absence of visual, non-verbal cues naturally present in face-to-face communication. The category of *Text-only, online communication* characterised the asynchronous nature of the medium as one that is "impersonal", lacking in emotion, "sterile", and "fraught with interpretation errors". It was described as one in which to avoid misinterpretation "you must not only take each message with a grain of salt but you have to read each one with a grain of salt as well". Added to this potential for misinterpreting and for misinterpretation are the challenges with the forum features such as the lack of opportunity to delete, edit or further clarify messages thus potentially compounding problems related to misinterpretation.

These findings are congruent with those of Burge (1994), Weatherley and Ellis (2000) and Wisenberg and Hutton (1996) yet incongruent with Tiene (2000). In his survey of five graduate level classes, "a strong majority" identified body language and facial expressions as important on one item. Yet, on another item, they appeared not to consider the absence of nonverbal cues to be "a significant issue" (p. 379). Tiene explains this apparent contradiction by noting that the participants "saw each other once a week in class" (p. 383). He also noted that the type of discussion was such that facial expressions and gestures may not have been important. The difference in the findings between Tiene, the present study and those noted above

which identified misinterpretation and lack of non-verbal cues to be problematic, suggests that challenges related to online discussions are context-dependent.

Another set of benefits associated with the online discussion and presented at the beginning of this paper related to the medium's support for more reflective responses (Heckman & Annabi, 2003), for constructing and negotiating meaning (Lapadat, 2002), for critical thinking (Aviv, Erlich, Ravid, & Geva, 2003; Newman, Johnson, Cochrane & Webb, 1996) and for higher levels of cognitive processes than in the face-to-face discussion. However, the findings of this study suggest that, while the medium may support more reflection, knowledge construction, and critical thinking, etc, it does not guarantee that these benefits will be achieved. The category of the purpose and quality of the discussion highlighted learners' perception of a lack of meaningful and thoughtful contributions, an emphasis on quantity over quality, a tendency to "state an opinion to meet a participation requirement", vague comments, and lack of "depth".

The findings related to the purpose and quality of the discussion like the three other sub-categories of findings provide an opportunity to consider the benefits of the online asynchronous discussion from an alternative perspective. This perspective presents the medium as one with patterns of interaction and of communication unlike those to which learners might be typically accustomed. The new patterns may require alternative ways of behaving and of learning that demand more responsibility and control on the part of the learner. As well, the new patterns may require of instructors that they rethink their own role and consider ways that they can best support learners as they communicate and interact with each other in many-to-many patterns.

Conclusion

As online environments in general and discussions in particular play an increasingly prominent role in teaching and learning, we might expect that their use would become increasingly more effective. In 1996, when online environments represented a new space for teaching and learning, Wisenberg and Hutton observed that participants experienced challenges with a more student-centered environment, with communicating in the absence of visual cues and with the time needed to devote to online conversations. Two years earlier, Burge (1994) identified similar challenges with lack of visual cues, peer interaction, information management and working collaboratively. Approximately, a decade later, the present study identified similar challenges. The congruency in these findings suggests that, in spite of increased experience with online discussions, there may not always be a concomitant improvement in the quality, effectiveness and benefits of that experience.

Improving the experience of learners using online discussions will require efforts to achieve the benefits and limit or overcome the challenges. The specific targets for improvement might include the structure of the

discussion and approaches to its assessment and moderation. In this regard, scaffolding, models of best practices, and the targeting of specific cognitive process such as problem-solving or critical thinking may support achievement of a higher quality learning experience in the online discussion. Improving learners' experiences may also require specific structures and strategies to help them become accustomed to and manage student-centred control and many-to-many interaction.

In addition, continued efforts to investigate the varying contexts in which such experiences take place will provide opportunities to better understand the specific conditions and circumstances that encourage and mitigate challenges such as those identified in this study. The study reported on in this paper was limited to a group of 20 students only and to a context of a single program. The study's focus was not online discussions in particular but web-based learning in general. There was no analysis or observation of actual discussions nor was there any attempt to consider or identify specific factors that might be related to or impact on learners' experiences in online discussions.

Tiene's (2000) conclusions, for example, suggest that contexts in which some face-to-face interaction is combined with use of a discussion forum may lessen learners' dependence on or preference for verbal cues and gestures. While face-to-face interaction may not always be possible in combination with an online discussion, other mechanisms such as occasional use of webcams, or even emoticons might potentially counter some of the difficulties faced by learners. Investigation of learners' experiences of online discussions in other contexts can further our understanding of how best to make use of the online discussion in order to limit the challenges and subsequently reap the benefits promised by the medium.

References

Althaus, S. (1997). Computer-mediated communication in the university classroom: An experiment with on-line discussions. *Communication Education*, 46(3), 158-174.

Aviv, R., Erlich, Z., Ravid, G., & Geva, A. (2003). Network Analysis of Knowledge Construction in Asynchronous Learning Networks. *Journal of Asynchronous Learning Networks*, 7(3), 1-23. Retrieved April 7, 2004 from http://www.aln.org/publications/jaln/v7n3/pdf/v7n3_aviv.pdf

Beaudin, B. (1999). Keeping online asynchronous discussion on topic, *Journal of Asynchronous Learning Networks*. 3 (2), 41-53. Retrieved April 7, 2004 from http://www.aln.org/alnweb/journal/Vol3_issue2/beaudin.htm.

Biesenbach-Lucas, S. (2003). Asynchronous Discussion Groups in Teacher Training Classes: Perceptions of Native and Non-Native Students. *Journal of Asynchronous Learning Networks*, 7(3), 24-46. Retrieved April 7, 2004 from http://www.aln.org/publications/jaln/v7n3/pdf/v7n3_biesenbach-lucas.pdf

Biggs, J. (1999). *Teaching for Quality Learning at University*, Buckingham: SRHE & Open University Press.

Burge, E. (1994). Learning in computer conferenced contexts: The learners' perspective. *Journal of Distance Education*, 9(1), 19-43.

Coleman, E. (2004). *Graduate students' experiences of barriers and challenges in a web-based graduate Masters of Education program*. Unpublished Masters thesis. Faculty of Education, Memorial University of Newfoundland, Canada.

Feenberg, A. (1987). Computer conferencing and the humanities. *Instructional Science*, 16(2), 169-186.

Guzdial, M. & Carroll, K. (2002). *Explaining the Lack of Dialogue in Computer-Supported Collaborative Learning*. CSCL 2002 Information and Conference Papers. Retrieved April 7, 2004 from <http://newmedia.colorado.edu/cscl/18.html>

Harasim, L. (Ed.). (1990). *On-line education: Perspectives on a new environment*. New York: Praeger.

Heckman, R. & Annabi, H. (2003). A content analytic comparison of FTF and ALN case-study discussions. *Proceedings of the 36th Hawaii International Conference on System Sciences*. Retrieved April 7, 2004 2004 from http://www.alnresearch.org/data_files/articles/full_text/heckman03.pdf

Hew, K. F., & Cheung, W. S. (2003). An exploratory study on the use of asynchronous online discussion in hypermedia design. *E-Journal of Instructional Science and Technology (E-JIST)*, 6(1). Retrieved April 17, 2004 from http://www.usq.edu.au/electpub/e-jist/docs/Vol6_No1/an_exploratory_study_on_the_use_.htm

Lapadat, J. (2002). Written Interaction: A Key Component in Online Learning. *Journal of Computer-Mediated Communication*, 7(4). Retrieved April 7, 2004 from <http://www.ascusc.org/jcmc/vol7/issue4/lapadat.html>

McComb, M. (1993). Augmenting a group discussion course with computer -mediated Communication in a small college setting. *Interpersonal Computing and Technology: An Electronic Journal for the 21st Century*, Washington, DC: Center for Teaching and Technology, Academic Computer Center Georgetown University. Retrieved December 06, 2003 from <http://www.helsinki.fi/science/optek/1993/n3/mccomb.txt>

Miles, M. & Huberman, A. (1984). *Qualitative Data Analysis: A Sourcebook of New Methods*. Newberry Park, CA: Sage.

Morgan, M. (2000). *Getting Beyond the Chat: Encouraging and Managing Online Discussions*. Retrieved December 10, 2003 from <http://cal.bemidji.msus.edu/english/morgan/onlinediscussion/index.html>

Murphy, E. (2001). Investigating the multiple worlds of teaching through multiloguing. *Educational Technology & Society*, 4(3). Retrieved December 06, 2003 from http://ifets.ieee.org/periodical/vol_3_2001/murphy.html

Newman, D., Johnson, Cochrane, C., & Webb, B. (1996). An experiment in group learning technology: evaluating critical thinking in face-to-face and computer-supported seminars. *IPCT. Interpersonal Computing and Technology Journal*, 4(1), 57-74. Retrieved Feb. 21, 2003 from: <http://www.qub.ac.uk/mgt/papers/ccvsem/contents.html>

Olaniran, B., Savage, G. & Sorenson, R. (1996). Experimental and experiential approaches to teaching face-to-face and computer-mediated group discussion. *Communication Education*, 45(3), 244-259.

Oliver, M. & Shaw, G. P. (2003). Asynchronous Discussion in Support of Medical Education. *Journal of Asynchronous Learning Networks*, 7(1), 56-67. Retrieved April 7, 2004 from http://www.aln.org/publications/jaln/v7n1/pdf/v7n1_oliver.pdf

Ortega, L. (1997). Processes and outcomes in networked classroom interaction: Defining the research agenda for L2 computer-assisted classroom discussion. *Language Learning & Technology*, 1(1), 82-93.

Romiszowski, A. (1995). Use of Hypermedia and Telecommunications for Case-Study Discussions in Distance Education. in Lockwood, F. (Ed.), *Open and Distance Learning Today*, New York, Routledge, pp. 164-172.

Tiene, D. (2000). Online discussions: A survey of Advantages and disadvantages compared to face-to-face discussions. *Journal of Educational Multimedia and Hypermedia*. 9(4), 371-384.

Turoff, M., Hiltz, S., Bieber, M., Fjermestad, J. & Rana, A. (1999). Collaborative discourse structures in computer mediated group communications. *Journal of Computer-Mediated Communication*, 4(4). Retrieved April 7, 2004 from <http://www.ascusc.org/jcmc/vol4/issue4/turoff.html>.

Warschauer, M. (1997). Computer-mediated collaborative learning: Theory and practice. *The Modern Language Journal*, 81(4), 470-481.

Weatherley, R., & Ellis, A. (2000). *Online learning: What do teachers need to know about communicating online?* Paper presented at the NAWEB 2000 virtual conference. Retrieved April 7, 2004, from <http://naweb.unb.ca/2k/papers/weatherley-ellis.htm>.

Wiesenberg, F. & Hutton, S. (1996). Teaching a graduate program using computer-mediated conferencing software: distance education futures. *Journal of Distance Education*, 11(1), 83-100.

Winięcki, D. (1999). Keeping the Thread: Adapting Conversational Practice to Help Distance Students and Instructors Manage Discussions in an Asynchronous Learning Network, *DEOSNEWS*, 9(2). Retrieved April 7, 2004 from <http://www.ed.psu.edu/ACSDE/>.
