

IT'S NOT THAT TOUGH: Students Speak About Their Online Learning Experiences

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ABSTRACT

K-12 online learning is growing in Canada and elsewhere in the world. However, the vast majority of literature is focused on practitioners and not on systematic inquiry. Even the limited published research has largely excluded the perspectives of students engaged in virtual schooling. This study examines secondary student perceptions of components of virtual schooling that were beneficial and challenging.

Students largely enjoyed their virtual school courses and found the synchronous classes, the technology, and the ability to control their own learning as positive aspects of their experience.

Students also found the lack of a sense of community, working during their asynchronous class time, and the asynchronous course content to be challenging; and made suggestions for improvement to each, along with advice to future virtual school students.

Keywords: Canada, distance education, K-12, online learning, virtual school

INTRODUCTION

Virtual or cyber schooling is largely a North American phenomenon that first began in Canada in the mid-nineties (Powell & Patrick, 2006). The use of distance education in the K-12 environment stemmed from a need to provide equal educational opportunities to students in rural areas (Haughey & Muirhead, 1999).

The first virtual school in Canada was EBUS Academy in British Columbia in 1993. Fourteen years later, Barbour (2010a) reported that almost all provinces and territories had some form of K-12 distance education, most with significant levels of activity. However, even with this growth the amount of literature published about virtual schooling in Canada and in general is limited (Barbour, 2010b; Barbour & Reeves, 2009; Rice, 2006).

Within the Canadian context, researchers have examined the general benefits of virtual schooling (Muirhead, 2000), the design of asynchronous course content (Barbour, 2005, 2007; Barbour & Cooze, 2004), the method of synchronous instruction (Murphy & Coffin, 2003; Nippard & Murphy, 2007), the affordances of synchronous and asynchronous

learning tools (Murphy, Rodríguez-Manzanares & Barbour, 2011), the student use of instant messaging (Cooze & Barbour, 2003; Murphy & Rodríguez-Manzanares, 2008), teachers' perceptions of student motivation in the online environment (Murphy & Rodríguez-Manzanares, 2009a), teachers' ability to be learner-centered (Murphy & Rodríguez-Manzanares, 2009b), the role of school-based teachers (Barbour & Mulcahy, 2004, 2009a; Mulcahy, 2002), programmatic evaluations (Kuehn, 2002, 2006; Litke, 1988), the sense of perceived distance (Murphy & Ciszewska-Carr, 2007), the integration of virtual schooling into the traditional brick-and-mortar school (Stevens, 1997, 2006), and student achievement (Barbour & Mulcahy, 2008, 2009b).

Yet, what is known about the experiences of these adolescents learning in these largely independent learning environments is limited. This case study was designed to examine students' attitudes about the aspects of virtual schooling that they found both useful and challenging.

LITERATURE REVIEW

Clark (2000) defined virtual schools as "a state approved and/or regionally accredited school that offers secondary credit courses through distance learning methods that include Internet-based delivery" (p. i). While Canada has seen the operation of virtual schools for longer than the United States, the amount of published research focused on Canadian virtual schools and virtual schooling has been limited compared to the US. In fact, to date the only published studies that have examined the perceptions of secondary students engaged in K-12 online learning have been Tunison and Noonan (2001) and Barbour (2008). Tunison and Noonan (2001) examined the experiences of 50 students enrolled in a district-based cyber school in a western Canadian province, while Barbour (2008) conducted his survey study with 38 students from a provincial virtual high school based in eastern Canada.

Other, more general evaluations of K-12 online learning have also included smaller components that have explore student perceptions, but often only as an afterthought or as a smaller component of a larger study (see Barker & Wendel, 2001; Haughey & Muirhead, 1999).

This line of inquiry has found that students were generally satisfied with their K-12 online learning experience. Tunison and Noonan (2001) reported that "students were generally satisfied with their online learning environment and experiences" (p. 507), while Barbour (2008) found that 86.8% of the students surveyed indicated that they were satisfied. This high level of satisfaction was consistent with the findings of Barker and Wendel (2001), who reported that 91% of students were either satisfied or very satisfied with the overall quality of their education, and Haughey and Muirhead (1999), who found that 92% of students felt that online education was a good way to take courses. Tunison and Noonan (2001) found students particularly enjoyed the autonomy and freedom the online learning environment provided, in particular the ability to work ahead and the flexibility in the completion of activities and assignments. While the students appreciated the independent aspects of learning, they also stated they learned best when working together with the other online students at their local site.

Research at the post-secondary level has yielded similar results (Poole, 2002; Schrum, 2002). Conrad (2002) described place-based communities (i.e., communities physically together) as "like-minded groups of people [gather] together in the spirit of shared goals" (p. 4). It appeared the online students had a shared goal was focused on understanding the material.

The students surveyed in Barbour (2008) rated the communication tools (i.e., virtual classroom, e-mail, and the discussion forums) as the three highest items in their list of helpful tools, which likely added to their satisfaction of their online learning experience.

This was consistent with the findings of similar studies conducted with adult participants. For example, studies have consistently found that adult learners appreciate asynchronous communications in their online, as it allows them to reflect upon their participation and make more meaningful contributions (Petrides, 2002; Vonderwell, 2003).

Interestingly, Tunison and Noonan (2001) reported that while students used a variety of communication tools, they indicated these tools were a poor substitute for the kind of interaction that would take place in person. One of the possible reasons for this difference may be that this virtual school utilized a synchronous classroom tool for between 30% and 80% of the students' formal instructional time. Also, the students in Tunison and Noonan's study were largely urban and suburban students, while the students in Barbour's study were rural. Kannapel and DeYoung (1999) revealed that rural schools tend to foster a stronger sense of community.

The students examined by Tunison and Noonan (2001) did express concern that the level of autonomy could be too much at times and it was often difficult to work when no one was there to monitor them, indicating they felt their online courses were more work than their in-school courses. Barbour (2008) reported students found technical problems and, also, the lack of time to complete what they perceived as the more burdensome workload of their virtual course as their main concerns. The students didn't express explicit concerns about the level of autonomy or independence required to complete their virtual school courses, but they did select "time management of the student" and "motivation of the student" as two of the three most important factors for success in a virtual school course. These findings were consistent with the findings of Weiner (2003), who stated motivation was critical to virtual school students' successful completion of their work and of the virtual school course. She also found the virtual school students were able to develop the responsibility necessary to be successful in this environment by participating in a structured online course.

Issues of motivation and time management were important when students are expected to complete work in an independent and autonomous environment. Haughey and Muirhead (1999) described the preferred characteristics of students involved in virtual schooling in Alberta to include the highly motivated, self-directed, self-disciplined, independent learner who could read and write well, and who also had a strong interest in or ability with technology. Ballas and Belyk (2000) found that the participation rate in the assessment among virtual students ranged from 65% to 75% compared to 90% to 96% for the classroom-based students in Alberta, leading them to speculate that the sample of virtual school students did not reflect the total population of these students. In a separate study with the same virtual school, Barbour and Hill (2011) found that students were engaged in on-task behavior approximately 55% of the time during their synchronous classes and 30% during their asynchronous classes. He stated that "most of the CDLI students' scheduled asynchronous class time was unstructured and students often had no work to complete or were able to complete work on their own at a later time" (p. 26).

Research on motivation in the face-to-face classroom has consistently indicated student motivation increases with the level of challenge and the opportunity for collaboration (Miller & Meece, 1997; Perry & VandeKamp, 2000).

METHODOLOGY

This study of students' perception of web-based learning was one of a number of studies by a research group at the University of Georgia. Earlier studies had examined student perceptions of benefits and challenges in higher education in Georgia (Song et al., 2004) and corporate learners in the United States and South Korea (Jones et al, 2004).

This study focused on secondary school students in Newfoundland and Labrador (Canada) and was guided by the following research questions:

- What virtual school learning components do secondary students recognize as helpful in their learning process?
- What virtual school learning components do secondary students recognize as challenging in their learning process?

The method of data collection was semi-structured interviews (see Appendix A for a copy of the interview guide). The use of semi-structured interviews allowed researchers to prepare questions, but also permitted the use of unscripted probing questions, when necessary, to gain a richer understanding (Fontana & Frey, 2000). Each interview was 30 to 45 minutes in length and was conducted by telephone between May-August 2005. The interviews were recorded using an analogue recorder and transcribed. A member of the research team, other than the individual who originally transcribed the recording, checked each transcription against the recording for accuracy. Transcripts were provided to all participants for additions, deletions or modifications (although none of the students made any changes).

The data were analyzed using the method described by Ruona (2005). Ruona outlined a four stage process for using a table format and the search and replace features of *MS Word* to conduct a more systematic analysis of qualitative data. During stage one, the researchers prepared the data by transcribing each interview and focus group verbatim. Each interview transcript was then formatted into a separate six-column table and saved in individual files. Stage two called for a familiarization of the data which included "listening to the tapes, reading and rereading the data, jotting notes and memos about what the researcher sees and what they think is going on in the data" (p. 240). During stage three two researchers coded the data. Emerson, Fretz and Shaw (1995) stated that coding allows for the identification and development of concepts and insights through close examination of and reflection on the data. After each individual file had been coded, the researchers began stage four or generating meaning, where all of the individually coded files were merged into a single document and then organized based upon codes. The researchers grouped the concepts that had been identified into categories. The process of grouping allowed for easier analysis because once a category was identified, After this had been completed, the researchers considered potential category integration or splitting of categories, until left with a set of core categories (Pidgeon & Henwood, 2004). Finally, based upon these categories, themes were generated from the data and key quotes identified and are presented in support of the themes discussed below.

The Participants

Newfoundland and Labrador has an isolated population covering a large geographic area. The majority of the province's schools are located in rural areas, many of which have difficulty attracting teachers in specialized subject areas and because of their small student population have also have difficulty offering many aspects of the provincially mandated curriculum. Historically, distance education has been used to address the curriculum opportunity gap that existed in these rural schools.

At the time of the study, the distance education entity in the province was the Centre for Distance Learning and Innovation (CDLI), which offered 35 courses to 1500 enrolled students from 95 different schools during the 2004-05 school year (Government of Newfoundland, 2004). The delivery model utilized by the CDLI was a combination of asynchronous instruction using a content management system (CMS) and synchronous instruction using a virtual classroom.

Table: 1
Research participants

Pseudonym	Grade	CDLI Courses
Deidra	12	3 courses successfully 1 course dropped
Lisa	12	3 courses successfully
Linda	11	6 courses successfully
Annette	12	1 course successfully 1 course dropped
Kim	12	2 courses successfully
Becky	12	6-7 courses successfully
Ronald	12	2 courses successfully
Kylie	12	3 courses successfully

Participants were solicited through surveys used in an earlier study (see Barbour, 2008). Eight participants, representing all four English-speaking school districts, volunteered. While all eight students described themselves as being strong students (with most maintaining an A or B average), this simply the reality of the students volunteered (Rosenthal & Rosnow, 1975). Table: 1 provides a summary of the participants.

Unfortunately, due to the poor quality of the recording for Kylie’s interview we were unable to transcribe the interview and her data was not included in our analysis.

RESULTS AND DISCUSSION

After coding the transcriptions from these seven interviews, our analysis identified five themes. In this section, we discuss each of these themes using the following pattern: describe each aspects of the theme, provide the level of support for that theme and evidence from the students’ own comments; discuss the theme in relation to the existing literature. Each theme was identified because it was either repeated by a number of the individuals interviewed or was the main point made throughout the entire interview by one or more participants and was referenced indirectly by other participants. It should be noted that three of the participants (i.e., Annette, Deidra and Kim) were not as forthcoming with information and, as such, in many instances we use quotations from one of the more expressive four and indicate the others who agreed with the sentiment. However, where possible we have tried to include quotations from these three students.

Enjoyment of Virtual School Courses

Students indicated that they liked their online courses, particularly synchronous classes (often more so than their face-to-face classes). Their reasons for their enjoyment included the teacher preparedness, being able to be more self-directed in their learning, and not being constantly supervised. For example, Lisa commented that, “...the teachers are amazing ... a lot of them have a lot of experience and they know the material very well, like there is no question that you can ask them that they don’t know the answer to ...” Kim echoed these statements, “ ... the teacher that we had this year, he was like really on task...”

Finally, Deidra remarked, "I really like some of the teachers ... I got to say they are some of the more favorite teachers that I've ever had through my schooling." Two other students also said positive things about their online teachers.

Students also spoke about their ability to be more independent and self-directed in their online courses compared to their classroom courses as a reason they enjoyed their virtual school courses. Becky indicated she "enjoyed learning things on my own and not having the teacher have to tell me everything ... you're just more independent ..."

Ronald said, "... it's totally independent and ... you have to rely on different resources than just the teacher there helping you ..." These students felt having the opportunity to show responsibility and a high degree of ownership over their own learning was extremely satisfying. Being able to develop a sense of responsibility was crucial to the level of satisfaction and success these students experienced. This was consistent with Weiner's (2003) assertion cyber school students were able to develop responsibility by participating in a structured online course.

The lack of constant teacher supervision was also a consistent theme related to the students' level of enjoyment. "You kind of get it in a lot more responsibility and independence, like to take care of yourself and make sure you get stuff done on your own without like the prompting of the teacher there like all the time" (Becky). Linda may have expressed it most directly, "...you don't have a teacher constantly supervising you, so you can take as much time to get whatever you want done without anybody being on your case." Two other students expressed similar sentiments.

Tunison and Noonan (2001) also found students expressed they enjoyed the sense of autonomy and freedom, specifically mentioning the ability to work ahead and the flexibility in the completion of assignments.

Technology Issues

Technical difficulties at school were not a major issue, and only two students mentioned technical problems. Even these students indicated they experienced "not a lot" of problems and their problem "weren't too bad." This was consistent with Ballas and Belyk (2000), who reported that about 90% of their virtual school students were satisfied with the technology they were using. While our students did not encounter technical problems, connectivity and the ability to utilize all aspects of their online outside of school was an issue. However, all seven students reported they had access to only a dial-up Internet connection at home that was too slow to run the synchronous classrooms and even some of the asynchronous tools. Due to this limitation, students preferred libraries, media centers or computer labs at school because of the high-speed Internet. Becky summarized the problem, "I had a lot of trouble getting online from home, but I think it was just my computer and...around here we only have dial-up." Lisa, who reported the same issue, also pointed out because of the speed differences between home and school it was difficult for her to keep her attention on-task once she got a chance to access high-speed Internet:

the one problem that I had with it was being from a small community at home you only have access to very slow dial-up Internet, so of course you go to your school and you're sitting maybe two hours with online periods and there's high-speed Internet in front of you and of course you're very tempted to check your e-mail and maybe go to other sites and stuff which would take you away from your actual classroom and that part is hard.

Barker, Wendel and Richmond (1999) also found slow dial-up speed influenced the use of interactive multimedia such as audio and video and was a challenge that confined effective use of this virtual learning content.

Library or computer labs at schools had few technical issues, and when they did arise "you can run and tell a teacher that's assigned for that in your school, like a computer teacher or technology teacher and they'll come and they'll fix the problem" (Lisa).

Only one student questioned the connectivity at school. Kim was not satisfied with the Internet connections either at home or school. "A lot faster at school, but I think we have a satellite outside, but it's still not as fast as it would be, I guess where there's so many computers... [and] the Internet at our school is really slow, so we would be behind other people if something was trying to come up on the screen." Stevens (2006) explained that even though there were satellites providing schools in Newfoundland and Labrador with high-speed Internet, digital telecommunications infrastructures at some schools in rural areas did not allow schools connect to Internet with high speed, possibly explaining why Kim complained of slow Internet speed at school.

Sense of Community

Within a virtual school course there was the potential for two communities of learners to develop. The first is a sense of community among the group of online students who were enrolled in the course and interacted through the CMS and virtual classroom. The second is a sense of community among the local group of students who sat in the room together, as there was often more than one student at each brick-and-mortar school enrolled in the same online course. For the most part, students indicated they felt little sense of community with their online teacher and classmates. While most students had positive things to say about their teacher, it was common for them also to feel they were "sitting down and talking to... a computer and hearing a voice back and not actually seeing the face" (Ronald). Four students felt like they didn't know their online teacher and vice versa. These comments were consistent with the sentiments expressed by five of the students about their online classmates.

"A lot of these people we don't know and we won't know who [are] in our classes" (Becky) or "the people they you're in with are from all over Newfoundland and Labrador and you just feel like one person all alone" (Linda). Lisa probably summarized it the best, "you're being taught by a complete stranger that you've never met and you know nothing about them really and you know nothing about your classmates, so it kind of makes it impersonal..." It should be noted three of the students indicated for one or more of their virtual school classes they felt a sense of community.

A sense of community or a connection between learners is affected by, among other things, the level of social presence felt by the learners (Gunawardena & Zittle, 1997). Garrison and Anderson (2003) defined social presence as "the ability of learners to project themselves socially and emotionally into a community of inquiry through the mediums of communication being used" (p. 49). In another study, Nippard and Murphy (2007) concluded that CDLI e-teachers expressed social presence through teacher-centered activities in the virtual classroom, while students relied upon the instant message feature. The difficulty was that depending on the subject area as little as 20%, but as much as 60% of the students time is allocated as asynchronous. If one of the main ways teachers projected social presence was during synchronous class time, it might be easy to understand why students felt like a stranger was teaching them and that the whole process was impersonal. Unlike their online classmates, those students who were fortunate enough to have local classmates in their virtual school course indicated they gained a valuable source of assistance.

As Linda explained it:

instead of calling your teacher all of the time and ask for a question or whatever, you got someone else in your room that can probably help you with it and what you don't know they might know and what they don't know you would probably know.

Becky indicated this was particularly true during their scheduled asynchronous time, when they didn't have immediate access to their virtual school teacher. Annette described that process:

we'd all get together in a group and do it, cause it was only five of us that did the online course, so you know, it was only a small room that we did it in and we'd all sit at a table and we'd do the pages and then we'd help each other with the assignments that we had, that's pretty much it.

Both Ronald and Becky described almost the exact same process, even though all three attended different schools. However, as Ronald described it this process did not develop overnight but was a gradual coming together as the school year progressed. The development of these local learning communities was consistent with both Tunison and Noonan (2001) and Barbour (2008). It was also consistent with the description of a learning community provided by Conrad (2002), students in the same course who were all working towards a single goal of completing the material in a largely independent learning environment. The fact all of the students who were interviewed were from rural jurisdictions further strengthens our understanding of these informal learning communities, as Kannapel and DeYoung (1999) indicated rural schools tend to have a stronger sense of community.

Asynchronous Class Time, Off-Task Behavior

The process of local students working together, particularly during their asynchronous class time, may have also had negative consequences. All seven students reported they did not use all of their asynchronous class time for on-task behavior or activities related to their virtual school course. In fact, the students indicated that only 50% to 80% of their asynchronous class time was used for on-task behaviors, with the average being approximately 65%. For a 60 minute class this meant they would spend about 20 minutes where they would "just want to take it off and sit back and talk to the people that are doing courses with you, just play a few games, so things like that" (Linda). As Deidra described it, in "offline classes we... most of the time we used to take it easy, it's a shame to say but, we could have done a lot of work, but yeah, we basically took it easy during offline classes." None of the students indicated that they made good use of all of their asynchronous time and all seven admitted to "not turning down a welcome break" (Ronald). Interestingly, one of the three students would later describe they were paying attention and on-task during this synchronous class, leaving the authors of this study to wonder if the students' off-task behavior extended beyond their asynchronous class time. The decision on whether to use their asynchronous classes to complete their work was based upon external factors. "Sometimes you might work, if there is an assignment due you might work the whole 60 minutes" (Lisa). "If we had any work to do, like if we had an assignment due or a test to study for then we're working on that" (Ronald). Deadlines were the main motivator mentioned by six of the seven students. External or extrinsic sources of motivation, such as rewards (i.e., grades) and punishments (i.e., deadlines), have been found to be effective in getting students to complete their work, although the value in promoting true learning is often questioned (Pintrich & Schunk, 2002).

Lisa provided a suggestion to address the off-task behavior during their asynchronous time, "in your own school you could have people come in and supervise, which is usually what happens to us, our principal will come in and check on us every now and then to make sure that we are doing our work." While not constant supervision, these random checks probably kept these students on-task more than if they were completely unsupervised.

Improving Asynchronous Teaching and Course Content

One of the reasons why students may have spent significant periods of their asynchronous class time engaged in off-task behavior was because of the nature of the asynchronous course content. During much of their asynchronous class time they were assigned activities from the book, homework, assignments or test preparation.

None of the students reported to being assigned any of the lessons contained in the asynchronous course content to complete, instead teachers focused on covering the entire course content during the scheduled synchronous class time. In fact, only two students reported they used the asynchronous course content at all. The other students indicated "we didn't even use the lessons much" (Deidra) or "I didn't use the stuff in WebCT much at all" (Lisa). Generally speaking, there is a need for more effective teaching strategies in this virtual schooling, particularly asynchronous teaching methods (Cavanaugh, 2007; Clark, 2007; Rice, 2006).

Most virtual school teachers are former classroom teachers, and as Surrey and Ely (2007) reminded us, a person is more likely to use something new if it is consistent with their own practices and beliefs.

The virtual classroom used during synchronous time allowed teachers to do the same kinds of things they would have done in their traditional classroom. However, the course management system used during asynchronous class time was largely foreign to them, which was why these teachers revert to assigning seatwork or providing time to work on assignments. Beyond the fact the teachers didn't assign any of those items for the students to complete, students also indicated the asynchronous course content was "just plain" and that "they could probably make it a little more flashy, it's a little boring to look at now" (Linda). While five students expressed ambivalence towards the asynchronous course content, two had some specific suggestions for course designers on how to improve the content." Linda indicated designers could " have little interactive tools where you can skip steps" and they could use "more eye-catching colors and nice fonts", while Ronald suggested designers should "grab the students attention at the beginning and get them interested." He made this suggestion as he compared good online content to a good novel that has an engaging plot right from the beginning of the book. In his study with K-12 online teachers and course developers, Barbour (2007) reported that two of the seven principles for effective asynchronous course content design were related to making that content engaging (e.g., course developers should refrain from using too much text and consider the use of visuals to replace or supplement text when applicable and course developers should use multimedia to enhance the content and not simply because it is available).

Becky also made a suggestion unrelated to the actual course content, but just as valuable. She felt the virtual school could provide "more information about what everything on the actual site means and how you can use it... like a tutor class on it...", essentially suggesting an orientation on how to learn online using the virtual schools format of content delivery. Hill and Hannafin (2001) spoke to the necessity of "procedural scaffolds [to] help learners use resources" (p. 45).

Both Elbaum, McIntyre and Smith (2002) and Morris (2002) discussed the need for virtual school teachers to provide an orientation at the beginning of the course allowing students a chance to find out where things were and how to use them.

CONCLUSIONS AND IMPLICATIONS

Most students were satisfied with their online study experiences. They liked their online learning because they felt their teachers were well prepared and it offered a greater level of independence and control over their own learning. Unlike findings in earlier, similar studies, the students we interviewed experienced few technical problems. Students also enjoyed their synchronous classes, although not because it provided a sense of connection with their online classmates (whom they felt little community with). However, students did feel a strong sense of community with the local students who were enrolled in the same online learning course(s).

There were some challenges raised by the students to their online learning. The most frequent was the lack of on-task behavior during the scheduled asynchronous classes. While students appreciated the independence of their online learning environments, they reported that they would often engaged in off-task behavior for as much as 20% up to 50% of their allocated asynchronous class time. They indicated the reasons for this off-task behavior were the fact their asynchronous course content was not engaging and teachers often assigned more traditional seatwork (e.g., questions or activities from the textbook or written assignments).

The five themes represented almost all of the perceived benefits and challenges raised by these seven students (and contrary comments were noted when appropriate). However, an analysis of only seven interview transcripts was a very small sample and limited this study given the potential number of virtual school students in Newfoundland and Labrador (even more so considering Newfoundland and Labrador is one of the least populous provinces). As virtual schooling continues to grow in Canada, and elsewhere, there is a need for more systematic research into virtual schooling.

As was described earlier, the amount of research conducted on virtual schooling in Canada is quite limited for a form of education that has been in use for more than a decade. There is even less research focused upon the students' opinions of these emerging learning environments. This is not only a Canadian problem, as Cavanaugh, Barbour and Clark (2009) reported that the majority of literature on K-12 online learning focused on first-person, practitioner experiences – and was not based upon systematic research. This study represents a small step in understanding student experiences in one virtual school environment, but clearly more research is needed.

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REFERENCES

Ballas, F. A., & Belyk, D. (2000). *Student achievement and performance levels in online education research study*. Red Deer, AB: Schollie Research & Consulting. Retrieved from http://www.ataoc.ca/files/AOCresearch_full_report.pdf

Barbour, M. K. (2005). The design of web-based courses for secondary students. *Journal of Distance Learning*, 9(1), 27-36.

Barbour, M. K. (2007). Teacher and developer perceptions of effective web-based design for secondary school students. *Journal of Distance Education*, 21(3), 93-114. Retrieved from <http://www.jofde.ca/index.php/jde/article/view/30>

Barbour, M. K., (2008). Useful and challenging characteristics of virtual schooling: Secondary student experiences. *Quarterly Review of Distance Education*, 4(9), 357-372.

Barbour, M. K. (2010a). *State of the nation study: K-12 online learning in Canada*. Vienna, VA: International Council for K-12 Online Learning. Retrieved from http://www.inacol.org/research/docs/iNACOL_CanadaStudy10-finalweb.pdf

Barbour, M. K. (2010b). Researching K-12 online learning: What do we know and what should we examine? *Distance Education*, 7(2), 7-12.

Barbour, M. K., & Cooze, M. (2004). All for one and one for all: Designing web-based courses for students based upon individual learning styles. *Staff and Educational Development International*, 8(2/3), 95-108.

Barbour, M. K., & Hill, J. R. (2011). What are they doing and how are they doing it? Rural student experiences in virtual schooling. *Journal of Distance Education, 25*(1). Retrieved from <http://www.jofde.ca/index.php/jde/article/view/725>

Barbour, M. K., & Mulcahy, D. (2004). The role of mediating teachers in Newfoundland's new model of distance education. *The Morning Watch, 32*(1-2). Retrieved from <http://www.mun.ca/educ/faculty/mwatch/fall4/barbourmulcahy.htm>

Barbour, M. K., & Mulcahy, D. (2008). How are they doing? Examining student achievement in virtual schooling. *Education in Rural Australia, 18*(2), 63-74

Barbour, M. K., & Mulcahy, D. (2009a). Beyond volunteerism and good will: Examining the commitment of school-based teachers to distance education. In I. Gibson et al. (Eds.), *Proceedings of the Annual Conference of the Society for Information Technology and Teacher Education* (779-784). Norfolk, VA: AACE.

Barbour, M. K., & Mulcahy, D. (2009b). Student performance in virtual schooling: Looking beyond the numbers. *ERS Spectrum, 27*(1), 23-30.

Barbour, M. K., & Reeves, T. C. (2009). The reality of virtual schools: A review of the literature. *Computers and Education, 52*(2), 402-416.

Barker, K., & Wendel, T. (2001). *e-Learning: Studying Canada's virtual secondary schools*. Kelowna, BC: Society for the Advancement of Excellence in Education. Retrieved from <http://www.sae.ca/pdfs/006.pdf>

Barker, K., Wendel, T., & Richmond, M. (1999). *Linking the literature: School effectiveness and virtual schools*. Vancouver, BC: FuturEd. Retrieved from <http://www.futured.com/pdf/Virtual.pdf>

Cavanaugh, C. (2007). Effectiveness of K-12 online learning. In M. G. Moore (Ed.), *Handbook of Distance Education* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Cavanaugh, C., Barbour, M. K., & Clark, T. (2009). Research and practice in K-12 online learning: A review of literature. *International Review of Research in Open and Distance Learning, 10*(1). Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/607>

Clark, T. (2000). *Virtual high schools: State of the states - A study of virtual high school planning and preparation in the United States*. Center for the Application of Information Technologies, Western Illinois University. Retrieved from <http://www.imsa.edu/programs/ivhs/pdfs/stateofstates.pdf>

Clark, T. (2007). Virtual and distance education in North American schools. In M. G. Moore (Ed.), *Handbook of Distance Education* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Conrad, D. (2002). Deep in the hearts of learners: Insights into the nature of online community. *Journal of Distance Education, 17*(1), 1-19.

Cooze, M., & Barbour, M. K. (2003, June). *Usage of instant messaging as a means of community building in eLearning environments*. Paper presented at the annual Canadian Association for Distance Education conference, St. John's, NL.

Elbaum, B., McIntyre, C., & Smith, A. (2002). *Essential Elements: Prepare, Design, and Teach Your Online Course*. Madison, WI: Atwood Publishing.

Emerson, R. M., Fretz, R. I., & Shaw, L. L. (1995). *Writing ethnographic fieldnotes*. Chicago, IL: University of Chicago Press.

Fontana, A., & Frey, J. H. (2000). The interview: From structured questions to negotiated text. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2 ed., pp. 435-454). Thousand Oaks, CA: Sage Publications, Inc.

Garrison, D. R., & Anderson, T. (2003). *E-Learning in the 21st century: A framework for research and practice*. London: Routledge/Falmer.

Government of Newfoundland and Labrador. (2004). *CDLI's reputation continues to grow*. St. John's, NL: Author. <http://www.gov.nl.ca/releases/2004/edu/0909n04.htm>

Gunawardena, C. N., & Zittle, F. J. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *American Journal of Distance Education*, 11(3), 8-26.

Haughey, M., & Muirhead, W. (1999). *On-line learning: Best practices for Alberta school jurisdictions*. Edmonton, AB: Government of Alberta. Retrieved from http://www.phrd.ab.ca/technology/best_practices/on-line-learning.pdf

Hill, J. R., & Hannafin, M. J. (2001). Teaching and learning in digital environments: The resurgence of resource-based learning environments. *Educational Technology Research and Development*, 49(3), 37-52.

Jones, F. S., Koh, M. H., Hill, J. R., & Singleton, E. S. (2004, November). *Useful and challenging characteristics of web-based training: Comparing perceptions of U.S. and South Korean employees*. Paper presented at the World Conference on E-Learning in Corporate, Government, Healthcare and Higher Education, Washington, DC.

Kannapel, P. J., & DeYoung, A. J. (1999). The rural school problem in 1999: A review and critique of the literature. *Journal of Research in Rural Education*, 15(2), 67-79.

Kuehn, L. (2002). *BCTF research report - Developments with distributed learning*. Vancouver: BC: British Columbia Teachers' Federation. Retrieved from <http://www.bctf.ca/publications/ResearchReports.aspx?id=5556>

Kuehn, L. (2006). *BCTF research report - Distributed learning in British Columbia schools*. Vancouver: BC: British Columbia Teachers' Federation. Retrieved from <http://www.bctf.ca/publications/ResearchReports.aspx?id=9248>

Litke, D. (1998). Virtual schooling at the middle grades: A case study. *Journal of Distance Education*, 13(2). Retrieved from <http://cade.athabascau.ca/vol13.2/litke.html>

Miller, S. D., & Meece, J. L. (1997). Enhancing elementary students' motivation to read and write: A classroom intervention study. *Journal of Educational Research*, 90, 286-300.

Morris, S. (2002). *Teaching and learning online: A step-by-step guide for designing an online K-12 school program*. Lanham, MD: Scarecrow Press Inc.

- Muirhead, W. D. (2000). Online education in schools. *The International Journal of Educational Management*, 14(7): 315-324.
- Mulcahy, D. M. (2002). Re-conceptualizing distance education: Implications for the rural schools of Newfoundland and Labrador. *The Morning Watch*, 30(1-2). Retrieved from <http://www.mun.ca/educ/faculty/mwatch/fall02/Mulcahy.htm>
- Murphy, E., & Ciszewska-Carr, J. (2007). Instructors' experiences of web-based synchronous communication using two-way audio and direct messaging. *Australasian Journal of Educational Technology*, 23(1), 68-86. Retrieved from <http://www.ascilite.org.au/ajet/ajet23/murphy.html>
- Murphy, E., & Coffin, G. (2003). Synchronous communication in a web-based senior high school course: Maximizing affordances and minimizing constraints of the tool. *American Journal of Distance Education*, 17(4), 235-246.
- Murphy, E., & Rodríguez-Manzanares, M. (2008). Instant messaging in a context of virtual schooling: Balancing the affordances and challenges. *Educational Media International*, 45(1), 47-58.
- Murphy, E., & Rodriguez-Manzanares, M. (2009a). Teachers' perspectives on motivation in high-school distance education. *Journal of Distance Education*, 23(3), 1-24. Retrieved from <http://www.jofde.ca/index.php/jde/article/view/602>
- Murphy, E., & Rodriguez-Manzanares, M. (2009b). Learner-centredness in high-school distance learning: Teachers' perspectives and research-validated principles. *Australasian Journal of Educational Technology*, 25(5), 597-610. Retrieved from <http://www.ascilite.org.au/ajet/ajet25/murphy.html>
- Murphy, E., Rodriguez-Manzanares, M., & Barbour, M. K. (2011). Asynchronous and synchronous online teaching: Perspectives of Canadian high school distance education teachers. *British Journal of Educational Technology*, 42(4), 583-591.
- Nippard, N., & Murphy, E. (2007). Social presence in the web-based synchronous secondary classroom. *Canadian Journal of Learning and Technology*, 33(1). Retrieved from <http://www.cjlt.ca/content/vol33.1/nippard.html>
- O'Haire, N., Froese-Germain, B., & Lane-De Baie, S. (2003). *Virtual education, real educators: Issues in online learning*. Ottawa, On: The Canadian Teachers' Federation.
- Perry, N. E., Nordby, C. J., & VandeKamp, K. O. (2003). Promoting self-regulated reading and writing at home and school: A tale of two contexts. *Elementary School Journal*, 103, 317-338.
- Petrides, L. A. (2002). Web-based technologies for distributed (or distance) learning: Creating learning-centered educational experiences in the higher education classroom. *International Journal of Instructional Media*, 29(1), 69-77.
- Pidgeon, N., & Henwood, K. (2004). Grounded theory. In M. Hardy & A. Bryman (Eds.), *Handbook of data analysis* (pp. 625-648). London: Sage.
- Pintrich, P. R., & Schunk, D. H. (2002). *Motivation in education: Theory, research, and applications* (2nd ed.). Upper Saddle River, NJ: Merrill Prentice Hall.
- Poole, D. M. (2000). Student participation in a discussion-oriented online course: A case study. *Journal of Research on Computing in Education*, 33(2), 162-177.

Powell, A., & Patrick, S. (2006). *An international perspective of K-12 online learning: A summary of the 2006 NACOL international e-learning survey*. Vienna, VA: North American Council for OL. <http://www.nacol.org/docs/InternationalSurveyResultsSummaries.pdf>

Rice, K. L. (2006). A comprehensive look at distance education in the K-12 context. *Journal of Research on Technology in Education*, 38(4), 425-448.

Rosenthal, R., & Rosnow, R. L. (1975). *The volunteer subject*. New York: John Wiley & Sons.

Ruona, W. E. A. (2005). Analyzing qualitative data. In R. A. Swanson & E. F. Holdton III (Eds.), *Research in organizations: Foundations and methods of inquiry* (pp. 233-263). San Francisco, CA: Berrett-Koehler Publishers, Inc.

Schrum, L. (2002). Oh, what wonders you will see: Distance education past, present, and future. *Learning and Leading with Technology*, 30(3), 6-9, 20-21.

Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *Internet and Higher Education*, 7, 59-70.

Stevens, K. (1997). Three dimensions of leadership in a telelearning environment: School networking, collaborative teaching and open administration. *The Morning Watch*, 25(1-1). Retrieved from <http://www.mun.ca/educ/faculty/mwatch/fall97/three.htm>

Stevens, K. (2006). Rural schools of regional centers of e-learning and the management of digital knowledge: The case of Newfoundland and Labrador. *International Journal of Education and Development using ICT*. 2(4). Retrieved from <http://ijedict.dec.uwi.edu/viewarticle.php?id=229&layout=html>

Surrey, D. W., & Ely, D. P. (2007). Adoption, diffusion, implementation, and institutionalization of instructional innovations. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (2nd ed., pp. 104-122). Upper Saddle River, NJ: Pearson Education, Inc.

Tunison, S. & Noonan, B. (2001). On-line learning: secondary students' first experience. *Canadian Journal of Education*. 26(4). pp. 495-511. Retrieved from <http://www.csse.ca/CJE/Articles/FullText/CJE26-4/CJE26-4-Tunison.pdf>

Vonderwell, S. (2003). An examination of asynchronous communication experiences and perspectives of students in an online course: A case study. *Internet and Higher Education*, 6, 77-90.

Weiner, C. (2003). Key ingredients to online learning: Adolescent students study in cyberspace. *International Journal on E-Learning: Corporate, Government, Healthcare & Higher Education*, 2(3), 44-50.

APPENDIX A

- 1. Could you tell me a little about yourself?
What grade are you in?
How old are you?
Where do you live?**
- 2. Could you tell me a little about your school?
What part of the province are you in?
What kind of school is it (i.e., what grades does it include)?
Roughly how many students are in your school?
Roughly how many communities does your school in take from?**
- 3. Could you tell me about the web-based courses have you taken?
➤ How many?
➤ Which ones? When?**
- 4. Think about a typical day when you've had both online and offline classes. Describe for me what would look like for you.**
- 5. What do you like about your web-based course(s)? What do you dislike? Why?**
- 6. If you could change something(s) about your web-based course, what would it (they) be? Why?**
- 7. What do you miss about face-to-face classes when you are in a web-based course?
What do you miss about web-based courses when you are in a face-to-face class?
➤ What is the difference in work load outside of class for you?
➤ Which is more? Why do you think that is?**
- 8. One of the issues related to your web-based classes raised in the surveys was that students felt that lack of time was one of the main problems. What has your experience been with the amount of time it takes in your web-based classes?**
- 9. When this survey was conducted using university students, one of the issues they raised related to the notion of community or feeling like you have connections with others when you are in class together. First, do you think that this is an important aspect in a school experience? Can you talk to us about your sense of connections with others in a face-to-face classroom versus a web-based course?**
- 10. What suggestions would you give to students who are taking web-based courses for the first time? What suggestions would you give to the designers of your web-based courses? What suggestions would you give to the teachers of your web-based courses?**