

# Secondary Students Perceptions of Web-Based Learning

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**Abstract:** K-12 online learning is growing in Canada. However, the vast majority of literature is focused on practitioners and not on systematic inquiry, and even published research has largely excluded the perspectives of students engaged in virtual schooling. This interview study examines student perceptions of components of virtual schooling that are beneficial and challenging for secondary school students. Students largely enjoyed their online courses and found synchronous classes, the technology, and the ability to control their own learning as positive aspects of their experience. They also found the lack of a sense of online community, working during their asynchronous classes, and the asynchronous content to be challenging; and made suggestions for improvement to each, along with advice to future online students.

Virtual or cyber schooling is largely a North American phenomenon that first began in Canada in the mid-nineties (Powell & Patrick, 2006). The Avon Maitland District School Board in Ontario created the first virtual school in Canada in 1994-95 (Barker & Wendel, 2001). However, they did not begin offering courses until 1997, so the first virtual school courses in Canada were offered by The Electronic Distance Education Network in Ontario and Garden Valley Collegiate in Manitoba during the 1995-96 school year (Barker, Wendel & Richmond, 1999). The following school year saw the creation of several school district consortia to provide web-based distance education in Alberta (Haughey & Fenwich, 1996).

The use of distance education in the K-12 environment stemming from a need to provide equal educational opportunities to rural areas was common (Haughey & Muirhead, 1999). From 1995 to 1999 there were 23 virtual school programs operating in the province of Alberta (Muirhead, 1999). In a national survey of virtual schooling in Canada, O'Haire, Froese-Germain and Lane- De Baie (2003) reported that Alberta had the most students engaged in virtual schooling, with British Columbia also having a significant number of district-based and consortium virtual schools. Over the past decade, both New Brunswick and Newfoundland and Labrador have established province-wide virtual schools. In fact, at present only Prince Edward Island has no form of virtual school activity.

This growth has even been experienced in urban areas where over the past five years the Vancouver School Board (the largest in British Columbia) and the Toronto District School Board (the largest in Canada) have established their own virtual schools. Even with the spread of virtual schools into urban areas, what is known about the experiences of these adolescents learning in these largely independent learning environments is limited. This study was designed to examine students' attitudes about the aspects of virtual schooling that they found both useful and challenging.

## Literature Review

While Canada has seen the operation of virtual schools longer than the United States, the amount of published research focused on Canadian virtual schools has been limited compared to the US. Further, there have only been two studies in Canada that have examined the perceptions of secondary students engaged in cyber or

virtual schooling: Tunison and Noonan (2001) and Barbour (2006). Tunison and Noonan (2001) examined the experiences of students enrolled in a district-based cyber school in western Canadian. They found students were generally satisfied with their cyber school experience. Other studies with virtual school students in Alberta, British Columbia, and Ontario have yielded similar results (see Barker & Wendel, 2001; Barker, Wendel & Richmond, 1999; Haughey & Muirhead, 1999).

In the Tunison and Noonan study, the students reported to using a variety of communication tools available to them. However, the students also indicated the electronic communications tools were a poor substitute for the kind of interaction that took place in person. In addition, the students also expressed 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. They also felt their online courses were more work than their in-school courses.

Positively, the authors reported students enjoyed the autonomy and freedom the online learning environment provided. In particular, students mentioned the ability to work ahead and the flexibility in the completion of activities and assignments in their course. Also they were able to learn the course content best when they worked together with the other online students at their local site. Conrad (2002) described place-based communities, or communities that were physically together, as “like-minded groups of people [gather] together in the spirit of shared goals” (p. 4). In this instance, the online school students had a shared goal that was focused on understanding the material.

Barbour (2006) conducted his survey study with 38 students from a provincial virtual high school in eastern Canada. These students were also generally satisfied with their online experience. The author reported that approximately two thirds of the students were more satisfied with their virtual school classes than they were with their classroom-based courses. Unlike their counterparts in western Canada, the students Barbour surveyed did not raise concerns about the communication tools, and rated the three communication tools as the highest in their list of helpful tools.

One of the possible reasons for this difference may be that the virtual school in Barbour’s study utilized a synchronous classroom tool for much 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 almost exclusively rural. Kannapel and DeYoung (1999) reported rural schools tend to foster a stronger sense of community. This may also explain why the students in Barbour’s study found the communication tools as an adequate replace for the face-to-face interaction.

The students in Barbour’s study did indicate that technical problems and the lack of time to complete assignments were their two main concerns. While the students didn’t express explicit concerns about the level of autonomy or independence required to complete their virtual school courses, 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. This is consistent with the findings of Weiner (2003), who stated that motivation was critical to virtual school students’ successful completion of their work and of the course.

## **Methodology**

The primary method of data collection was semi-structured interviews (see Appendix A for the interview guide). Each interview was 30 to 45 minutes in length and was conducted over the telephone between May and August of 2005. The participants of this study were solicited as part of an earlier study conducted with the Centre for Distance Learning and Innovation (CDLI) in Newfoundland and Labrador. Seven participants from rural schools volunteered. Most of the students had completed two or more courses, with one student having taken only one course and four having taken three or more courses.

The interviews were recorded using an analogue recorder and transcribed. A second individual checked each transcription against the recording for accuracy. All transcriptions were coded by two researchers coding (Ezzy, 2002), neither of which had been involved with the transcribing of the data, and their coding schemes were combined after all interviews had been coded. The coded data was analyzed using Microsoft Word® (see Ruona, 2005).

Table 1 provides a summary of the seven participants.

*Table 1. Research participants.*

Name	Grade	School	CDLI Courses
Deirda	12	All grade <ul style="list-style-type: none"> <li>• 200 students</li> <li>• 15 teachers</li> </ul>	3 courses successfully 1 course dropped
Lisa	12	All grade <ul style="list-style-type: none"> <li>• 200 students</li> <li>• 16 teachers</li> </ul>	3 courses successfully
Linda	11	All grade <ul style="list-style-type: none"> <li>• 30 students</li> <li>• 5 teachers</li> </ul>	6 courses successfully
Annette	12	All grade <ul style="list-style-type: none"> <li>• 200 students</li> <li>• 12 teachers</li> </ul>	1 course successfully 1 course dropped
Kim	12	All grade <ul style="list-style-type: none"> <li>• 150 students</li> <li>• 13 teachers</li> </ul>	2 courses successfully
Becky	12	All grade <ul style="list-style-type: none"> <li>• 150 students</li> <li>• 19 teachers</li> </ul>	6-7 courses successfully
Ronald	12	All grade <ul style="list-style-type: none"> <li>• 200 students</li> <li>• 15 teachers</li> </ul>	2 courses successfully

All eight students described themselves as being strong students, with most maintaining an A or B average.

## Results

After coding the transcriptions from these seven interviews, our analysis identified eight themes. These were identified as themes because they were either repeated by a number of the individuals interviewed or were the main point made throughout the entire interview by one or more participants and were referenced indirectly by other participants. It should be noted that three of the participants (i.e., Annette, Dierdra 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 synchronous classes, often more so than their face-to-face classes. Their reasons 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..." Three 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. 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.

Teacher supervision was also a consistent theme. "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.

### **Enjoyment of Synchronous Classes**

Six students said they liked their scheduled synchronous classes, citing reasons such as their teachers and a perceived sense of community. It appeared most of the student-teacher interaction occurred during synchronous classes, explaining the students' positive perceptions of their teachers in this theme. "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" (Deirdra). Annette echoed her sentiments, "we had a pretty good teacher and I found that he was really helpful ...". These students felt their online teachers level of preparedness contributed positively to their learning experience.

In terms of the perceived sense of community, the majority of the students did not feel connected to their online classmates. In fact, four students felt like Linda, "...people that you're in with are from all over Newfoundland and Labrador and you just feel like one person all alone instead of having your friends in class." This feeling of isolation was discussed to varying degrees. However, three students reported they felt connected with their online classmates. Lisa said, "there is one guy ... when we go into our online web-based class we would always say hi and talk about how each other were doing a couple of minutes before the teacher started teaching, so you definitely have a greater connection with those people." Deirdra commented she often communicated outside of class with students she met online. Annette also indicated she enjoyed her online classmates and that she felt she was a part of a community because everyone got along and had fun together during their online classroom sessions. It seems in these instances, these three students made specific efforts to become more engaged in their online classes (including developing relationships with online classmates outside of the virtual school system) and because of that extra effort felt a greater sense of connection with their online classmates.

### **Technology Issues**

Technical difficulties 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 "wasn'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. 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.

### **Being in Control**

Students also enjoyed the sense of control over their own learning. "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" was how Kim described it. In fact, six of the seven participants mentioned being responsible for their studies and enjoying not having the teacher around. "The fact that you know that you can work at your own pace and you can put homework off an extra night if you want..." (Lisa), while Becky outlined the ability to use time in one class to complete work from another class (sometimes not even another virtual school courses).

Lisa stated she particularly enjoyed "work[ing] at your own pace, whatever you want to do, they can't force you to do anything obviously because they teacher is not there to, so whatever you choose to do to work independently" and Linda indicated where "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." As Becky cautioned, "you just don't have a teacher standing over you all of the time, you're more, you have to do it yourself, if you don't get it done, well, your marks drop because of it..." All students who spoke to this theme specifically mentioned enjoying the physical absence of the teacher. This was consistent with Tunison and Noonan (2001), who described how students enjoyed both the autonomy they experienced during their online learning and the freedom to work ahead or fall behind and catch up.

### **Sense of Community**

Within a virtual school course there was the potential for two communities of learners to develop: one among the group of students who were in the class online and one among the local group of students who sat in the room together (provided there was more than one student enrolled in the course at that school). 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 (as described earlier).

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; Rovai, 2001). 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 (2005) concluded that "[CDLI e-teachers] manifested social presence in the context of task-oriented interaction... relying on the two-way audio... [while] students in the context of digressions... showing a reliance on DM [direct messaging]" (p. 117). 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 they were being taught by a stranger 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 asynchronous classes, 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 (2006). It was also consistent with the description provided earlier 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 Deirdra 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 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 and only two students reported they used the asynchronous course content at all. The other students indicated "we didn't even use the lessons much" (Deirdra) 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 seat work 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 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.

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.

### **Suggestions for Future Students**

In order to be successful in online learning environments, the students recommended new students should become independent and have self-discipline. For example, Ronald stated:

Make sure you pick the course that you are going to enjoy studying because the independence of the course requires you to study it on your own and its different, if you are in a classroom and someone is teaching it to you, but it's just easier to grow and develop an interest in it that way, but when you are actually have to start studying it on your own and basically learn it on your own, developing an interest in it is a lot harder and it takes a lot of self-discipline, so make sure you study, you do a course online that you are going to be interested in and make sure you develop the self-discipline and independence before you starts the course.

This was a consistent comment among almost all of the students. Haughey and Muirhead (1999) found personal characteristics like high motivation, self-discipline and independence were important for successful online learning experiences. They also found students perceived online learning as an independent task and self-discipline was necessary for the independent task.

There were several suggestions for strategies to be successful in this independent environment. "Do not get behind" was one provided by Becky, while Deirdra expanded on the idea, "basically stay on top of your work and don't get behind because it'll actually pile up and it gives you a bad name with your teacher." Linda suggested new online students develop time management strategies, "spend your time wisely, don't get off on a bad start with any of your teachers, make sure you have everything in on time." Doing assignments early was one strategy students recommended.

Students often had to solve problems by themselves, as teachers were typically not available to provide immediate assistance. "When you're doing work there that you don't actually have a teacher standing next to you and if you have a question you can't really ask your teacher right and get a direct response..." was how Ronald described his online learning experience. Based on this kind of situation, Kim suggested "I think you have to be responsible enough to actually go to class, cause you're not supervised..." Annette suggested new online students ask questions early:

be a person that makes sure you don't freak out if you don't actually understand it right away because you have to take time to catch on to how they use it and be familiar with it and the teacher is not going to explain everything in that hour, so you got to go over it in the night time and make sure that you understand

it and if you don't you have to make sure the next day you actually tell him what you are having problems with so they can help you because no one else can help you then, so, but you got to have the right kind of personality to be able to do it too, not a nervous person.

Barbour (2006) also found online students perceived time management and motivation as two of the three most important factors for success in online courses.

## Conclusions and Implications

Most students were satisfied with their online study experiences. They liked their online learning because it offered courses that were not available in their own schools, had the ability to access the information at any time and provided opportunities to actually interact and communicate with other students and teachers from across the province. In addition, students also appreciated the independence of online learning. Almost all students preferred the control over their own learning without any push or supervision that made them feel stressful. Students were also very comfortable with their online teachers, describing them as considerate and experienced.

The students also raised a number of challenges to online learning. The most frequent was the lack of immediate support for both technical issues and academic problems. They often contacted their teachers for help, but commonly the responses were late so students had to come up with their own solutions. In order to avoid technical problems, the students almost exclusively used the school library where the specific CDLI computers were set-up. One of the reasons for this pattern was that students reported the dial-up access available to them at home was often too slow to use many of the components of their online courses. Finally, 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 class time. They indicated the reasons for this off-task behavior were the fact their online courses are always same and structured which made their learning boring. They also stated that the opportunity to access the high speed Internet for personal use was a great temptation.

In order to be successful in online learning environments, the students recommended virtual school students should have ability to be independent and self-disciplined. Online students should also be sure to manage their time effectively to ensure they complete their assignments and other tasks on time. They also recommended online teachers should be easy to contact and responsive. Finally, students suggested the online course content needed more visual supports, such as items that they felt would be interesting and flashy instead of just black text on the white paper.

As virtual schooling continues to grow in Canada, North America and worldwide 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 (2007) reported that the majority of the open source literature on virtual schooling focused on first-person, practitioner experiences – and was not based upon systematic research. This study represents another step in understanding student experiences in the virtual school environment, but clearly more research is needed.

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