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Pictures from an Exhibition... of Online Learning: A Creative Representation of Qualitative Data

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K-12 online learning at the K-12 level has been around for approximately two decades and is continuing to grow. While researchers have researched a variety of issues related to K-12 online learning, there has been little published on the student experience in web-based learning environments. In this article, two doctoral students were tasked with analyzing existing data, then representing and situating their findings in a format other than the traditional "results" and "discussion" sections found in a typical six-section journal manuscript. One student created an image that focused upon the tools used by the K-12 student in her online learning. The other student created a slideshow to illustrate the challenges faced by a second K-12 student in her online learning. While more research into the K-12 student experience in online learning is required, this article represents one creative attempt to address this need. Keywords: K-12 Online Learning, Virtual Schooling, Alternative Representation

The use of distance education at the K-12 level began in Canada around 1919 with the use of correspondence education (i.e., course packets and students work sent back and forth through postal mail) in British Columbia (Stack, 1990). The use of online learning at the K-12 has been used since about 1993, again beginning in British Columbia with the creation of the New Directions in Distance Learning (Dallas, 1999) and the EBUS Academy (see http://www.ebus.ca). School districts in several provinces (e.g., Manitoba, Ontario, Alberta, and Newfoundland and Labrador – in the order that it occurred) began to create online learning programs over the next five years (Barker & Wendel, 2001; Barker, Wendall, & Richmond, 1999; Haughey & Fenwick, 1996; Stevens, 1997a). A decade later, O'Haire, Froese-Germain, and Lane-De Baie (2003) indicated that Alberta had the highest number of K-12 students engaged in online learning, while British Columbia was leading the way in the number of online learning programs. More recently, Barbour (2012) reported that British Columbia had the highest percentage of K-12 students engaged in online learning, with over 12% of students having taken at least one online course.

In the Province of Newfoundland and Labrador, the Government began using a province-wide distance education program during the 1989-90 school year (Government of Newfoundland, 1990). This program, which used an audiographics system (i.e., a conference calling system with a telegraphic screen that was used as an electronic blackboard), began with a single advanced-level mathematics course that was offered to three dozen students in about a dozen rural schools. By the 1999-2000 school year there were 898 course enrolments in 11 different courses from students in 77 different rural schools (Brown, Sheppard, & Stevens, 2000). Since 1997 the first online learning project in the province had also begun, when one of the rural school districts began offering Advanced Placement mathematics and science courses

over the Internet using both a synchronous (i.e., live or real-time when the students used a program called *Elluminate Live* or *ELive*) and asynchronous (i.e., static or not time dependent when the students used a program called *WebCT*) delivery model (Stevens, 1999). It was from this district initiative, along with the recommendation from a Government appointment Ministerial Panel (Sparkes & Williams, 2000), that the current province-wide, K-12 online learning program was created.

The Centre for Distance Learning and Innovation (CDLI) began as a limited pilot project during the 2001-02 school year. After a successful pilot, in 2002-03 the CDLI began its full operations as the primary method of K-12 distance education in Newfoundland and Labrador. School who participate in the CDLI utilize a common schedule that allows the CDLI to offer both synchronous and asynchronous class time. Depending on the subject area, students from around the province spend 40% to 80% of their time in synchronous – or online (according to the students) – instruction through a virtual classroom environment. The remainder of their scheduled time is asynchronous – or offline – instruction spent completing content and activities in the course management system or independent work (Barbour & Hill, 2011).

While K-12 distance education and, more recently, online learning, have had a long history in both Canada and Newfoundland and Labrador, there has been little research into the experience of students engaged in online learning. Within the Canadian context, researchers have examined the general benefits of K-12 online learning (e.g., Muirhead, 2000), programmatic evaluations (e.g., Kuehn, 2002, 2006; Litke, 1998), the integration of online learning into the traditional brick-and-mortar school (e.g., Stevens, 1997b, 2006), student achievement (e.g., Barbour & Mulcahy, 2008, 2009), the role of school-based teachers (e.g., Barbour & Mulcahy, 2004; Mulcahy, 2002), the design of asynchronous course content (e.g., Barbour, 2005, 2007a; Barbour & Cooze, 2004), the method of synchronous instruction (e.g., Murphy & Coffin, 2003; Nippard & Murphy, 2007), the student use of instant messaging (e.g., Murphy & Rodríguez-Manzanares, 2008), the sense of perceived distance (e.g., Murphy & Ciszewska-Carr, 2007), and synchronous and asynchronous online teaching strategies (e.g., Murphy & Rodríguez-Manzanares, 2009a, 2009b; Murphy, Rodriguez-Manzanares & Barbour, 2011). However, there has been little research conducted into what online learning is like for the K-12 students that enrol in these distance education courses.

The published research into the K-12 student experience in online learning is limited to an investigation of the experiences of 50 students enrolled in a district-based cyber school in a western Canadian province (Tunison & Noonan, 2001) and a survey study of 38 students from a provincial virtual high school based in eastern Canada (Barbour, 2008). The authors of both of these studies reported that students generally enjoyed their online learning; however, both also stated that students found the amount of work that needed to be completed overwhelming at times. In addition, Tunison and Noonan (2001) indicated that students enjoyed the freedom the online learning environment provided (e.g., the flexibility of work load and deadlines), although they were also concerned that this level of freedom could lead to increased off-task behaviour (which would results in a sense of being overloaded with work in order to get caught up). Students also missed the level and kind of interaction that occurred in the traditional classroom. Finally, Barbour (2008) found that students particularly enjoyed the synchronous tools and the ability to interact with teachers and other students who were located in distant locations, while they were often frustrated with the technical difficulties that were somewhat common.

The literature beyond the Canadian context is quite similar in its limited focus. In the recently published third edition of the *Handbook of Distance Education*, three of the 44 chapters focus on K-12 online learning. In his chapter that outlined the history and development of K-12 online learning in the United States, Clark (2013) questioned the expansion of the practice of K-12 online learning with the lack of research understanding the student experience and the

factors that influence student performance and retention. In her chapter examining the performance of students in K-12 online learning environments, Cavanaugh (2013) described the non-performance research as falling into the following categories: student characteristics, course design factors, teacher preparation and development, course facilitation, and technological approaches. Cavanaugh further indicated that additional research was need to identify the needs and abilities of learners, design courses and programs for all learners, student-centered teaching and technology, and supportive administration and policy. Finally, in his review of the published research into K-12 online learning to date, Barbour (2013) argued for additional research focused on improving the design, delivery and support of K-12 online learning to ensure that students of all ability levels had the opportunity to have success. One of the themes shared by each of these authors was the agreement that more research is needed to understand various aspects of the student, including the student experience in the K-12 online learning environment. Given the lack of published literature in this area, the purpose of this study was to examine the experience of two rural students engaged in online learning through the CDLI.

Methodology

The data for this article was collected as a part of a larger research study into the nature of online learning in Newfoundland and Labrador secondary education, specifically how students interacted with their online courses and the process they undertook when they needed help (Barbour, 2007b). This study was approved by the Institutional Review Board at the University of Georgia. The study took place during the 2005-06 school year at Beaches All Grade¹, a rural school in Newfoundland and Labrador, Canada. Beaches All Grade had approximately 100 students and a staff of fifteen teachers. The school building was actually the combination of an elementary school and a high school that were joined in the middle by a gymnasium. However, those two former schools were only built in the 1960s, both replacing smaller one and two room schools that had existed in the four smaller communities that once made up the current community of Beaches. The students at Beaches All Grade came from three different communities: Beaches itself, Cape Random (approximately 7 miles away south) and Clarke's Bay (approximately 7 miles away north). All three of these communities were first settled in the late 1700s or early 1800s as the migratory fishery began to expand. The three communities combined included approximately 950 residents. The fishery continued to be the main industry supporting the residents of these communities, although a seasonal tourism industry had also begun to develop in the past decade.

During the school year that the study took place, there were twelve students enrolled in eight different online courses.² Unfortunately, the initial study only reported on data collected from eight of the twelve students, due to incomplete data collection from the remaining four of the students. Two of the students who were excluded, Norah and Dayna (i.e., pseudonyms), were the focus of this particular investigation. The lead author provided the transcripts from the single interviews that were conducted with Norah and Dayna to two doctoral students enrolled in a course in qualitative data analysis (see Appendix A for a copy of the interview protocol).

The qualitative data analysis course was primarily delivered in a face-to-face format, although readings were housed in a course management system and the course content was delivered in an asynchronous format for four of the fifteen weeks. Using an inductive analysis approach (LeCompte & Preissle, 1993), these doctoral students were asked to generate themes

¹ The names of the school and communities, along with the names all of the students, are pseudonyms.

² For a thorough description of web-based learning in rural schools in Newfoundland and Labrador see Barbour (2007c).

from their analysis of the transcripts that spoke to the students experience in this online course. They were then tasked with representing those themes and situating them in a format other than the "results" and "discussion" sections of a traditional journal manuscript, specifically, they were asked to "present the analysis of data in an alternative representation or format. This can be done in writing, electronically or through a live presentation." Students were assigned Cahnmann (2003), Cole (2009), Glesne (1999), Ricci (2003), Saldaña (2003), and Sommers (2003) to provide them with samples of qualitative research presented as poetry, narratives, plays, and works of art.

An Alternative Representation of the Data

What follows is a description of each of the two Beaches All Grade students, along with the alternative representation created by the Wayne State University students. Each alternative representation is accompanied by a discussion from the Wayne State University student on how their chosen representation reflects the themes from that Beaches All Grade student.

Norah

Barbour (2007b) described Norah as:

Striking in her appearance, both because of her physical stature and in her infectious personality – you always knew when Norah was in the room. Somewhat boisterous, compared to many of the other girls both involved in the CDLI courses and within the school, she came from a family of six. A grade 11 student enrolled in a mathematics course and a science course, Norah had also completed a language arts course the previous year.

Norah was one of two students that I had the least contact with throughout this study, as she did not participate in the interview portion of this study. However, during my time at Beaches All Grade, she was one of the more social and personable students, often chatting with me before and after class, during recess, or after school. Norah was serious about her studies but also exhibited characteristics commonly expected from a typical teenager. During class, particularly her asynchronous periods, she was just as likely to sit around and chat or join the older grade 12 students in the gymnasium as they decorated for graduation than she was to actually do her work. However, Norah recognized that "You have to do the work, you can do it in school or you can do it at home, but it has to be done!"

During this past school year, Norah's family purchased a new computer (complete with Internet access), which Norah used at home. She said her old computer was able to access most of the *WebCT* but was not fast enough for her to use *Elluminate Live*. However, Norah's new computer gave her access to the software needed for her CDLI courses. While Norah had to share the computer with her family, as she put it "usually if I need the computer I can get to the computer when I need it."

Jason was a second year doctoral student in Instructional Technology, who had experience with K-12 online learning prior to the beginning of this investigation. After reviewing Norah's interview transcript, Jason created an image to represent Norah's experience as a rural secondary school student in an online course.



Jason described this image as... For this project, the research question examines student perspectives in an online course. With that in mind, I chose to represent the data in the form of a picture of an eye (i.e., the online experience through the student's eyes). Norah was enrolled in a physics course and a math course with the CDLI. As such, a screen shot of a CDLI course was included in the picture. Several themes emerged in the interview. When asked about her research strategies, Norah stated that she relied heavily on Google as her primary (and possibly only) mode of research both in online and face-to-face classes.

 I^3 : Primary source would be the Internet I'd say.

M: Okay.

I: Like Google or something like that.

M: Okay.

I: A big search engine.

M: Alright, say you were Googling something and you were having difficult[y] finding stuff that was useful, how long would you continue to, to search using different terms before you'd say okay, I've had enough of this and look somewhere else?

I: Ahhh, well, if I can't find what I'm looking for probably within an hour.

M: Okay.

I: I would move on to something else.

As with many students, typing what you want into Google is the first and sometimes only option. The image also contains a screenshot of Google's primary search page because of the central role it plays when Norah has to do research.

The final image is a screenshot of MSN Messenger, the primary instant messaging service that Norah used. It is placed front and center in the image because of its ubiquitous presence during Norah's computer usage.

M: Okay, okay, umm, other than say for your CDLI courses, what sort of things would you use your computer for?

³ "I" refers to the interviewee and "M" refers to the interviewer (i.e., Michael Barbour).

I: Ahhh, e-mail and MSN, umm, when I got time, I don't usually spend a lot, lot of time online, but I when I do I gets on, or like friend's sites or something like that, but basically it's there for school or for chat or mail purposes.

M: Okay, umm, I guess speaking of MSN and e-mail, if you had a preference to use one or the other, like say if you had news to tell a friend. I: Okay.

M: Are you more likely to e-mail them with that news or chat with them in IM? I: Oh, more than likely chat.

M: Okay.

Norah seemed to not be as "addicted" to instant messaging as some of the other students interviewed in a larger project involving her school (Barbour, 2007b), but it did play a leading role most of the time she was on the computer. However, since it seemed to be her major form of communication, both with school and otherwise, it overshadows the other two images.

I: But you see around here, where the towns are so small and we're all so close together, we basically knows everyone's number or whatever like that, so we usually phones for that, but I usually, I never e-mail, like friends on the, if, if, if it's a document or something like that, usually just, ah, e-mailing friends from away or for school purposes or sending pictures or something like that, but otherwise I just use chat.

M: Okay, say, ah, to use that example, say if it was a friend from away, I don't know, someone who you know, graduated from this school last year that's ... I. Yes

M: ...off in college somewhere and again, you had something, news you wanted to tell them would you be more likely to use MSN or would you be more likely to e-mail them?

I: Yeah, I, I'd use MSN.

M: Okay.

I: Most of the time anyway, I know, I sends e-mails to a few of my friends from far away, but, ahh, for the most part it's MSN.

It was clear that Norah used instant messaging more than email, but she also used it for just about every possible interaction. She did not own a cell phone, which was the norm in her area given the topography and the isolation. Thus, instant messaging was the only alternative to actually calling her friends on a land line, and with instant messaging she was able to see whether or not a friend was available. Given these factors, the image of the MSN screen is the most visible of the images.

Dayna

Barbour (2007b) described Dayna as:

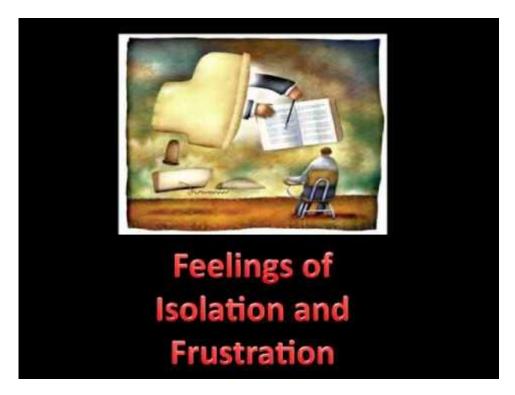
The quote next to Dayna in the school's graduation book read, "I'd rather be hated for who I am, than be loved for who I'm not." Unfortunately I did not get to know Dayna that well through the course of this study. Over the winter she struggled with a personal relationship that caused her to discontinue with the interview portion of this study after the first interview. When I arrived at Beaches All Grade, unlike Norah who I was able to get to know during my time

in the school, Dayna was not as out-going or forward which made it more difficult for me to interact with her.

A grade 12 student who was enrolled in a language arts class through the CDLI, Dayna was one of the students who impressed upon me the impact that the school had made upon her. Dayna indicated that it was her fellow students and teachers at the school who helped shape her into the person that she had become. During first interview she stated that she was "living with my grandparents, I had a little bit of trouble when I was with my parents" and one wondered if that did not have an affect on the close relationships that she formed at school.

Dayna did not have access to a computer at home.

Kaye was a seventh year doctoral student in Curriculum and Instruction, who had no prior experience with K-12 online learning prior to the beginning of this investigation. After reviewing Dayna's interview transcript, Kaye created a slideshow to represent Dayna's experience as a rural secondary school student in an online course.



Kaye described this slideshow as... For this project I used images as visual interpretations that examined this 12th grade female student's experiences in an online course. Dayna was enrolled in an English course with the CDLI. The first image represented a virtual school in distance learning. The illuminated tree of knowledge that is accessible anywhere offering flexibility and convenience to all students... Education is available when and where it is needed. E-learning can be done at the office, at home, on the road, 24 hours a day, and seven days a week.

When Dayna was asked about her homework in CDLI courses:

M: Okay, okay, umm, when you bring work home to do, can you describe for me your work area that you would normally complete it in?

I: Usually in my bedroom.

M: Okay.

I: Sitting down to my next and other times in the kitchen at the table, any area where I have a lot of space, that I can just lay out my work when I need it, a quiet place where nothings bothering me or interrupting me with my concentration and stuff.

M: Okay, do you have a computer at home? I: Nope.

The orange and white road blocks with orange and white barrels on a road which is representative of a "Barrier to Success" for Dayna. In the narratives above, Dayna admitted that she did not have a computer at home. This served as a major barrier to her online experience as well as her inexperience in operating a computer and related programs. "Students who lack confidence in using computers may also have inadequacy in their online experience" (Peters, 2001).

During the last online class, the researcher asked if he was a "fly on the wall" what would he see:

I: Ahh, well I guess I was pretty much concentrating on what I was supposed to be doing, which was listening to the teacher, what he got to say, just following along, I had everything all out, what I needed, the books that I needed, just doing what I had to do.

M: Okay, umm, in addition to say Elluminate Live, which would you would have open while you were listening to him, did you have any other screens open on your computer, any other programs going?

I: Ah, just the Word Perfect program that's there, just to take notes if I needed to.

M: Okay, so you take notes electronically, as opposed to through shorthand? I: Yes.

M: Okay, okay, umm, is that they only window you had open or would there be others?

I: No, that's pretty much it.

The terms synchronous and asynchronous represents the types of learning activities involved. Synchronous involves interactive web conferencing lectures, activities online (i.e., audio conferencing, instant messaging). Asynchronous offers online text based lectures that can be accessed anytime offline. Even though Dayna was using Elluminate Live while listening to the teacher, she used Word Perfect to take notes.

The word "Paradise" and a map of Newfoundland were used to illustrate the closeness of this rural community. Dayna was asked by the researcher to describe her school:

I: Ah, well, I guess the first thing I would have to say is that it is a really small school, but it's actually a good place cause you meet a lot of good friends, everybody's friendly, both the students and the teachers, they're there to help you out whichever way you need help, help shape you into the person that you, that I've became so far since I've been in high school, a lot of people you can just get along with.

While reading the transcript a theme of collaboration emerged, I used the images of hands forming a circle with the caption, "Collaboration is everything". I used poetry to describe the collaboration theme;

Collaboration is the key to socialization, That rules the nation. In a classroom of all friends, The collaboration never ends.

M: Okay, did you have much of a chance to interact during this last class? I: Yeah, a fair bit.

M: Okay, umm, if you were to give that, a percentage, if you were to think, the average class we spend X percent of time talking about English, what would that X percent be?

I: I don't know, about eighty percent of the time.

When Dayna was asked about homework in her CDLI English class:

M: ...and I didn't know how much you guys used it, okay, umm, now, you mentioned, when I asked you about where you did your work at home, how much of your CDLI work do you have to bring home?

I: Actually quite a bit of it, I usually bring all of my English material home and I'm just working on it most of the time from home.

The next image is of a child with four large textbooks tied to his back, obviously over burden with homework at the bottom of the image I quoted Dayna "I usually bring all of my English material home and I'm just working on it most of the time from home".

The next image was of a man that was all stressed out, overloaded and was painfully nervous and jittery. I imagine that this was how this student felt with the amount of homework in her CDLI English class. The image of the large computer and the small student sitting at his desk, trying to keep up with his studies in an online course. This student can really feel the isolation and frustration of an online course. The last image before the poem, was of a man sitting at a desk, putting together a large puzzle. In this image I placed all of the barriers Dayna had experienced.

Finally, I chose to close with the poem "The Road Less Traveled" by Kit McCallum, because in your life you must bear challenges, sometimes life leads you to a crossroad and you don't know which way to go. Decisions are not easy for most of us, especially students in the last year of high school. The many choices and signs were overwhelming. Many people will take the most comfortable road or the road with the shortest distance. The road less traveled, or the road with the least resistance, take a phenomenal person with a lot of heart and tremendous spirit to know that there are many obstacles or challenges in life. A person has to step up or be stepped on.

Concluding Thoughts

The representation, and accompanying explanation, provided by Jason focused primarily upon the tools that Norah used in her online learning. In his visual representation, he placed a screen shot of an instant messaging program in the foreground, with screen shots of Google and Norah's online course content in the background – all overlaid on top of an eye. In Jason's description, he reported that through Norah's eyes her instant messaging was the most important aspect of her online activities (both while she was engaged in her online learning and while she was using the Internet in general). He also described that when faced with questions about the content of her online learning, Norah was most likely to use Google as a resource; even more so than her online course content. As an instructional technology student, who had

taken several online courses himself, it may have been more natural for him to focus upon how Norah engaged in her online learning because of his own similar experiences.

On the other hand, Kaye was not as familiar or personally comfortable with the practice of online learning. Her representation of a series of slides focused almost exclusively on the struggles that Dayna faced during her online learning. In her description, Kaye spoke of the difficulties Dayna experienced due to the fact that she did not have a computer at home and was not able to access her online course outside of school. This was amplified by off-task behaviour during her scheduled online learning time in school, and the amount of work that was required of Dayna (particularly homework). Kaye believed the overload of work, along with only having access to her online course in school, seemed to cause a sense of isolation in Dayna. As with Jason, it may have been Kaye's own level of experience with online learning that caused her to focus on the difficulties that Dayna experienced (as Kaye may have been experiencing many of the same struggles during the weeks that the content for her qualitative data analysis course was delivered in an asynchronous fashion).

In examining the student experience in both of these representations, both students found strategies to overcome the difficulties they were experiencing. In Norah's case it was a perception that the online course content wasn't useful and a lack of interaction through the formal course tools. She overcame these challenges by becoming an avid and competent user of both Google and instant messaging. Dayna experienced a lack of access to the technology, a sense of isolationism, and an overload of work. While Kaye did not represent specific strategies that Dayna used to overcome these individual challenges, her series of images ended on a positive note – implying that even though she faced these challenged Dayna did find a way to overcome these obstacles. As described earlier, this is an area of inquiry that requires greater examination. This particular examination is simply one small step in beginning to address this gap. However, it does focus on only two individual cases (i.e., two K-12 online learners) and is therefore limited in providing a greater understanding of the student experience in K-12 online learning environments. Finally, this article has allowed two doctoral students the opportunity to be creative in their representation of qualitative data.

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Appendix A

1. Could you tell me a little about yourself?

Probes:

What grade are you in? How old are you? Where do you live?

2. Could you tell me about the web-based courses have you taken?

Probes:

How many? Over how long a period? Which ones? When?

3. What is your work area like at home?

Probes:

Do you have a computer?

Is it located where you do most of your homework?

Does it have access to the Internet?

Are you able to use all parts of WebCT from your home computer?

Are you able to use ELive from your home computer?

Do you share your home computer with someone else in the family?

4. Could you tell me a little about your school?

Probes:

What kind of school is it (i.e., what grades does it include)? Roughly how many students are in your school?

5. Think back to your last online class. Describe for me what you did.

Probes:

Did you take notes?

Did you talk to other students online?

Did you talk to other students in the room with you?

Did you do things other than pay attention to the Elluminate Live stuff?

Was this a typical online class?

If not, how was it different?

6. Think back to your last offline class. Describe for me what you did.

Probes:

Where do you complete your work?

Where did you go?

Would you say you were working on your course for most of that class?

What percentage of time would you say you were on-task?

Was this a typical offline class?

If not, how was it different?

Where would you normally go?

Would you say you are working on your course for most of your offline classes?

What percentage of time would you say you are on-task?

7. Think about a time during the past month when you felt you learned a specific concept or process or mastered a specific skill. Describe it for me.

Probes:

What did you do first? Next?

What was the last thing you did before you figured it out?

What resources did you use?

Recorded Elluminate Live sessions

Course content in WebCT

Your own notes

Your textbook

Different sites on the world-wide web

Who did you seek help from?

Your e-teacher

An e-tutor

Other students in that class

Other students in your school

Teachers in your school

Your parents or relatives

8. What is it you like about your CDLI classes?

Probes:

Do you prefer your CDLI classes or your classroom based classes? Why? Are your CDLI classes more work, less work or about the same compared to your classroom-based classes?

Think of something from your classroom-based classes that you wish you had more of in your CDLI classes? Why?

Think of something from your CDLI classes that you wish you had more of in your classroom-based classes? Why?

9. Is there anything else about your CDLI classes that you'd like to tell me about?

10. Is there anything else about where you go to for help with your CDLI courses that you'd like to tell me about?

Author Note

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