

Going the Distance:

Equipping rural Newfoundlanders and Labradorians with the abilities and skills to succeed in
online learning.

Literature Review

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Going the Distance:

Identifying Barriers to Online Learning that Exist for Non-traditional Adult Learners

Introduction

We often read or hear about the rapid pace of technological change and we are encouraged to 'keep up'. For the non-traditional student, this is a daunting task.

Traditional students are defined as those who have followed a direct, uninterrupted path from high school into post-secondary education (Servage, 2015). For the purpose of this literature review, nontraditional students will be defined as adults who are entering post-secondary education but not as a recent high school graduate and they may: work full time; have dependent children; have considerable financial strain; live in rural or remote locations; and adults with low writing literacy and low computer literacy.

To 'keep up' we are encouraged to stay in school, keep training, and continue our education. Because online education is often touted as the solution for keeping up, it's no wonder enrolment in online education, not only in Canada, but around the world is increasing rapidly. Growth in online education continues to exceed higher education growth rates and there is no sign of it slowing down (Allen & Seaman, 2008). This is especially true if colleges and universities view online delivery as a way to reduce costs. Caywood et al say "Universities see online delivery as a means to increase revenue by reaching more students across a wider geographical population and by reaching more students with non-traditional schedules" (as cited in Wake & Bunn, 2015, p. 40). Learners are requesting instruction via online formats for convenience, for the potential to provide individualized and personalized experiences, and for the possibility for quick feedback (Wake & Bunn, 2015).

Online learning is credited as being flexible, affordable, and effective (Ilgaz & Gulbahar, 2017; Luo et al, 2011). Not in the eyes of everyone. I have been instructing online courses for more than a dozen years and I believe the experience can be intimidating and ineffective for adults who are non-traditional students. Students who struggle with writing skills and computer skills - even keyboarding skills- are at an immediate disadvantage in the online classroom.

The aim of this study is to identify the barriers to online learning that exist for rural Newfoundlanders and Labradorians who have limited writing and computer skills and may also face other barriers. My literature review is guided by the following research question:

RQ: What are the barriers to online learning that exist for rural Newfoundlanders and Labradorians who have limited writing and computer skills and how might these be overcome?

This paper will begin with an explanation of the literature review search methodology and the reasons for the inclusion and exclusion of literature. The paper will provide background information which will include a description of the theories of adult education, the evolution of online learning and its importance to our rural population. Once these broader facets have been discussed, the review will examine the literature written about the barriers faced by non-traditional students in an online learning environment and solutions to these barriers will be described. The literature review will conclude by noting key findings and identifying gaps in the literature.

It is important to understand the barriers faced by adult students as we offer them online education to help them reach their career goals, educational aspirations, or self-actualization. We know that many post-secondary institutions are pushing the online learning model but without knowing its impact on adult learners, we may be setting these students up for

failure. In January 2018, the Government of Newfoundland and Labrador announced \$40 million will be invested in expanding broadband internet service to rural NL. This money comes from federal, provincial and private funding (Cooke, 2018).

Methodology

Sources were imported to RefWorks from the University of Alberta online library databases. The databases selected were Academic Search Complete, Education Research Complete, and ERIC.

The inclusion and exclusion criteria for the literature review of secondary sources will be as follows:

Inclusion Criteria:

Included studies must include one or more of the Library of Congress Subject Headings listed below.

Included studies must have been published in the last twenty years

Included studies can be either qualitative or quantitative in their scope

Exclusion Criteria:

Studies published in a language other than English

Studies published more than twenty years ago

Studies that are not peer reviewed

Review papers

The scope of the literature review included the following Library of Congress Subject Headings:

Distance Education

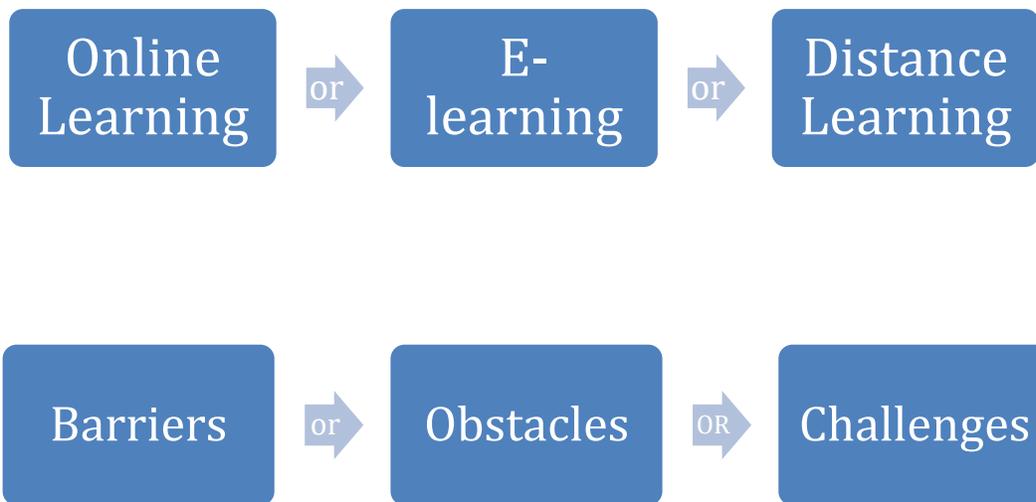
Distance Learning

Adult Education

The following keywords were also included in the search: online learning, e-learning, barriers, obstacles, and challenges.

Search String #1

The initial search consisted of the following search strings. Please note the search strings are connected by the Boolean Operator “and”. The searches were completed using the “all-text” field.



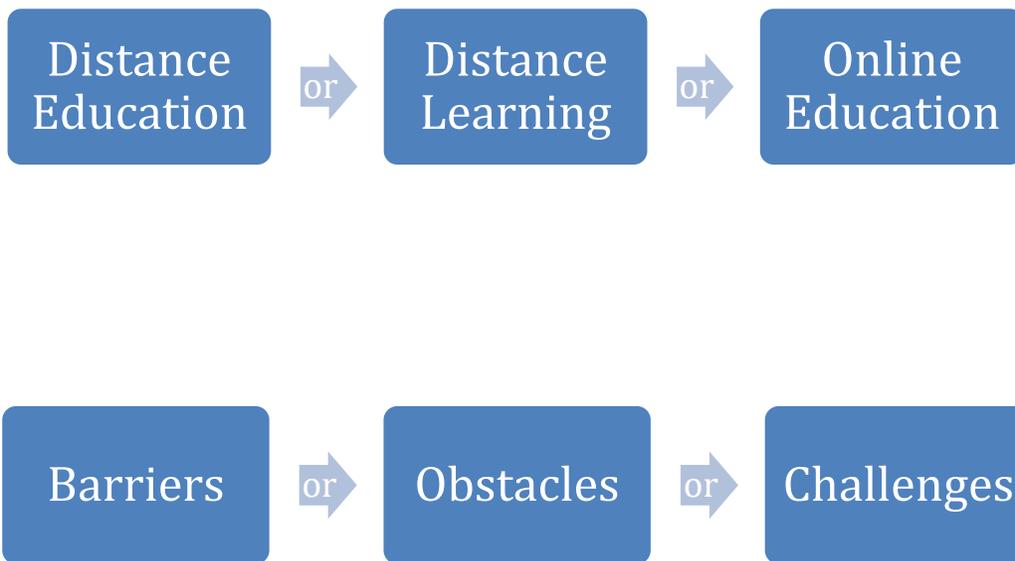
This search yielded 28,500 results (Academic Search Complete – 5,231; Education Research Complete 6,026; and ERIC 17,243).

Next, the search results were limited to scholarly peer-reviewed journals: 17,293. Then further limited to articles published in the last twenty years and got 17,171.

At this point, the search was limited to those articles with the first part of search string in the “article title” field rather than “all text” field, resulting in 373 articles (Academic Search Complete – 86; Education Research Complete - 158; and ERIC - 129).

Search String #2

The next search consisted of the following search strings. Please note the search strings are connected by the Boolean Operator “and”. The searches were done using the “all-text” field.



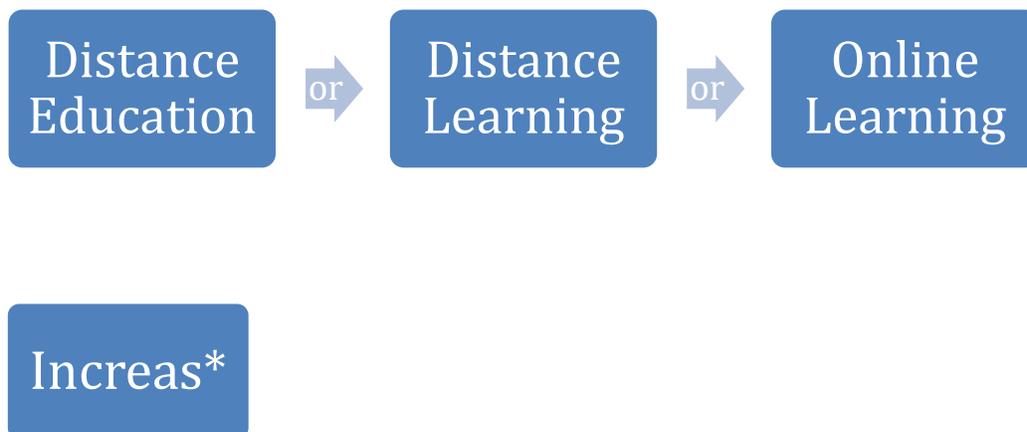
This search yielded 50,905 results (Academic Search Complete – 7,851; Education Research Complete 7,285; and ERIC 35,708).

The search was limited to those articles from scholarly peer-reviewed journals: 25,849. Next, the search was limited to articles published in the last twenty years and got 25,554. At this point, the search was limited to those articles with the first part of search string in the “article title” field rather than “all text” field, resulting in 314 articles (Academic Search Complete – 72; Education Research Complete - 134; and ERIC - 108).

Records from the first two search strings (687 in total) were exported into Refworks and duplicated removed leaving 207 in total. These 207 articles were then screened, through an examination of the title and abstract, and classified according to their academic thoroughness, research methodology and their ability to speak to the research questions. Once this screening process was complete, 26 articles were deemed appropriate and are included in this literature review.

Search String #3

At this point, it was decided to carry out a third search. Please note the search strings are connected by the Boolean Operator “and”. The searches were completed using the “all-text” field:



The truncation * locates any articles containing increase or increasing or increased. This search yielded 86, 658 articles (Academic Search Complete – 16,952; Education Research Complete 10, 403; and ERIC 59,156).

The following limits were then applied: scholarly articles, published in the last 20 years, academic journals and those articles published in English. This resulted in 37,119 articles. At this point, it was decided to limit the search to those articles with the first part of search string in the “article title” field rather than “all text” field, resulting in 104 articles (Academic Search Complete – 29; Education Research Complete - 41; and ERIC - 34). Once duplicates were removed, 64 articles remained. These 64 articles were then screened, through an examination of the title and abstract, and classified according to their academic thoroughness, research methodology and their ability to speak to the research questions. Once this screening process was complete, articles chosen were deemed appropriate and were included in this literature review.

There were some resources used in this literature review which were “happened upon” during the search process. The first is a Government of Newfoundland and Labrador publication, two are relevant texts used in my graduate studies and finally, survey results were included from a personal survey completed by Taylor-Hulan in 2018.

Background Discussion

Adult education (andragogy) is distinct from the education of children (pedagogy). Malcolm Knowles is credited with developing the theory of andragogy in which he emphasizes that adults:

- (a) need to know why they need to learn something;
- (b) adults need to learn through experience;
- (c) adults take a problem-solving approach to learning; and

(d) adults learn best when the topic is of immediate value (Knowles et al., 2005). Having a basic knowledge of Knowles' theory is important to all adult educators including those who teach online.

In Jennifer Roger's book, *Adult Learning*, she identifies the most essential principle of adult learning as "teaching is about learning" and that the task of a teacher of adults is to become a designer of learning (Rogers, 2007). She illustrates that when the learner is central to the project or project activity, he or she is more likely to learn, giving examples of the things we remember most from our childhood learning - a role in a play, an athletic feat, a topic we choose for research, or a debate we performed in.

She also notes that adults learn differently than children and suggests these reasons:

1. Adults are anxious about learning, at least in the beginning.
2. Adults' memories of negative experiences from their past learning.
3. Adults are uncomfortable with a change in their existing beliefs; i.e. learning something new that contradicts their own beliefs.

These differences, when combined with low writing and computer literacy, may make learning even more difficult for learners in the online classroom, which relies heavily on written communications and computer use.

From reviewing the literature, we are better able to understand how adults learn and that barriers they face may prevent them from participating and succeeding in an educational setting. The literature points to many sources that tell us faculty must engage students in social interaction, provide opportunities for communicating that are more user-friendly, and a well-

designed course have a major impact on student success. My study will focus on identifying barriers and improving success.

Online Learning

According to Power (2011), distance education dates back at least to the mid-1800s when the University of London began offering correspondence education. Online learning is not to be confused with distance education. Online learning may provide the same opportunities but it is the new generation of distance education and it has several forms - blended, wholly online, and hybrid. Howlett, et al define online learning as “the use of electronic technology and media to deliver, support and enhance both learning and teaching and involves communication between learners and teachers utilising online content” (as cited in O’Doherty et al., 2018, p. 1). Online learning is thriving across Canada and the United States and new investments are being made to support its continued growth and development, particularly in Ontario and British Columbia (Contact North, 2012). In 2016-2017, 18 percent of all Canadian post-secondary students were taking at least one online credit course. Almost two thirds of institutions in Canada showed an increase in online enrolments between 2015-2016 and 2016-2017 (Canadian Digital Learning Research Association, 2019). In Newfoundland and Labrador, this is also true, where online learning has been identified as part of the current government’s strategy to increase citizen’s skills and eligibility into the workforce (Government of Newfoundland and Labrador, 2016).

Rural Population

Attending an on-campus program is often a barrier to people living in rural communities because there is no physical presence of a public college or university.

Simms and Greenwood (2017) in their report on the state of rural Canada, indicate that nearly 60 percent of the population of Newfoundland and Labrador are living in a rural area. They use the Organisation for Economic Co-operation and Development definition of urban versus rural, where urban must contain at least one small city with a population of 50,000 or more. This means that every community outside the Greater St. John's Area, is a rural community.

Barriers

There are many barriers to online learning. One article listed 64 ranging from administrative barriers reaching back to the pre-admissions process (Muilenburg and Berge, 2001). The literature states that social interaction is one of the main barriers to student success in the online classroom. Key components of social interaction in the online classroom include discussion postings and emails, both of which require students to have sufficient writing and computer skills (Mupinga, D. M. et al 2010). For these reasons this study will focus on writing and computer literacy.

Lack of Social Interaction

A review of the research on interactions among teachers and students in the online classroom provides insights into the social aspects of online teaching and learning including the roles of both teacher and student (Wallace, 2003). Just as a diverse neighbourhood has its benefits so does the diverse online classroom. The article describes the importance of community-building in providing a safe and welcoming place for adults to learn because they are comfortable asking questions and seeking input from their peers. The paper also gives examples of how to overcome transactional distance which is present in all online courses. Transactional

distance is defined as a function of dialogue and structure and that more dialogue between teacher and student means a smaller transactional distance; i.e. more engagement (Wallace, 2003).

Online classroom participation simply means *interaction*. This includes interactions between student and teacher, among students, and students interacting with course content. Unlike the face-to-face classroom, the online classroom has no opportunity to read body language from which a teacher can gauge the interest of participants and adjust his/her tone or presentation.

Personalized communication in the online classroom is critical to the engagement and retention of online students (Betts, 2009). In the article *Lost in translation*, Betts suggests faculty play a critical role in the student engagement and retention. Data collected from one study revealed that 12 percent of students who withdraw from their online course do so because of poor communication on behalf of the faculty (Betts, 2009).

Muilenburg and Berge (2005) in their report on student barriers to online learning they emphatically state “the single most important barrier to students learning online was a lack of social interaction” (p. 35). In Rao’s (2007) study, interview subjects noted they did not get enough time to talk to the instructor. In the study, participants said they enjoyed the opportunity to work in groups with their classmates using a virtual classroom; e.g. *Illuminate Live!* and reported they had learned from this format.

Rao & Giuli (2010) in their evaluation of a two-year online program in the Pacific Islands stated “the power of interacting and sharing information about the relevance of course content to their own island contexts was interesting and engaging to students” (p. 151) and students valued the online discussions with one another throughout the course. It was suggested

one way to foster more interaction was to make synchronous sessions a formal part of the program. However, one of the benefits of online learning is the flexibility that comes from asynchronous learning. Yet, many studies have shown that one of the most effective methods of creating success and participation is synchronous learning. The instant feedback and the connection with others helps solve feelings of isolation often associated with online learning. According to Wake & Bunn (2015), successful online courses take advantage of social, participatory, and constructive learning approaches. In courses where students are given the opportunity to collaborate with each other and are encouraged to apply their knowledge to real world situations we may create the same or an increased level of social connectedness as a face to-face class.

Lack of Key Literacy Skills

Literacy encompasses all the skills needed for work, learning, and life. The Government of Canada, along with other national and international agencies, have identified nine key literacy and essential skills that are used in almost every job and in our daily lives – these include writing and computer use (Government of Newfoundland and Labrador, 2018). These are among the same skills that are key to participating and succeeding in the online classroom. These skills are needed for discussion postings, email, real-time text chats. According to Stacey (1999), “group electronic discussion and sharing of resources gave them an environment for actively constructing new ideas and concepts and enabled them to learn effectively.” (as cited in Wilson & Stacey, 2004, p.34). Without the necessary literacy skills, one could not participate in such discussions.

Whether the online classroom provides learners with literacy training, a diploma, a degree, or occupational training, the more educated we are the more likely we are to be gainfully

employed. “Over the past decade, research consistently demonstrated that individuals with higher literacy skills earn more income, work in higher skilled occupations, are less likely to be unemployed, experience shorter periods of unemployment, are more likely to find full-time work, and are more likely to receive further training” (Organization for Economic Cooperation and Development, 2005). Preparing for the online classroom can be as intimidating (and as necessary) as preparing for the changing workplace.

1. Writing Literacy

In their descriptive study, Wake & Bunn (2015), found that communication was a significant area of concern for those new to online learning. Faculty reported concerns about the candidates’ abilities to write professional communication (e.g. email, discussion postings). Unfortunately, the expectation of writing is quite high in online learning. (Mupinga, D.M. et al., 2010). Learners’ abilities to compose accurate and acceptable writing for their assignments was also problematic due to many mechanical and grammatical errors (Wake & Bunn, 2015).

In Marcial et al (2015) using a descriptive study and survey method they identified the academic skills needed for successful online learning as language, writing, reading, communication, typing, and confidence. Lack of language skills scored as the highest barrier amongst the 44 respondents. It should be noted here that respondents were from various ethnicities and English was not their first language. A student’s ability to compose acceptable writing assignments was often problematic due to mechanical and grammatical errors and some students are fearful of writing (Wake & Bunn, 2015, p. 44). Beyond assignments, being able to write well-structured sentences is essential in an online learning environment because writing

may be the main form of communication between student and instructor and among students. A 2018 survey of 23 online instructors at College of the North Atlantic found:

- 100% ranked writing emails as the “most frequent” form of communication.
- 92% of instructors indicated their students post written messages to the discussion forums.
- 78% of instructors assigned a grade to students’ written messages posted in the discussion forums (Taylor-Hulan, 2018)

2. Computer Literacy

Regarding computer literacy, oftentimes we may assume that individuals who take online courses are highly computer literate (Fedynich, 2013, Safford & Stinton, 2016). In their paper, Safford and Stinton (2016) acknowledge that many adult, non-traditional students may use a range of digital and online technologies in their personal lives but this may not adequately prepare them for the use of technology for academic purposes. Unlike in an on-campus computer lab where every student uses the same software and hardware from the same internet connection, non-traditional students are in dissimilar environments with varied levels of computer literacy. “It’s a plain and simple fact. As hard as it is to imagine these days, there are individuals that are less than adequately prepared for a technology-rich learning environment.” (Ratliff, 2009).

Basic computer skills are necessary to organise, store, and retrieve information digitally as well as be able to read digital comment and submit their work electronically (Stinton, et al., 2016).

Van Dijck (2014) in her chapter warns the reader that assessing levels of digital skills has often been performed in specific settings; i.e. classrooms. Using surveys is also unreliable because people generally report that they have higher skills than they actually possess. Van Dijck believes observational studies may give a more accurate description of the level of computer skills. The lack of operational internet skills are barriers to online learning. These skills include using toolbars, buttons, and menus; inputting data into forms; and opening and saving files. In the tests administered for her study, van Dijck found that aging and people from lower levels of education experienced the most difficulty with these operational internet skills. (van Dijck et al. 2014).

Solutions to Barriers

Role of Faculty

One of the barriers to online learning is the lack of social interaction this may be overcome by faculty who fulfill their role in the online classroom. Faculty have an obligation to encourage and support social interaction so that students do not feel isolated. While interaction is the cornerstone of any learning experience, it takes time and a level of comfort. Interaction in an online classroom is influenced by institutional policy, the technology being used, the philosophy of the teacher, course content, and the context in which the course is being taken (Vrasidas & McIsaac, 1999, p. 23).

From an educational context, there are three types of interaction – learner to content; learner to teacher; and learner to learner. Faculty can provide an opportunity to empower students and enhance learning:

- 1. Provide feedback – information students receive about the correctness of their work.**

Timely and encouraging feedback directly affects the student's satisfaction. Providing

feedback is responsive; however, it should be genuine, timely, and positive – even when pointing out something that needs corrective action (Belew, 2014, pp. 1-2).

2. Be socially present - the degree to which a medium allows users to feel socially present. This can be promoted with strategies such as posting online office hours, holding synchronous sessions such as chats or web-conferencing, and responding to all inquiries within a timely manner.

Wake & Bunn offer several recommendations to support students' writing: "(1) require identified candidates to work directly with the university's writing centre; (2) provide exemplar models to the students; (3) provide writing workshops; (4) make clear expectations to the students regarding the level of writing required" (p. 44).

By providing opportunities for interaction we can overcome several barriers such as isolation and geography. Rao (2007) suggests that synchronous learning not only gives participants the opportunity to meet but also helps them receive technical support. This gives students the freedom to emulate the discussion that would take place in a traditional classroom. "This mode allowed participants to discuss content with their peers and within their cultural contexts and report back to the instructor for immediate feedback" giving students the opportunity to be part of a learning community rather than working in isolation (no page number).

Course Design

A well-designed course combines the students' experience with informal use of communications technology with the academic requirements. Some examples include incorporating a 'thumbs-up' feature if they're familiar with Facebook; use of personal email; video conferencing similar to Apple's FaceTime; as well as their familiarity with Google search

and YouTube. Using these familiar technologies when designing an online course can address barriers related to low literacy and computer skills. We need to welcome them with the skills they have so they can leave with the skills they need.

Caywood et al state: “If a course is well designed, there may be no significant difference between traditional classroom and distance learning education in terms of student acquisition of content. However, poor course design is common and can impede student learning” (as cited in Wake & Bunn, 2015, p. 40).

Dallas Baptist University (DBU) in Texas has an online completion rate that has remained constant between 92% and 93% since 1998 (Moore et al., 2009). DBU’s online course content is designed by qualified instructors in that discipline and the content is approved by the provost office. The university also has a team of instructional course developers who develop course features using a range of technologies from streaming media to threaded discussions.

Wang et al state that online courses should be designed with a focus on pedagogy, social, and technical perspectives. First, the online content and instructional activities should match the same offering in a classroom. Second, online and classroom students should have equivalent learning experiences. Third, online students should be able to interact with others in real time using technology-mediated communication (2017).

King & Doerfert stress that interaction does not simply occur, it must be “intentionally designed into the instructional program”; however, he cautions that the different technologies have their own benefits and constraints and designing a course to use these effectively is key (as cited in Berge, 1999, p. 5). For example, it is not enough to provide a technology that allows interaction if that interaction is not relevant or useful to learning.

According to Ellen D. Wagner (1998), when designing an online course, educators must consider the outcome they hope to achieve with each interaction. Typically, each interaction hopes to either change the student in some way or move the students toward an “action state of goal attainment.” (p.3).

“With some flexibility and willingness to appraise the needs of participants and to design courses accordingly, providers of distance learning can create a viable mechanism to provide educational opportunities” (Rao, 2007, no page number).

Indeed, there have been many success stories regarding online learning. Lim (2001) in her predictive model of satisfaction for adult learners in a Web-based distance education course notes that the internet is part of our daily communications. This familiarity with the internet may increase computer efficacy which may result in a successful online learning experience.

Key Findings

Much of the literature about online learning highlights its flexibility and unique limitations. However, research does not identify barriers to online learning that exist for those who cannot type or write well-structured sentences and paragraphs. This is important because online learning relies heavily upon writing and keying emails and messages. By considering the needs of learners with low writing and computer skills, we can create a more inclusive learning environment at any level.

Digital immigrants – those who did not grow up with the internet – must become adept at participating in online learning as more and more colleges, universities, and corporations are shifting toward this approach to learning, training, and development.

Recent Census data reports that Newfoundlanders and Labradorians are lagging behind in the following areas:

- 15.7 % of those aged 25-64 do not have high school certification compared to 11.5% nationally
- 8% of those aged 25-34 do not have high school certification which is about the same as the national average of 8.7 percent
- 17.2% of those aged 45-54 do not have high school certification
- 23.75 of those aged 55-64 do not have high school certification (Government of Newfoundland and Labrador, 2016)

The literature indicates that lack of social interaction is the often-repeated barrier for students who study online. Even articles that focus on the role of faculty, and course design, all indicate that social interaction is key to success. While real time, or synchronous interaction is often beneficial in providing social interaction, it is also a hindrance if it impedes upon the flexibility of studying online.

Understanding that adults bring a lot to the classroom can be humbling for teachers of adults; however, it should be welcomed. Students should know their experiences are valuable and worthwhile to themselves, to their classmates, and to faculty.

Ultimately, this research project aims to identify barriers for learners with low writing and computer skills so that they may further their education from their own homes via online learning.

Conclusion

This literature review examined some of the most common and recurring themes that describe the barriers to online learning. The literature discusses barriers that exist for the non-traditional student who is becoming more prevalent in the student population of many colleges and universities. The research project will further examine how the lack of key literacy skills may impair one's success in online learning. Through the voices of the participants, we hope to uncover the best approach to online learning despite existing barriers.

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