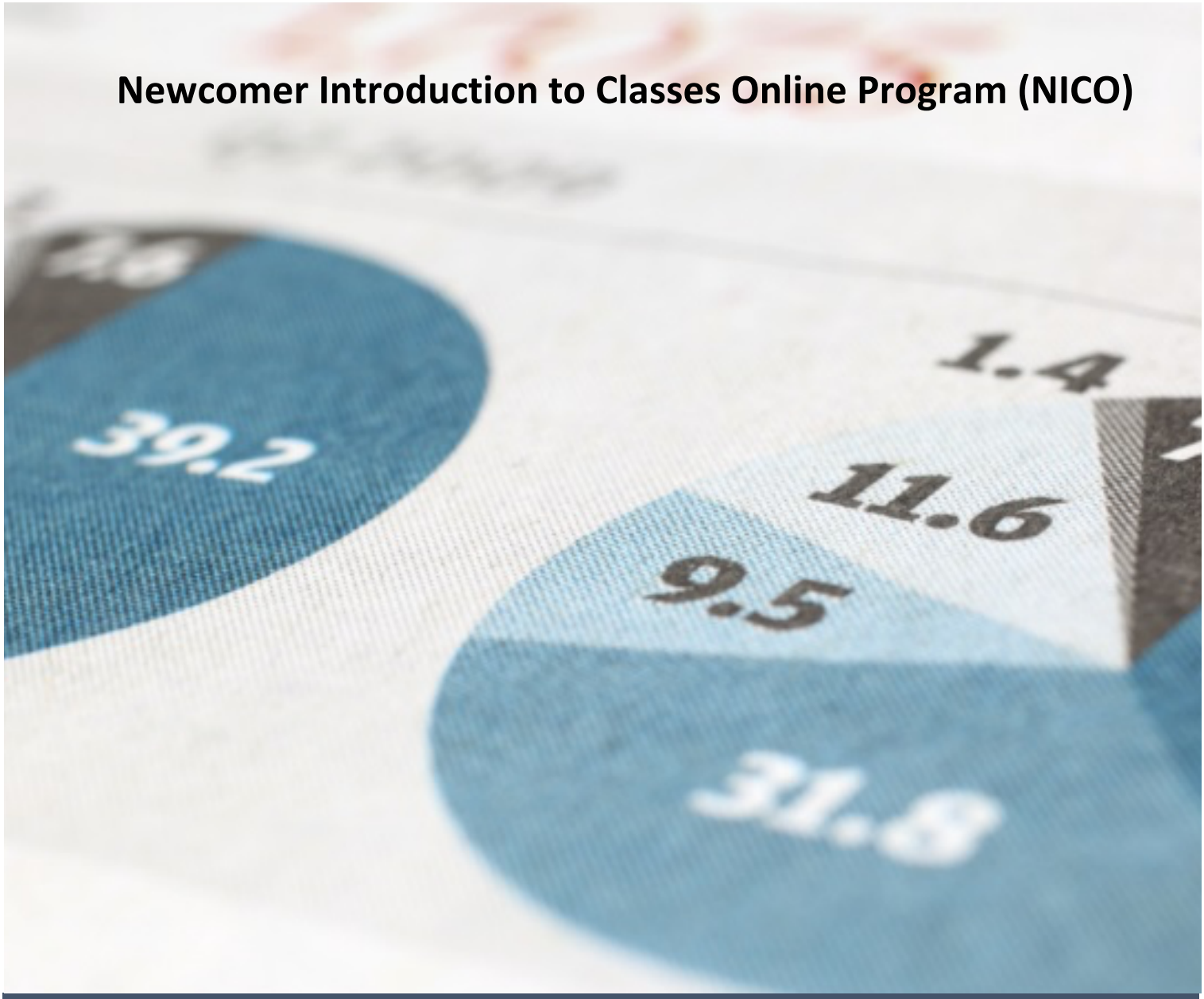
Newcomer Introduction to Classes Online Program (NICO)



Research Report

Online Language Classes

Calgary Immigrant Educational Society CIES

2/1/19

Funded by: IRCC, Government of Canada

Project Basics

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Recipient Name: Calgary Immigrant Educational Society (CIES)

Prepared by/Contact Person: Suman Khanal – Program Director

Olivia Chen – Program Manager

Project Name: Newcomer Introduction to Classes Online Program (NICO)

Table of Contents

Background

The research is purposed for an assessment of needs so as to identify the barriers to successful on-line language learning for new immigrants, especially those with language proficiency at CLB 3. Guided by the methodological framework of mixed methods research and under the pragmatism paradigm, the research data was collected through two on-line surveys, semi-structured interviews, and through existing document searches such as the digital literacy curriculum developed for e-learners by different organizations. One survey collected input from students who had participated or who were participating in e-learning programs. A second survey collected inputs from instructors, managers and coordinators working with e-learning programs. Both surveys have incorporated closed questions, multiple choice, and open-ended questions.

The project was of national scope and this report is part of schedule 1, planned activities. The funder, IRCC, confirmed that IRCC did not require an ethics review before the data collection was initiated. We proposed to follow all of the ethics approval requirements and an ethics review application was submitted for each individual partner organizations and programs. Minors were not our target participants and were not allowed to participate in the research. Consent forms were included and were required to be completed by all participants regardless of the format the participant chose to complete the survey in.

The on-line survey data was collected using the Survey Monkey service. Access to the raw data was restricted to the program manager and the researcher. The Survey Monkey function collecting IP addresses from participants was turned off. Survey Monkey used SSL/TLS encryption to safeguard the data. On completion of the research, all of the data was downloaded to an external hard drive and Survey Monkey deleted all of the data from their server. The staff survey asked for a participant's email and mailing address but these questions were optional for the respondents. The student survey asked for a participant's mailing address but this question was optional for respondents. This information was requested to mail the prize draw winners their prize after the survey.

The data analysis followed the sequential mixed design (QUAN ➡ QUAL ➡ QUAN ➡ QUAL ➡ answer to research question: QUAN = quantitative data which had priority over qualitative data; QUAL = Qualitative data which had priority over quantitative date). The data from responses to closed questions and multiple choice questions was analysed by Survey Monkey. Researchers drew on Survey Monkey analysis to further cross-tabulate, and filter for correlations and causations. The quantitative data analysis was purposed for capturing the contexts and identifying correlations and causalities of the problem under investigation. Quantitative data also provided support for generalizing and/or for the demographics of the participants in regards to their CLB levels, age, education experience, and previous on-line learning experiences. It also enabled analysis of e-learning programs used across Canada relative to the CLB levels, number of seats, waitlist information, LMS platforms used, funding resources etc. All of the data, no matter whether it was obtained through open-ended or closed questions were screened and processed as subjectively as possible. The qualitative interpretation of data facilitated an understanding of participant's perceptions and opinions on what was occurring, what was happening and why, so as to identify their needs.

In the period from September 3 to December 3, 2018, a total of 150 people participated in the research study. The sampling ration was 10:1 due to the extensive nature and national scale of the sampling pool. Participants were recruited through various e-learning programs on a random, voluntary basis, as such this ensured the validity and reliability of interpretations generated subsequently.

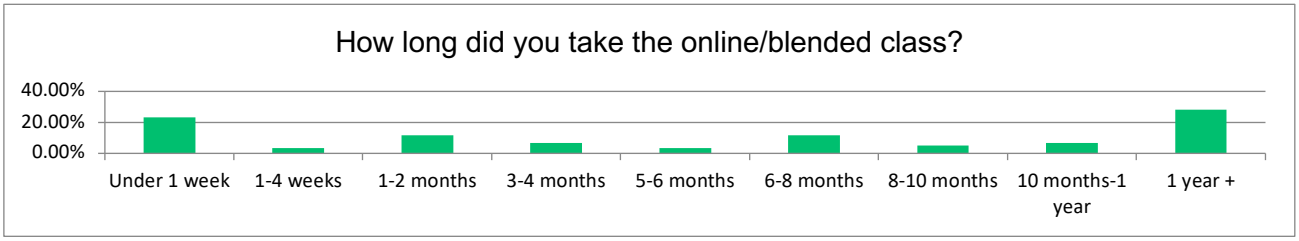
Demographics and Trends in the E-Learning Community

Student Demographics and Trends

The research captured e-learning students' demographic features in terms of location, first language spoken, which year the student came to Canada, and age.

The majority of student respondents were from Alberta (58 out of 71 respondents), as well as Ontario (5 respondents), Saskatchewan (7 respondents), and the United States (1 respondent). The participating students all had on-line learning experience. Their on-line learning experiences varied from under 1 week to more than 1 year.

Length of Time In on-line learning program



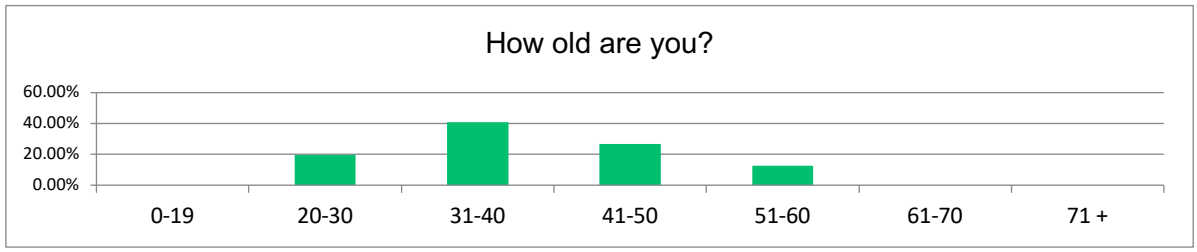
Students participating in the student survey spoke twenty-seven different first languages. The most common first languages spoken by respondents were: 9 Spanish, 8 Arabic, 7 Korean, and 6 Urdu language.

Student participants had come to Canada within a variety of different timeframes, although most of the student participants had come to Canada within the last ten years.

The year students came to Canada	# of students arrived that year	The year students came to Canada	# of students arrived that year
1964	1	2012	5
1983	1	2013	6
2000	1	2014	9
2004	1	2015	7
2005	1	2016	7
2007	4	2017	5
2008	1	2018	16
2010	2	2019	1
2011	3		

Age

Students ranged in age from 20-60 years old. The most frequent age range of participants was between 31-40 years old with 41% of the respondents falling into this category. No one under twenty years of age responded to the student survey (and minors were not allowed to participate in the survey). The target audience for the student survey was 19 years of age or older.

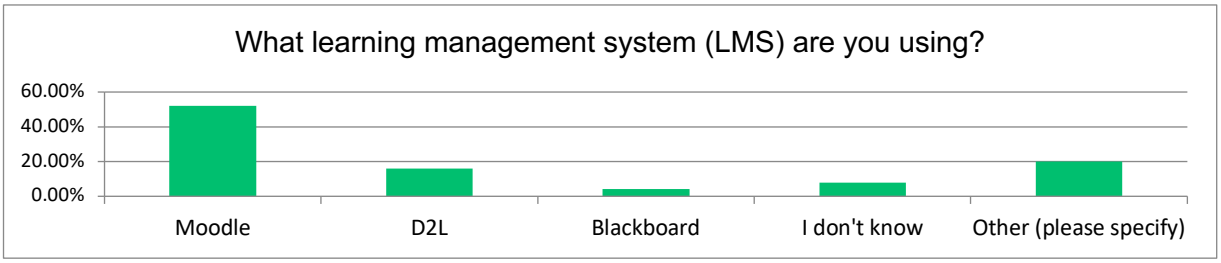


Trends in the E-learning Community

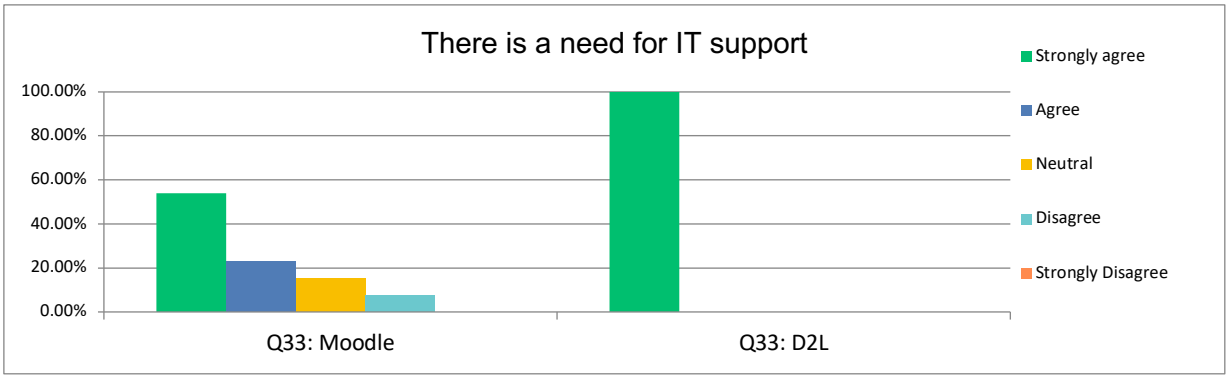
The Survey revealed a correlation between the preference to on-line learning and age.

One of the reasons students cited that they preferred classes in person was because they wanted the interaction of face to face learning setting and interaction with their peers. This need for community could also be met through increasing interactivity in e-learning. Staff also identified the need for interactivity within the course to decrease student's social isolation and increase engagement. As a physical instructor would not be the focus for teaching for e-learning courses, students should be shown how to connect with each other. This can be set up with predetermined topics in a blog, with students being shown how to use the blog, and a blog entry plus responding to someone else's blog comments as a course activity. By building interactivity into the orientation, this will help e-learners create a community online.

Another trend in learning was about the most commonly used versions of Learning Management System. Data showed the most popular systems are Moodle and D2L. Other LMS include edulinc.org, in-house, Brightspace, LEAD, LINC home study website, etc.



Staff using Moodle and D2L believed there was a need for IT support. All D2L users strongly agreed on the need for IT support. Most Moodle users saw the need and only a small percentage disagreed with the need for IT support.

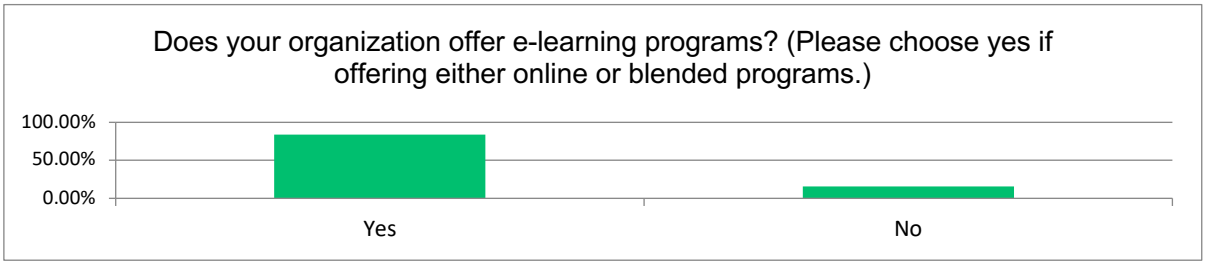


Staff using Moodle mentioned throughout their surveys and interviews that the advantage of using Moodle was that it was a free service. D2L users suggested that it was visually appealing, with many features. Blackboard was not commonly used among the survey participants with Staff siting the cost and the inability to do collaborative work as reasons it was not used. Moodle was more commonly used among non-profit organisation respondents whereas D2L and Blackboard were more common among post secondary institution respondents.

Available e-learning programs and the capacity of service providers to provide timely and effective English training, including identified service delivery gaps

Available E-Learning Programs

Seventy organizations were approached to participate in or distribute the study. Out of the organizations that wanted to participate, 84% answered yes to, "Does your organization offer e-learning programs?" and were able to participate.



Responding service providers showed a spectrum of experiences. Programs that covered all or only some CLB levels, some providing orientations and some not, and anywhere from two intakes a year to continuous intakes. The service providers serve clients with a wide range of language proficiency.

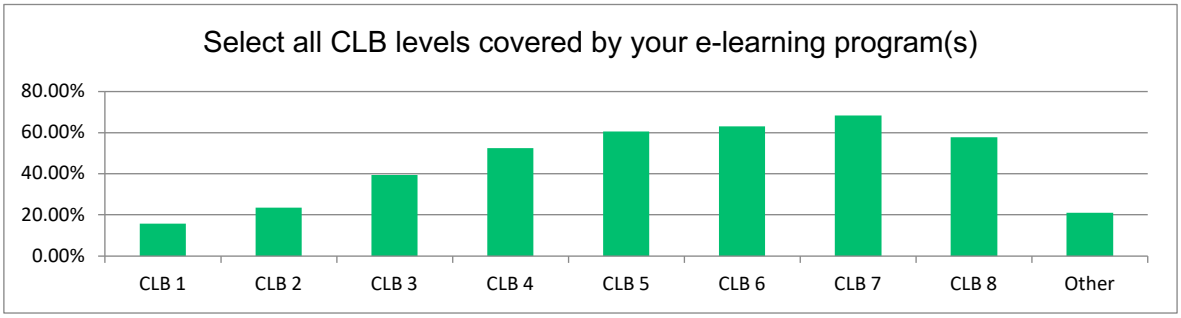
A total of twenty-two e-learning programs from twenty organizations participated in the staff survey. Organizations across Canada participated in the staff survey and respondents came from British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, and Nova Scotia as well as from national organizations. Approximately 1400 on-line ESL learning seats were available per year across the 22 programs provided by the organizations. The majority of the programs were funded by IRCC. It's interesting that several staff had no idea as of who funded their programs.

The chart below showed the demographics of organizations participating in the research, combining location, funding sources, CLB levels covered, success and drop out rates, learning management systems, technical support, and orientations for students.

Organization By Province	***# of seats available***	***CLB levels covered***	***Intakes Per Year***	***Average Waitlist***	***Increased interest in e-learning***	***Any IT Support***	***Orientation***
British Columbia #1	90	other	2	none	don't know	don't know	don't know
British Columbia #2	33	all	continuous	6-12 months	No	Yes	No
British Columbia #3	60	5 to 8	continuous	don't know	Yes	Yes	F2F orientation
British Columbia #4	don't know	4 to 8	continuous	don't know	don't know	Yes	Yes
British Columbia #5	132	5 to 8	3	3-6 months	No	Yes	No
British Columbia #6	18	4	continuous	don't know	Yes	None	No
Alberta #1	80	other	2	don't know	don't know	don't know	don't know
Alberta #2	depends on program	3 to 8	depends on program	depends on program	Yes	Yes	Yes
Alberta #3	don't know	5 to 8	don't know	6-12 months	don't know	Yes	Yes
Alberta #4	N/A	other	N/A	don't know	don't know	don't know	don't know
Alberta #5	360	3 to 8	6	don't know	don't know	Yes	don't know
Alberta #6	100-200	other	800	none	don't know	Yes	No
Alberta #7	210	5 to 8	6	none	don't know	don't know	don't know
Alberta #8	80	other	2	don't know	don't know	don't know	don't know
Saskatchewan #1	depends on program	7,8	depends on program	under a month	No	None	Yes
Saskatchewan #2	unlimited	5 to 7	continuous	none	don't know	None	No
Manitoba #1	20 seats per program	6,7,8,	2	don't know	Yes	Yes	F2F orientation
Ontario #1	indirect services	all	indirect services	indirect services	indirect services	indirect services	indirect services
Quebec #1	don't know	1 to 8	continuous	don't know	don't know	don't know	don't know
Nova Scotia #1	don't know	4 to 8	continuous	don't know	don't know	Yes	Yes
National #1	1	2 to 7	depends on funding	3-6 months	Yes	Yes	Yes
National #2	hundreds	1-5,7	over 1000	1-3 months	Yes	Yes	Yes
National #3	100	6 to 8	3	1-3 months	Yes	Yes	Yes

The Federal Government is the main funder of on-line language learning programs. Interestingly, about 18% of staff working in this type of program do not know who funded their program.

Federal Funding	46.1%
Provincial Funding	18%
Private Funding	13.6%
I don’t know	18%
Variety of Sources	4.3



Service Delivery Gaps

It was explicit from both charts above, that less than half of the organizations offered e-learning programs to CLB 1,2, and 3 students. This student group did not have the same opportunities to participate in e-learning that the higher CLB benchmark students have. If CLB 1,2, and 3 students could improve their digital literacy skills, we hope that this will create greater e-learning opportunities for them.

A responding coordinator expressed concerns regarding the digital literacy skills of students at lower CLBs. Lower level students were often "confused by navigating the internet. Especially LINC 3/4/5. The instructor said: "I need to teach students where to put cursor before entering a password, and not understanding what a browser is". A responding teacher explained the flip side that "CLB 5 and above has higher computer skills and language skills, and independent learning generally". Another coordinator also explained "the assessor has a very big role and also if the assessor says 'you don't want online do you? That's kinda hard for you isn't it?' And of course they say 'oh yeah that's really tough. I can't do that". In one interview the researcher asked: "So some of the students who are at the lower CLB levels, what do you think turns them off or makes them go 'Oh this isn't for me'?" (The researcher is referring to e-learning classes.) Then the coordinator responded: "I think what tends to happen is that the assessor tends to say 'you know you are a fairly low level, why don't you take this face to face class first till you get to a higher level. Then maybe you'll get a job and now you can't take this class anymore because you are working and now you can do LINC home study.' I think that's the kind of progression". They went on to say "it tends to discourage participants who have a lower CLB level" (from e-learning). Currently students with low benchmarks were discouraged from entering online programs and encouraged to take classroom courses first before taking e-learning.

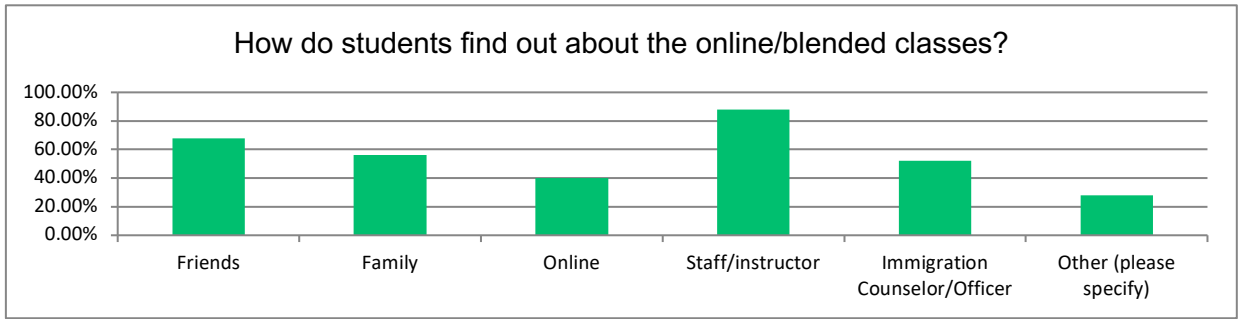
Barriers to access in e-learning, including student demographics among early program exit/withdrawal, graduation, and over/underachievement.

Barriers to access in e-learning

There were multiple barriers for newcomer students to access e-learning. The main barriers encompass both non-technical and technical problems. Non-technical barriers include the access to e-learning program information, length of waiting period, and technology-phobia. The technical barriers included mainly students' access to e-learning equipment and their technical skills.

Information about on-line programs that are available

The survey demonstrated that only 17% of students said they found out about online/blended classes through staff. Whereas staff responded that 88% of students found out about online/blended classes through staff. Also, 23% of students claimed that they found out through friends, and staff said 68% of students found out through friends. Similarly, only 10% of students claimed they found the information through family, whereas staff said 56% of student accessed the information through family. The responses were more comparable for the other categories. 43% of students said immigration counselor/officer told them about e-learning programs and staff estimated 52% of students learnt about programs through immigration counselor/officer. 35% of students found program information online and staff believed 40% of students found programs online.



Access to a computer and internet

All of the students who stated that they preferred online learning responded “always” or “usually” to having a computer at home with internet that they could use for class. 86% of students who preferred classroom learning and 95% of students who preferred blended learning appear to have the necessary access to a computer and the internet. Is this a requirement to enter the program? If it is, it may be a barrier to those trying to enter into e-learning.

To learn English through an on-line program, the first requirement is to be able to access a computer with an internet connection either by owning a computer and having internet at home, or having regular access to computers with internet connectivity outside the home. The students who did not have regular access to a computer with internet were also the only students removed from the class. Students who did not usually have access to a computer with internet at home did not have as positive of outcomes as students with more access to a computer with internet. In some situations, the computer could be a “shared family computer which can slow down the computer if games are running in the background, [and] arranging a class time because other family members need to use the computer” could also prove problematic. Student’s progress could also be slowed if other family members needed the computer and they have to schedule a time to complete their school work. The internet could be a problem too as only reliable and stable internet access could properly support on-line learning. “You’ve got to be sitting there with good signal all around. There can’t be anything outdated or turned off”. Sometimes, students complained that they “lost access to internet” and couldn’t access the on-line course.

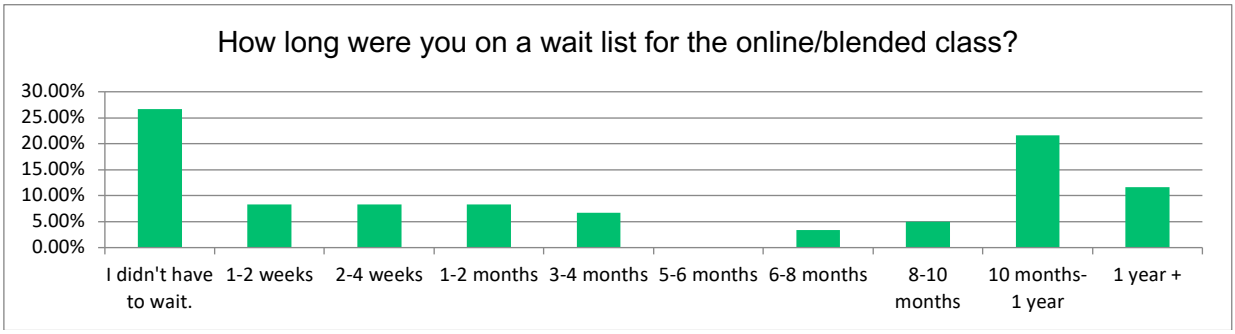
Furthermore, some students struggled with a slower computer, which is further complicated by an inability to identify the issue because “some students don't know when computer needs servicing because it is so slow”. The computer could be older or slow for reasons that the student had little control over. Staff suggested students learn technical skills such as “basic maintenance and troubleshooting, knowing who to call for help. Many students were on a budget, so basic repairs had to wait.” Even if students are aware of

the issues with their computer, it may not be in their control or budget to fix the computer. Student's experiences could be even worse. One staff member explained that "many of our students have older equipment and they live in remote locations and have slower internet. The hardware itself and the infrastructure could be a barrier".

The last barrier to access on-line learning was mobile accessibility. Most current e-learning programs do not have "access on smartphone". One staff member described their e-learning program as "its not mobile compatible…It is quite old that way". Whether access was slow, limited, intermittent, or non-existent on mobile devices, internet access obstacles could reduce or prevent learning by students.

Wait list and withdrawal from the wait list

The maximum student capacity of each organization ranged greatly, from 40 students to 180 per year. Among the 22 programs participating in the survey, 67% of the programs confirmed that there was a waitlist for their e-learning programs. Organizations waitlists, at the time of the survey, ranged from no waitlist, to up to 60 students on the wait list (Q6). Students' actual waiting times range from no-wait to having to wait over one year to join a course (Q13). Almost a third of students (27%) reported they did not have to wait to start the e-learning course which encouraged participation by meeting students' needs. However, 42% of students were on the waitlist for over six months with 12% of those being on the wait list for over a year. Over a third of students (34%), reported they had to wait ten months or more before starting a class.



In total, over 48% of students had been waiting for more than 3 months before being able to join a course, which was far from meeting with program, staff and students' expectations as regard to the appropriate length of waiting period. When asked "how long do you feel students should be on the wait list?" there was an obvious discrepancy between the expectations of program administration staff, instructor and students:

How long should students wait?	Responses from:	
	e-learning instructors, admin staff	Students
Students should start right away	28%	64%
1-2 weeks	8%	12%
3-4 weeks	8%	8%
1-2 months	36%	16%
3-4 months	16%	0
5-6 months	0	0
7-12 months	0	0

Most students (64%) did not want to wait at all to begin a course and did not feel it reasonable to wait for 2 months or more to begin a course. Comparing this to the fact that staff reported 34% of programs had a waitlist 3 months or longer, the length of the waiting period clearly did not meet with student's expectations. The fact that over 48% of students have been waiting for more than 3 months was far from meeting program staff and student's expectations in regard to the appropriate length of a waiting period before students could commence a course.

If students were on a waitlist, there could be interferences which may prevent them from starting the e-learning course when it became available, such as family commitments, scheduling, travelling/moved, or participation in another program. Staff also indicated seeing an increasing interest in e-learning which could lead to longer wait times in the future if this trend continued.

The average waiting period for CLB 1-4 e-learning programs compared to CLB 5-8 programs are quite close:

# of months in the waiting period	ZERO (NO WAIT)	UNDER 1 MONTH	1-3 MONTHS	3-6 MONTHS	6-12 MONTHS	1 YEAR- 1.5 YEARS	1.5 YEARS+
CLB 1-4	41%	5%	9%	14%	32%	0%	0%
CLB 5-8	33%	9%	14%	16%	28%	0%	0%

Low CLBs (1-4) have more opportunities to start immediately as there is no waitlist for them more often than CLB 5-8. Correspondingly, the high CLBs (5-8) have higher percentages of students who drop out while waiting for the class to start.

Demography of early withdrawal

Out of the programs that participated in the survey, 58% of programs have a waitlist. Of these, 28.5% of programs reported a waiting students drop out rate of 40-49%, 43% of programs reported a rate of 0-39%. The reported reasons for students dropping out after being on the wait list were consensus. In summary from all of the responses to the open-ended question as to why do students withdraw from waitlists, a consensus of seven general reasons were as follows: found employment, had a baby, moved or travel, took another program, got sick, day care issues, personal or family commitment.

The table below shows the percentage of drop outs before starting class if the student was on a waitlist, if there was a waitlist, what percentage dropped out before starting class?

Percentage of programs reporting / Drop-out percentage	No wait list	0-10%	10-19%	20-29%	30-39%	40-49%	50-59%	60-69%	70-79%	80-89%	90-99%	100%	I don't know
CLB 1-4	29%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	63%
CLB 5-8	17%	7%	0%	1%	0%	8%	0%	0%	0%	0%	0%	0%	66%

Technology-phobia and self-confidence

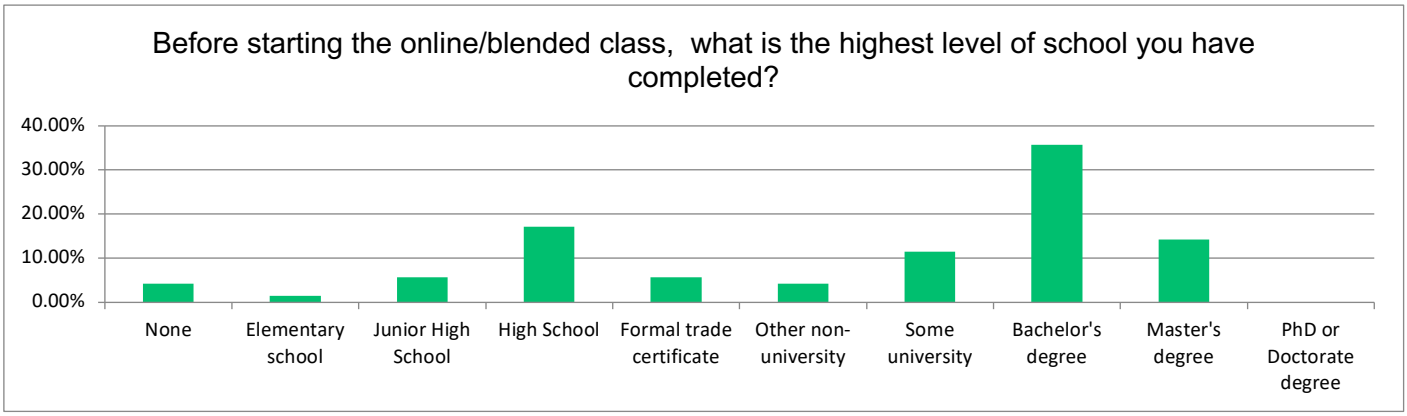
Another barrier for students entering e-learning was their technology-phobia and self-confidence. There was a correlation between student's self-confidence and their self-reported technical abilities.

"Students previous experience with online programs and less confidence with their computer skills could easily lead to tech-phobia." Over half of the students had not taken a computer class before, with the remainder of students self-reporting as having taken a computer class before starting the e-learning class. It was encouraging to have a staff commented "I don't know if [students] have any previous [computer] classes. It would be helpful if they did". One coordinator feared that computer classes would be too challenging for their students. When asked if their students have ever taken computer classes before? They responded "No. It's especially those students with very poor English language and most of our computers are in English".

Have you taken computer classes before starting the online/blended class?		
Answer Choices	Responses	
	Percentage	Number of responses
Yes	48.94%	23
No	51.06%	24

When staff explained, "most people have not learned online, so the thought of doing that for the first time is human nature to be adverse to new things. And then, of course, when it's a different language that really adds. A positive introduction to e-learning would help keep students motivated to keep practicing, overcome their initial reservations, improve their confidence and technical abilities." Before starting an online class, do students have sufficient knowledge of technical skills? One staff remarked "only half have the computer skills needed". Accordingly, 49% of students have self-reported taking a computer class before starting the e-learning class and 51% have not taken a computer class. If they increase their technical skills through practicing in the NICO orientation, we hope this will improve their confidence in taking e-learning courses.

Moreover, staff have noted that students with low traditional literacy often have multiple barriers as they often have additional low digital literacy. Students' literacy and education level was reflected by the previous education participation level and this was mirrored by the survey's wide range of student respondents. The survey's respondents varied between having had no previous schooling all the way up to a Master's degrees.



A staff explained how confidence was built through past successes and destroyed through past failures. One staff shared that "bad previous experiences in English classes make students hesitant to learn." Another staff member further explained how people's past experiences being successful or unsuccessful in their first

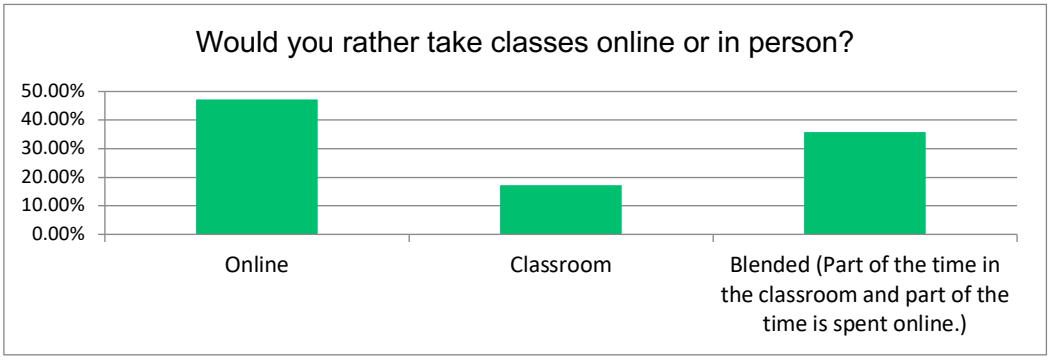
language, “definitely affects their ability to learn a new language…If they’ve learned that I can read something and understand it or if they’ve read something and not understood it, that affects the way they approach all kinds of things. Confidence level.” Staff explained student’s confidence could increase through “giving them any sort of digital literacy skills to practice before they get to class is bang on”. As well, staff noted students “developed confidence as they went along. Practice helps.” Student’s confidence appeared to increase with previous schooling and their self-reported technical abilities.

Students with lower previous schooling overall had less confidence in their technical abilities.
Students with masters and bachelor’s degrees consistently had higher levels of confidence in their technical abilities. Not surprisingly, those who were successful in e-learning courses had fewer difficulties with digital literacy. Those who were successful (graduated or moved onto next CLB) had fewer parts of learning online that they found hard. The reverse was also true, in Q31 on the student survey where students checked all that they found easy about learning online, those who were successful (graduated or moved onto next CLB), had higher percentages than those who left early or who were removed from the class (unsuccessful). By improving student’s digital literacy, this will help them focus on improving their traditional literacy in the e-learning English class.

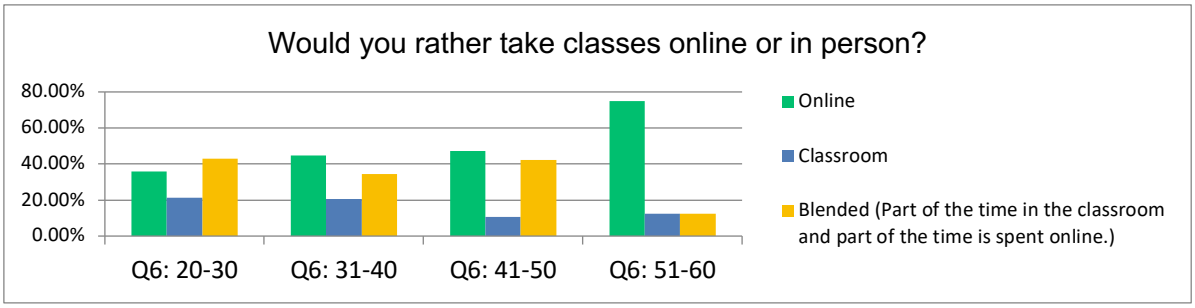
Also, students with lower previous schooling appeared to have less technical abilities when starting class. The research identified various digital literacy tasks to be completed by the class. Students who had previously only completed Elementary school were able to complete 4% of the digital literacy tasks. Students with Junior High as their highest previous schooling were able to complete 7%. Students with Bachelor’s degrees were able to complete 54% and students with Master’s degree completed 36%. Both digital and traditional literacy impacted a student’s success in e-learning. “Low literacy in own language often comes with low digital literacy” stated one instructor. A coordinator commented that their e-learning program “has difficult wording for CLB 3-4. I told coworkers this is the reason for class dropouts.”

Barriers per individual

Students’ age, transportation, family commitment, work schedule learning style (need more or less support from instructors etc.) affected their choice of online or in person classes.



Younger participants (ages 20-40 years old) preferred classroom learning and mature students (ages 40-60 years old) preferred online learning. The same trend isn’t shown in blended learning. The chart below highlighted that 75% of participants between 51 and 60 years old prefer online classes.



The student survey asked "why do you prefer online or blended classes?" As age increases so did the issue of transportation, as shown in the table below.

Age	Transportation
20-30 years old	0.00%
31-40 years old	4.35%
41-50 years old	18.75%
51-60 years old	28.57%

Family and conflicting work schedules were listed as other reasons to prefer online/blended programs. Other reasons were more consistent across the age ranges, 47% of participants chose conflicting work schedules, while only 11% chose transportation; 42% of participants gave other reasons such as comfort/convenience (3 responses), family (15), work (3), winter (1), and not currently in Canada (1).

Students who previously indicated that they preferred in person classes were asked why. Similarly, 35% of students responded with conflicting work schedules and 13% transportation. In this case, 2% responded disability and 51% gave other reasons. The most common other reasons include: interaction (9 responses), support in class (7), family (5), and learn more (4).

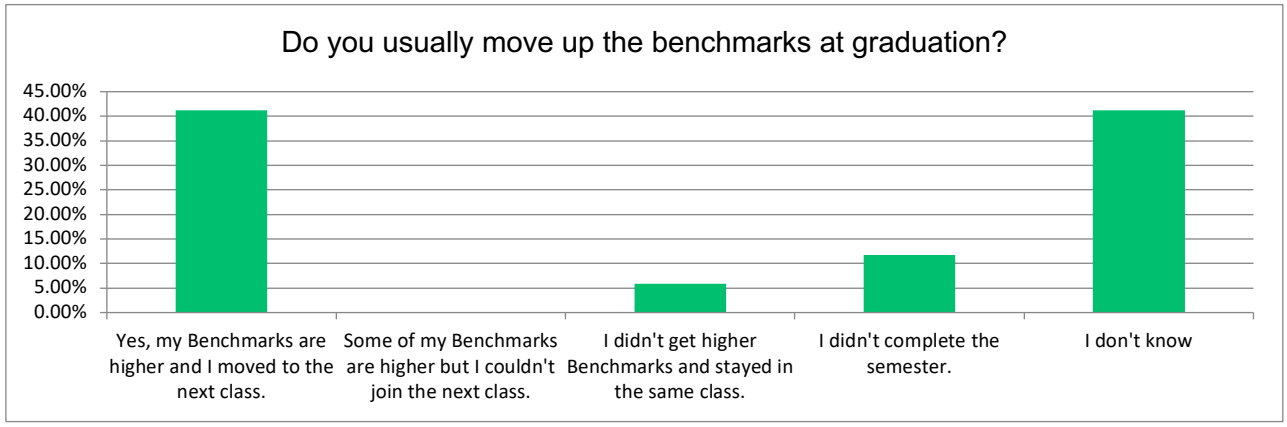
All of the students who listed a preference for classroom and blended learning were comfortable with class website but only 80% of students who listed a preference for online classes could use the class website. Only 40% of online preference learners could view the class website on their cell phones whereas all (100%) of classroom preference learners could and 90% of blended learning students could. This may be indicative of the fact that online class websites were not always accessible on cell phones rather than a reflection of the student's ability.

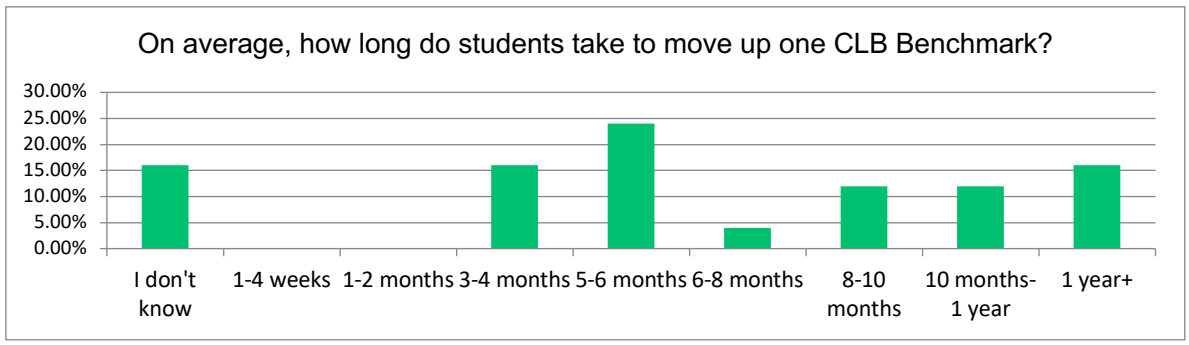
Demographics among over/underachievement

Of staff respondents, 93% stated that students' achievement was measured by the increase in students' CLB. Some programs also included students' attendance and engagement considerations. Program instructors and administration staff feedback showed that the average length of time for a student to move up one CLB Benchmark in an e-learning program was 7-8 months and the students' survey confirms this result: on average, students spent 7.3 months to move up one CLB benchmark. Among the 11 programs, respondents indicated that 17-25% of students moved up one CLB Benchmark per session. If the measurement of student's success was based on student's progress in CLB, the suggested length of each session could be 6-8 months.

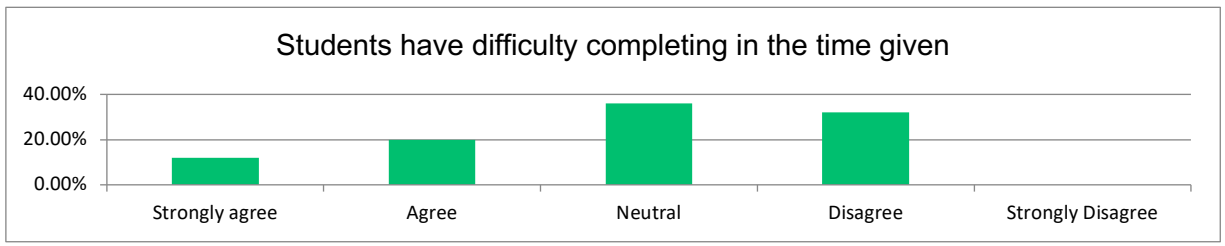
66.7% of programs reported that over 40% of students moved onto to the next CLB benchmark per session. 41.2% of students reported increasing at least one benchmark at the end of each session. The interesting fact was that about 40% of students answer "I don't know" when they were asked "Do you usually move up

the benchmarks at graduation?" There could be more follow ups in regard to why the students didn't know the answer while over 79% of student participants of the survey reported the months they've spent in their e-learning programs to move up one benchmark.





There were similarities between the group which moved up CLB benchmark in 3-4 months and those who took over one-year. Both group's success was measured by assignments and assessments. Similar tech supports were available as well as the amount of class time spent on I.T. issues. Differences appeared in the staff views on students who have difficulty completing in the time given. Staff listed common difficulties completing in time as: family, work, and other commitments as well as internal factors such as digital literacy, time management, motivation and self-discipline. However, students showed less concern with the length of time to complete the class, with only 19% saying they agreed or strongly agreed that it was hard to complete the class in the time given, and 38% of students disagreeing or strongly disagreeing with this. The 3-4 month group responded as neutral or disagreed but the over-one-year group strongly agreed or was neutral. Even though students have over one year to move up they still struggled with the timing whereas the 3-4 month group felt that the timing was more appropriate.



The research confirmed that the number of hours a student spent studying English was directly related to the student's achievement. In the amount of hours spent, students varied greatly from zero hours to over eight hours of practicing English each week.

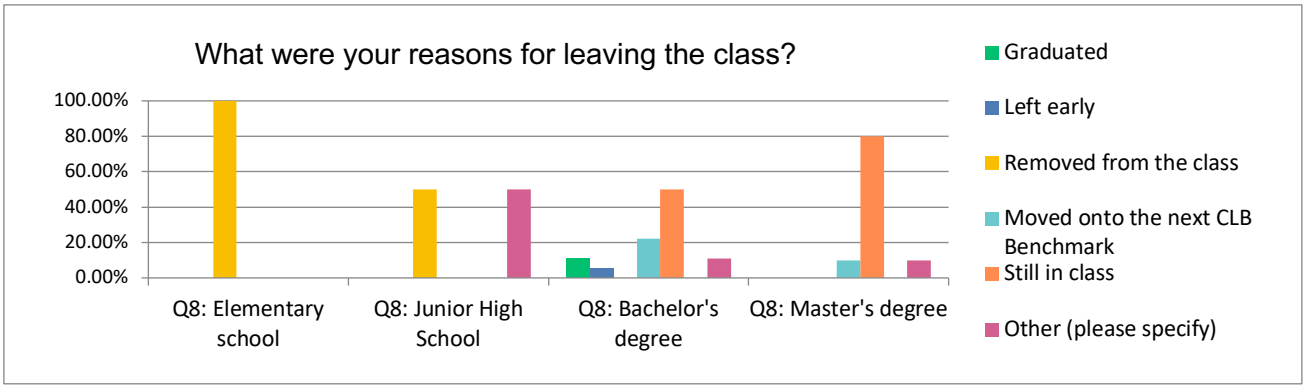
Hour Per Week Spent Practicing English	Percent
0 hours	7%
1-2 hours	20%
2-3 hours	12%
3-4 hours	10%
4-5 hours	8%
5-6 hours	12%
6-7 hours	7%
7-8 hours	3%
8+ hours	22%

As expected, students who have studied longer were more likely to move up to the next benchmark. Both the surveys and staff comments revealed that "some students haven't done any studying in years". Students with little previous experience may need to be shown how to study for an e-learning course. A teacher remarked that "student's need to know their own speed. Were they a fast or slow studier? Then schedule appropriately for the time needed." This is great advice for students. Low digital literacy could include a "slow down with keyboarding ability. [With] pen and paper [students] would be able to complete faster". Students need to schedule their time appropriately. Also there was a "lack of time to complete their homework due to other commitments". In the interviews, staff noticed the literacy, digital literacy and other commitments are challenges. Staff showed a greater concern for students having enough time to complete the course than students. Students may need instruction on time management to increase their awareness of how much time to dedicate to the course each week.

Demographics among withdrawal from class

Drop Out

After starting the e-learning program, there was quite a high percentage of students who dropped out of the program according to the survey responses. All of the programs reported students dropping out before completing the program. 55% of the organizations reported a drop-out rate between 30-39%. It was not surprising to see that a third (32%) of students having difficulty completing in the time given. Students with less previous education were removed from the class but those with more education left voluntarily, were still in class or progressed. Students with more education did have more positive outcomes.



Students who didn't complete the semester expressed more concerns that there was not enough time to complete the class. All (100%) of students who didn't complete the semester or stayed in the same class but didn't get higher benchmarks, preferred online classes. Students whose entry benchmarks were higher and moved to the next class had mixed preferences. Some prefer online, some blended and some preferred face to face. The students listed increased interaction as their reason to prefer blended or classroom.

Instructor observations across PNT identifying obstacles to digital literacy, e-learning and experiences with students

Obstacles to digital literacy and e-learning

Through the surveys and interviews, instructors and program administrators identified the obstacles to digital literacy, e-learning and shared their experiences with students. Both hard and soft skills were identified as necessary for student's success in e-learning.

The research confirmed the needs for several soft skills. First, time management was a soft skill that staff identified as essential to students learning on line. 32% of staff believed students had difficulty completing tasks on time. The sentiment that students needed to learn time management skills, as the students have busy lives, reoccurred throughout the survey responses. One staff member said:

> "*Students who have low computer or English skills have difficulty completing their work. Many adult learners have difficulty completing their work due to work/family responsibilities. You have to be pretty disciplined to complete an online class. I find the requirements for online classes are more demanding/ time consuming than face-to-face class*".

Another staff member showed concern that "people often over-extend themselves and think that online courses are less demanding than F2F ones. This wasn't true." Work schedules, family and other obligations were listed as common distractions. Time management skills which were already included in the PFOL should be expanded from identifying common distractions to include how to handle distractions.

According to staff, test anxiety was another soft skill identified that students need. A coordinator explained how the "e-learning courses are hardest at the beginning because students don't know what to expect but after the first two tests then they get the routine". Students need to know what to expect on the test and how to adequately prepare. It could be a long time since students have taken a test and need some assistance in how to overcome test anxiety.

Also, higher level reading skill was highlighted as important for the text rich on-line learning programs. Similarly, it may have been quite a long time since students have been in school. One staff explained that

students who “don't have a good background in learning from reading and written feedback makes it harder for them” in e-learning classes. The ability to study and learn from written feedback should be reinforced. Written feedback should be clear and concise to ensure it was understood by CLB 3 learners.

Finally, “The course is the hardest at the beginning because students don’t know what to expect.” Expectation management could ease student’s fears when they know what to expect and what is expected of them. One staff recommended instructors “need to be clear to students of expectations for an online class. Students were expected to be tested every three months even if instructor knows students aren't ready. This can shake student's confidence.” Some staff sent students an introductory email which students “find very helpful in terms of what to expect rules wise”. For example, time frames for the class, digital literacy skills required to be successful, number of hours expected to study each week, and how often they should log in. If e-learning programs do not provide this information for students, then students need to know how to ask for this information.

Staff and students identified the technical skills needed for on-line learning. Before starting an online class, do students have sufficient knowledge of technical skills? What kind of technical skills should they have? These questions were explored from students’ responses and staff’s observation.

Student survey responses showed the most difficult tasks related to students’ online learning experience:

Check all that you found hard about learning online:		
Answer Choices	Responses	
Reading the information	11.63%	5
Typing	18.60%	8
Email	11.63%	5
Class website	13.95%	6
Login/Password	18.60%	8
Downloading to the computer	23.26%	10
Teacher's instructions	11.63%	5
Hearing the teacher	20.93%	9
Doing the assignment	23.26%	10
Submitting the assignment	16.28%	7
Schedule	18.60%	8
None of the above	37.21%	16

One staff remarked that “only half have the computer skills needed”. Staff reported several computer skills that students should have so as to be able to function in an on-line program:
Skype and the QWERTY keyboard skills were frequent concerns of the instructors and program staff.
Skype is a tool to connect students and staff but it comes with its own obstacles. Sometimes “Skype disappears from computer” completely. Or Skype was updated and students have difficulty navigating the new version. It can be difficult to use “Skype and Moodle. Being able to see both at the same time, [plus] sending files within skype”. Another staff identified frequent concerns as

> *“usually related to the login or updates with skype. Some students I suspect don’t have a robust enough internet package to keep up with Skype so they like to use phone calls instead. Or just robust enough internet to make their camera work if the teacher is using a webcam option in skype instead of just a phone call option.”*

The QWERTY keyboard concern was associated with student's keyboard skills. Staff believed only 64% of students had the keyboard skills they needed to complete the class. Some students may have used a keyboard before but it was not necessarily a QWERTY keyboard. A coordinator explained that "sometimes the keyboard is very confusing for them because of the alphabet we have and the alphabet they understand is different". They went on to say some students "don't know the difference between shift and caps lock". In addition to being a QWERTY keyboard, there was also a difference between learning to type on a cell phone and on a computer. One staff member suggested that students should learn keyboard skills in the NICO orientation because it

> *"would be helpful for a lot of our students who have not used computers very much…in a lot of countries, particularly in India and in the Middle East, they have a very high access to cell phones but they don't necessarily all own a laptop at home. So in that case they could be really good at typing on a cell phone but they are not necessarily going to be typing on a keyboard. Right? Because keyboarding is almost old fashioned for a certain segment of society. They are actually ahead of us because they have nicer cell phones than we do, in some cases. But they didn't get that formalized classroom training".*

The staff member went onto explain that the keyboard can be a "like a foreign object" especially for students whose first language is written in the opposite direction to English. Whether it is learning a new program such as Skype or becoming familiar with the QWERTY keyboard, both of these obstacles take time away from learning English in-class.

Downloading was an essential skill that students need to be good at. When asking both students and staff if the students have to download anything to the computer before starting class: 40% of staff answered yes, 36% no, and 24% I don't know; students responded yes 51%, 47% no, and 2% other. As the distribution of responses was different in both surveys, the number of responses from each organization was different for each survey therefore it was not expected that the responses would be identical. Both staff and students listed downloading software before starting the course as one of the most difficult activities.

Students also needed to have some browsing skills and remembered some basic trouble-shooting tricks to deal with certain and frequent compatibility issues. Some students and instructors mentioned that the Adobe Flash player doesn't work with certain LMS and browsers. The research identified that navigating the internet could be a challenge as "a few students don't know how to use a browser and clicking and writing". Plus, some e-learning programs, notably LINC home study, was only accessible on certain browsers. A staff member explains "I would guess that none of our students have Macs, they all use PCs…because I know there is only a certain number of browsers that they can use that consistently let you/let that website run actually". A barrier for students was that they may have to download flash player, try multiple browsers or download an additional browser before they are able to start the course.

Last, students need to be familiar with the LMS. One staff member commented on the difficulty of navigating the LMS for students by saying that it is "easy for students to navigate after only a month of practice. Students struggle when they can go three different directions from the same page. They have trouble knowing which page to proceed with". Although this said, it was encouraging that it only took a month of practice. The researcher was concerned that if the students spent a whole month frustrated with these obstacles, then they may fall behind in the class or drop out of the class in frustration.

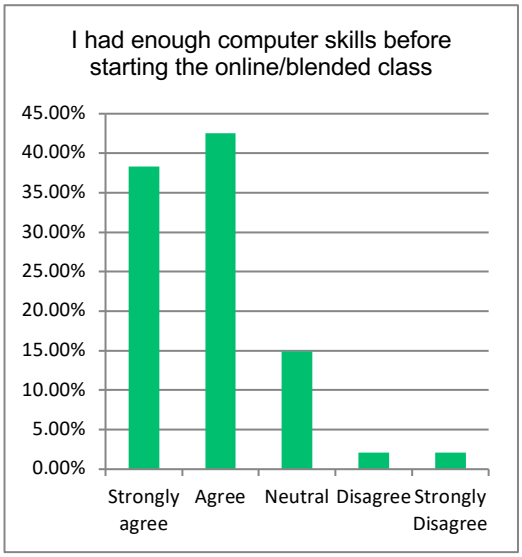
From student's responses, a variety of computer skills were required to solve the problems they met in on-line learning. When students listed the computer problems they had during class, the responses confirm the type of skills needed. The computer problems they listed were:

software issue/internet/website is slow (6),
audio (audio links/corrupted/mic/can't record voice) (6),
other (2),
typing (1),
can't use on cell phones (1),
computer broken (1),
taking notes while teacher is reading (1),
and download/upload/submit assignment (1).

The "submitting the assignment" reflected an obstacle that instructors have experienced with the LMS too. Instructors agreed marking and editing students' work was difficult within the LMS. A LINC home study instructor commented on how "editing student's writing online was very time consuming and could take up all of the 30 minutes with the student." Another instructor expanded on the same notion by saying "I would like easy to use editing program. I use google documents suggesting mode but want a less time consuming program built into LMS. Teachers do hours above what they are paid for. Time which is spent marking."

Although confident, students and staff spend quite a lot of time struggling with technical issues

It seemed that students were confident and have enough skills to handle problems. The majority of students (81%) confirmed that they have enough computer skills before starting the online learning and 49% of students have attended online courses before starting the current online program. On top of the confidence in computer skills, the over 85% of students were able to type a paragraph, use the internet, setup an email account, send emails with an attachment, contact the teacher, download to the computer, and understand the language used. The tasks they were not confident with include: to record my voice on the LMS and view the class website on my cellphone. There were 4% of participants who were not able to perform tasks at all on computers.



I am able to		
Answer Choices	***Responses***	
Type a paragraph	91.49%	43
Use the internet	95.74%	45
Setup an email account	87.23%	41
Read and send emails	95.74%	45
Send emails with an attachment	93.62%	44
Contact the teacher	91.49%	43
Record my voice on the computer	61.70%	29
Download to the computer	87.23%	41
Use the class website	91.49%	43
View the class website on my cell phone	70.21%	33
Understand the language used on the class website	91.49%	43
None of the above	4.26%	2
	Answered	**47**
	Skipped	**39**

Check all that you found difficulty about learning online:

	Reading the information	Typing	Email	Class website	Login/ Password	Downloading to computer	Teacher's instruction	Hearing the teacher	Doing the assignment	Submitting the assignment	Schedule	None of the above
Q15: Under 1 week	27.27%	27.27%	27.27%	36.36%	36.36%	36.36%	27.27%	27.27%	36.36%	27.27%	27.27%	27.27%
Q15: 1 year +	9.09 %	18.18%	9.09 %	9.09 %	18.18%	9.09 %	18.18%	18.18%	36.36%	18.18%	9.09 %	54.55%

Check all that you found easy about learning online:

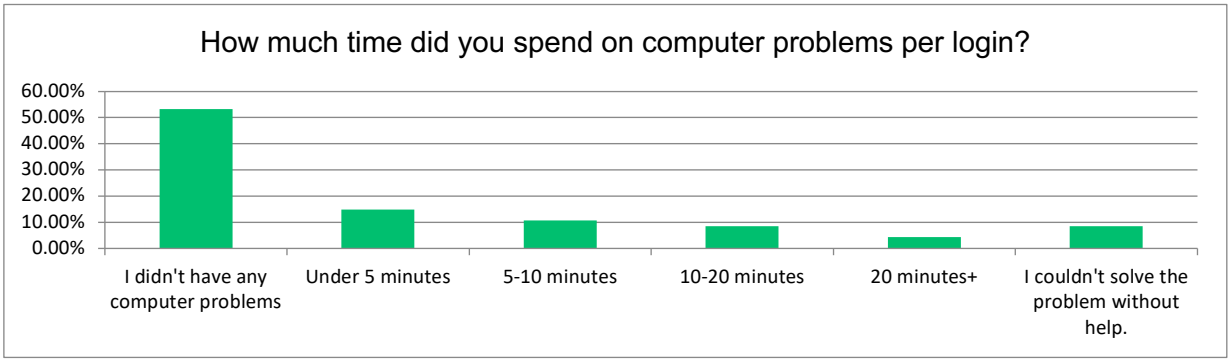
	Reading the information	Typing	Email	Class website	Login/ Password	Downloading to computer	Teacher's instructions	Hearing the teacher	Doing the assignment	Submitting the assignment	Schedule	None of the above
Q15: Under 1 week	81.82 %	45.45%	72.73 %	72.73 %	72.73 %	63.64 %	72.73 %	63.64 %	72.73 %	72.73 %	54.55 %	9.09 %
Q15: 1 year+	91.67 %	83.33%	91.67 %	91.67 %	100 %	100 %	91.67 %	91.67 %	75.00 %	100 %	91.67 %	0 %

Students who were in the class for less than one week had a higher percentage of difficulties with technical parts of the course and that they found hard. The converse was also true; those in the class for under a week have fewer technical parts of the course that they found easy. Those who were in the class for less time thought technology was more challenging than those in class for over a year. Time and practice increased students comfort level with technology.

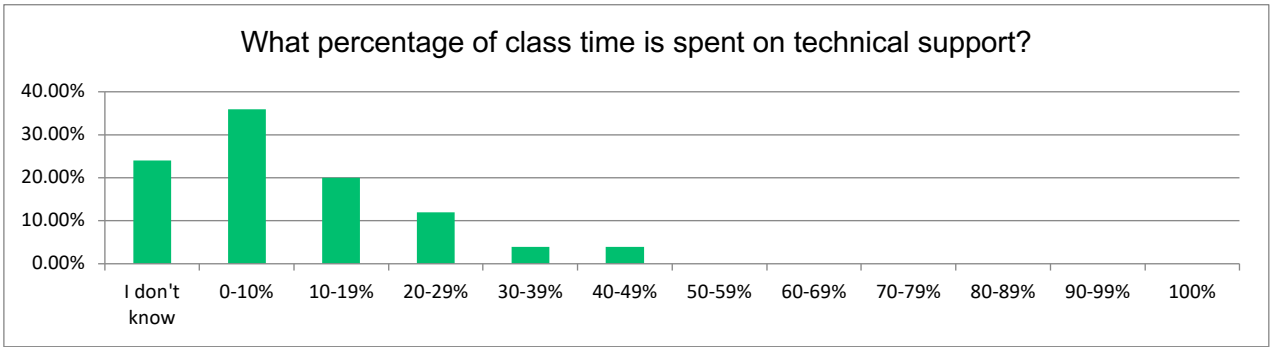
Also, students' computer skills level was associated with their age: 75% of students aged 51-60 had not taken computer classes before compared to 50% of 20-30 year old students. Students aged 51-60, however, had higher confidence in their computer skills when starting class. When the 20-30 year olds were asked if they had difficulty logging in, none of them did, whereas 25% of the 51-60-year old had difficulty logging in. Throughout the course 20-30 year olds indicated having a higher percentage of difficulty with the components of learning online. Of the students, 38% of the 20-30 year olds indicated there was no one to help them with computer problems whereas the 51-60 years olds all reported having someone to help them. Also, 13% of the 20-30 year old students compared to 50% of 51-60 year old students thought the words on the LMS were a little difficult and want clearer sentences.

The data of currently available technical support and program orientation proves that most programs provide insufficient support.

The survey shows that students spent quite a few times per login to deal with the technical problems:



While program instructors, coordinators and managers spent a significant amount of time helping students with technical issues, staff gave the percentage of class time spent on technical support as follows:



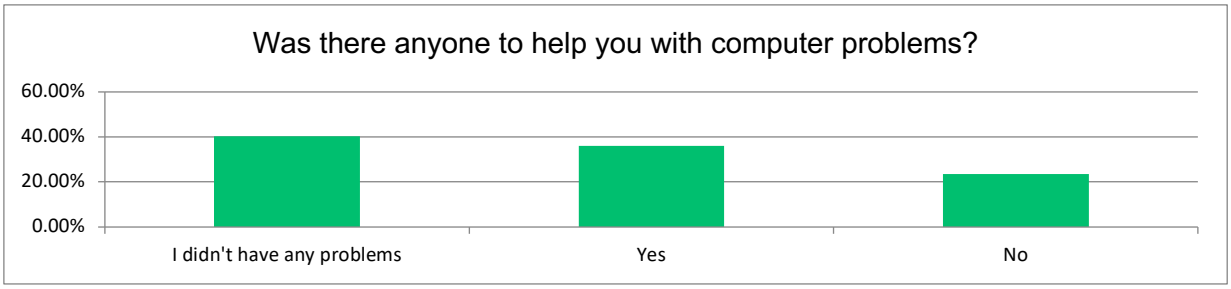
Please keep in mind that the overall time spent may be higher as several of the organizations have an IT person or other supports outside of class. Staff also remarked that they spent time outside of class time helping students with IT issues that was not included in the percentages shown above. A manager commented "the teacher spends a lot of time troubleshooting issues. It is only when they can't that it comes to me, which makes me wonder how much time they are spending". Throughout the classes, the time spent dealing with technical issues in each class may be lessened because of the large percentage of the first class that is dedicated to digital literacy. One coordinator explained how the LINC home study teachers

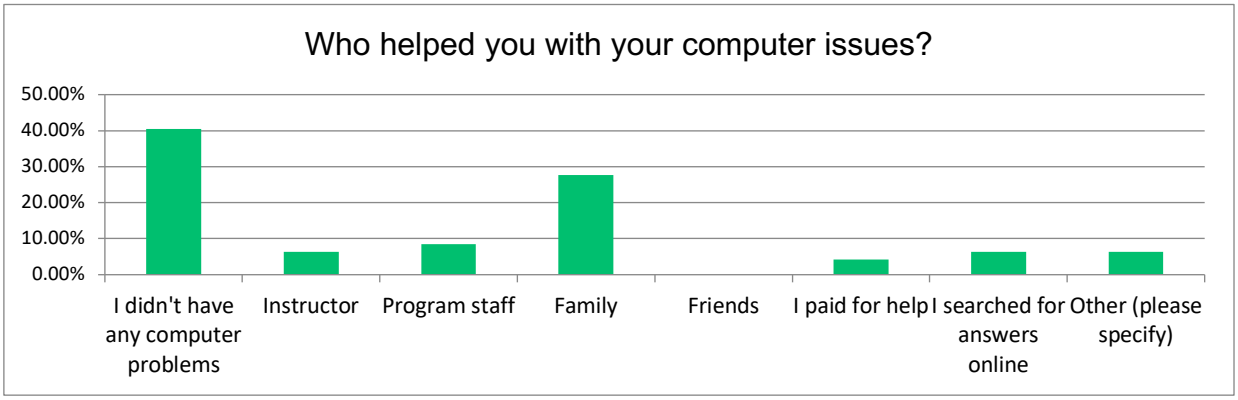
> *"spend most of the first class initiating the students to the website. At least 75% of the first class, maybe even the whole thing and even a bit more time, then there usual 30-minute call for the first class with home study students just getting them used to the website, cause it's not the most intuitive thing by my reckoning".*

Likewise, another staff identified a solution

> *"at the beginning of a session, students usually experience quite a few technical issues. The first couple of weeks of a session are designed to help students with these issues. The assignments are lighter in these introductory weeks to allow students to get up to speed".*

If the time spent on digital literacy could be taken in the NICO orientation instead of the English class, then less English class time would be spent on digital literacy.





Other responses above included none (1) and myself (2).

Communications between students and staff were not sufficient

Students did seek several sources for help with technical issues. Although, communication of technical issues between students and staff/instructors appears low, one coordinator commented on student's reluctance to bring up technical issues with staff. "I don't tend to hear too much criticism from students but at the same time students aren't tempted/tending to be critical. They tended to think it's me, not the system." A LINC home study instructor remarked: "They didn't email me questions. They kept the questions for the skype call." Another teacher commented, "learners are often reluctant to 'bother' their instructor". A teacher commented in an interview, "often students have kids/teenagers who help parents with technical issues. Many times student couldn't get through course without it." A coordinator highlighted students in the "previous group with CLB 3 and 4 learners [who] may have had more problems but didn't reach out to me because of the language level." An instructor commented in an interview that there were not very many technical issues for students. But how would they know if the students don't bring up technical issues? Because of this, the researcher believes there are more technical concerns than those disclosed in the research.

When staff were asked "How frequently do students need technical support?" Staff's responses were:

Constantly/frequently (10 responses)	Someone else helps them (1)
At the beginning (5)	Some activities harder than others (1)
Not very often/rarely (3)	Prerequisite module for students to learn tech skills (1)
Depends on student's digital literacy (3)	

Insufficient IT support

What were the solutions to IT problems? What did you do to help?

Tech support/Refer to IT (9)	Expanded bandwidth (1)
Troubleshoot with students (9)	For personal computer issues, students are on their own (1)
Share our screen/Student share's their screen (4)	LMS is maintained by teacher and coordinator to avoid problems (1)
Orientation (3)	I don't know. I found someone using the same program in another city and I contact him to ask questions. (1)
We offer free Wi-Fi (2)	it is better to have a hotline. (1)
Computer labs (2)	They quit logging in because they cannot read well enough to navigate the online class. (1)
Built my own help area (1)	I'm not an instructor with a class; I'm an administrator. (1)

Common technical support issues or questions staff could help with

Navigating (10)	Logging in/out (3)
Refer to tech support or coordinator (5)	None/NA (3)
Software downloads/updates (5)	Only basic IT issues (2)
Recording audio/microphone issues (5)	Google drive/google docs (2)
Saving/submitting assignments (5)	Microsoft Word (2)
Email (4)	

Common technical support issues or questions staff couldn't help with

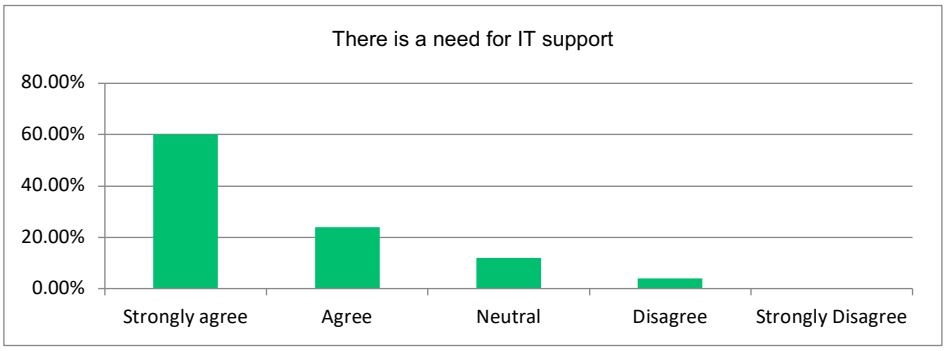
Anything specific to a student's device (6)	Recording audio/microphone issues (3)
NA (4)	I refer for tech issues (2)
All (3)	Student's computer is in another language (2)
Recovering passwords (3)	I can't help students with low digital or traditional literacy (2)
Insufficient Wi-Fi/internet connection (3)	Student's don't ask for help so instructor doesn't know what the issue is (1)

Currently, programs within organizations that have IT departments depended on the IT department for support, while those without were depending on the instructors and administration staff, or the students just had to figure out technical problems by themselves. Their helpers included instructors, program staff, family, friends, paid services outside, and searching for solutions online, which we assume is very time consuming.

Staff listed the current technical supports available as:

Tech support person (10 responses)	Videos (2)
In class/instructor (7)	None (2)
Admin/coordinator/manager (5)	Look for IT supporter (1)
Online help/online support button (2)	Library assistants (1)
Computer lab (2)	Phone (1)
	Staples store (1)

Even though not all organizations currently had technical support, 84% of staff agreed or strongly agreed that there is a need for I.T. support. Only 4% disagree or strongly disagreed with 12% being neutral.



Does the government provide funding for IT support?	
Answer Choices	Responses
Yes	24.00%
No	28.00%
I don't know	44.00%
Prefer not to say	4.00%

Some organizations provided some introduction to basic technical skills in the orientation. The survey also explored available Orientation and Start of Class which confirms the gap in supports available to students. 16 staff indicated their organization has an orientation and only 3 do not have an orientation. Only 3 out of the 16 indicated their orientation was in class instead of virtual. It is encouraging to see that most organizations have an orientation. Students indicated that the class introduction teaches them about:

use class website/email/username and password (15)	use computer (4)
Other (14)	download/setup computer for class (3)
NA/none (6)	online interaction and practicing activities (2)
rules/objectives/format of the course (5)	

During interviews, staff explained to the researcher that they spent a large part of the orientation or the first class helping students with logging-in and navigating the website. With that in mind, it is not surprising to note that 89% of students said they didn't have problems logging-on in the class. As most students did not have any problems logging-in it is promising that these skills can be taught. Staff and students still identified navigating the website as a common concern that requires more practice. Other common difficulties that were not addressed in the orientation were downloading software, audio/microphone issues, and basic troubleshooting. Basic troubleshooting could include what to do when a common error message pops up, the computer was slow or frozen, or when the internet connection was slow. Students also had difficulty accessing the class on their cell phone but the researcher believes this may be due to a limitation of the LMS. Other soft skills identified to succeed in class but missing from the current orientations were time management, test anxiety, learning from written feedback, how and when to ask for help.

Summary

Summary of consultation held with newcomers, employers, service providers and other stakeholders in the community

Consultation with new comers, employers, service providers and other stakeholders in the community revealed several concerns across on-line English education. The first concern is that there was insufficient communication between students and staff in general. Data showed that student's reporting of technical issues is low. Students might not admit to the staff that they had a technical issue. One staff commented that "learners are often reluctant to 'bother' their instructor." A coordinator commented

> *"I don't tend to hear too much criticism from students but at the same time students aren't tempted/tending to be critical. They tend to think it's me, not the system." A LINC home study instructor remarked "students kept up well in the course. The Skype one on one weekly meeting with the teacher kept them accountable. They didn't email me questions. They kept the questions for the skype call*."

For e-learning classes that don't have a weekly call or Skype with their instructor, were the student's technical issues not being raised because students didn't see it as being a big enough concern to 'bother' their instructor with? Was this reluctance or inability to express their technical concerns in English? Learning basic troubleshooting skills will help them to recognize when there is a concern.
In the NICO orientation students also need to be given the technical language to describe their technical concerns as well as encouraging students to ask questions when they cannot troubleshoot the question on their own. Students can be reassured that they are not expected to know all of the technical components immediately as that is what NICO is there to teach them.

An instructor said in an interview, "I give suggestions but coordinators usually help them with IT problems." Their coordinator also said "so far I've never had a student asking me how to use a computer." Both thought the other was providing the service but they were not. Do students not have any technical difficulties or they just not being brought forward either because they don't know who to talk to or how to express their technical difficulties out loud. Are students having more technical difficulties than staff are aware of? Students and instructors were not in the same room and as such Instructors would not see student's hesitation to click on buttons or their nervousness and frustration with computers. Students at CLB 3 might not have enough language to articulate these issues to the instructor or the confidence to bring it up with the instructor. An instructor said in an interview that there were not very many technical issues for students but it leaves one to wonder, how would they know if the students don't say? The researcher asked a coordinator "Do you teach basic troubleshooting?". The coordinator responded that students had "less trouble than expected with activities within Moodle. Previous group of CLB 3 and 4 learners may have had more problems but didn't reach out to me because of the language level." Student's technical concerns were not always raised to staff. An orientation to increase students' digital literacy skills and give them the terminology to discuss technical issues will support the students' growth.

Another concern has been brought up by instructors, coordinators and managers of e-learning programs. Most program staff had strongly voiced arguments against the instructor being the main technical support contact and wanted to see increase self-reliance by students. Staff believed technical issues were not an appropriate use of class time and required a different skill set to be effectively taught. Even though

> "*it is imperative that there is continuous tech support for instructors and learners, language instructors don't have (and shouldn't have to spend) time troubleshooting technical issues unless they are minor and related to an immediate need during class. Supporting instructors and honouring the different expertise required to provide appropriate tech support is important but often overlooked*".

Another instructor explained that "my time is valuable. This isn't my area. It can be frustrating to solve issues without having language to explain." Staff preferred to have technical support or the teaching of digital literacy skills for self-sufficiency rather than the instructor be the main technical support contact.

Digital literacy was facing program structural barriers reflected from both the program staff and students' perspectives. Most of the programs did not budget for technical support hours despite the definite need. 40% of students claimed that they didn't have any problems technically, while 36% engaged other people's help. The fact is, about half of students had to spend some time dealing with computer problems per login. The time spent could be as long as or more than 20 minutes per login. Classes with low drop out rates had staff listing there was very little technical concerns that they couldn't help with. The opposite also appeared in the research; classes with high dropout rates had staff commenting that they didn't help students with technical concerns and when they did it was only if the question was under two minutes. The percent of time spent on I.T. support decreased as the dropout rate increased. It was important to note that both low and high dropout rate classes reported similar technical supports available to students. Plus, the same LMS was in use across low, middle, and high dropout rates. Further technical supports will help students be successful in e-learning.

Due to the general absence of funding to support digital literacy, the lack of systematic targeted digital literacy training or support has caused problems. One program which was serving students residing in the urban area had to offer drop-in services to help students with their devices and the service had to be on a volunteer basis due to the lack of budget. Currently, some organizations have developed their own orientation material for e-learning students and ten out of twenty-two organizations provided orientation. The orientations have helped some students as the students' feedback showed. If funding to support digital literacy increases, then more organizations could provide orientations and other support for students. The NICO Curriculum will be a practical tool to address, ambitiously, all of these concerns and the needs identified from this research.

Besides the needs that will and can be addressed through NICO curriculum, there were some feedbacks specific to LINC Home website and the Learning management system, which we reported below for the reference of IRCC. Several staff have brought up how dated the LINC home study materials were in interviews. For instance, "hardcopy newspaper instead of finding online job adds". Or another staff said "it being dated is always an issue. It hasn't been updated for eleven years. So things change. I know there is a thing about digital cameras. Uh huh. Nobody has those". A staff agreed that "the vocabulary is dated. You know. They tell you idioms. Well ten years ago people were saying that and not so much now." A third staff said "Some materials on the LMS are out of date and Ontario-centric so less relevant to the needs and interests of learners here in Calgary". In addition to it be dated, staff would like to see it more relevant to their region and more relatable for students. One staff explained how they "would like to see more famous Canadians to bring cultural element to activities. Currently it profiles an opera singer which could be replaced by hockey player/pop star/scientist; someone that students are more likely to recognize". However, these concerns were only expressed in the LINC home study programs and not all e-learning programs.

Tasks within the LMS requiring higher essential skills could be a barrier for students. For example, navigating a page which can go in three different directions from the same page, or where there were multiple complex steps to complete a task, or even, too many different types of tasks within the course. Staff have found it beneficial to start with simple navigation. One instructor stated "at first, I build up the student's confidence with the LINC home study website for several weeks before using other websites" because "before students had questions about external websites. Now when I use external websites I purposefully pick websites that are easy to navigate". Staff recommended "an introductory orientation to digital literacy class is needed because it's too challenging for these students to learn two things at the same time". The two things being digital literacy and the e-learning course content.

To sum up the research findings, we concluded that:

- Students need to overcome multiple barriers to be successful in e-learning.

- There is a shorter waitlist for Low CLB students to start e-learning classes.
- The decrease in interest may be due to the barriers students' have experienced in entering e-learning and during their e-learning classes.
- Increasing the number of seats for high CLB e-learning classes is recommended due to the long waitlists.

In the research, students and staff expressed the desire for I.T. supports for e-learners. By providing funding for I.T. support staff this will ease the burden placed on instructors and other staff. Most organizations offered orientations. But students and staff identified barriers that were not adequately addressed in their orientation. The NICO orientation will be open source software which organizations can use to help students overcome these barriers and develop their digital literacy skills.

The NICO curriculum should be created with adult learners in mind. This includes respecting their right to choice and understanding that their time is valuable. The text rich PFOL curriculum will be revised to make the PFOL curriculum accessible to CLB 3 students. Hard skills mentioned in the PFOL, such as typing and hardware troubleshooting, will be expanded to help all students overcome the barriers identified in the research. Likewise, soft skills, such as time management and community, will also be addressed.

In the next phase, the needs identified in the research will be the focus for revising the PFOL curriculum to assist students with overcoming barriers.

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