THE IMMIGRANT EDUCATION SOCIETY

RESEARCH AND PROGRAM DEVELOPMENT DEPARTMENT

Hybrid Education Literacy Learning Optimization (HELLO)

Impact Assessment of a Toolkit on Digital Literacy and Attitudes Toward Computers in LINC Literacy Students

THE IMMIGRANT EDUCATION SOCIETY

This report was produced by the Research & Program Development Department at The Immigrant Education Society (TIES).

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About The Immigrant Education Society

The Immigrant Education Society (TIES) is a not-for-profit registered charitable organization that has been actively serving newcomers and low-income Calgarians since 1988. TIES' primary goal is to provide immigrants and economically disadvantaged individuals with a solid foothold in Canada and afford them the opportunities to feel belonging in their new community.

TIES is governed by a Board of Directors made up of devoted community-minded volunteers and operates through funding from both government and private organizations. From our humble beginnings, TIES has grown from five volunteers in a single office to an employer of about 146 dedicated staff members and over 200 volunteers.

TIES now operates and is in full ownership of two large facilities in Calgary's Forest Lawn and Whitehorn and in December of 2021 expanded its services to a new, larger facility in the Westwinds area of NE Calgary. Since its inception, TIES has assisted over 300,000 clients to strengthen their identities as members of Alberta society, offering services valued at tens of millions of dollars.

About the Research & Program Development Department

The Research & Program Development (RPD) Department at TIES aims to move the organization toward greater use of evidence-based knowledge, best practices, and data to inform its efforts to help newcomers settle into Canadian society. RPD operates in 3 streams of services:

ACADEMIC RESEARCH

RPD employs researchers experienced in quantitative and qualitative methods;

PROGRAM DEVELOPMENT

Identifying community needs, designing a solution and piloting it in an implementation phase;

THIRD-PARTY EVALUATION

Providing contractor service varying from program evaluations to systems mapping, community engagement, satisfaction evaluation and so on.

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Executive Summary

The current report is a part of the ***Hybrid Education for Literacy Learners Optimization (HELLO) study***, aiming to evaluate the impact of the HELLO toolkit[1] on digital literacy skills, attitudes toward computers, and satisfaction with hybrid delivery mode. Over the course of one semester, six dedicated TIES literacy instructors actively integrated the HELLO toolkit into their classes. Utilizing a quasi-experimental design, this exploration centers on a pilot group (n=16) and a comparison group (n=15), carefully selected from TIES literacy classes.

Key Findings:

A statistically significant difference was observed in digital literacy skills between the pilot group and the comparison group.

There is a statistically significant difference in attitude toward computers between the pilot group and the comparison group.

A statistically significant difference was observed in digital literacy skills within the pilot group before and after the implementation of the toolkit, underscoring the toolkit's effectiveness.

Significant positive shifts in attitude toward computers within the pilot group before and after the implementation of the toolkit indicate its impactful influence.

Most clients expressed satisfaction with hybrid education, viewing it as a viable option in emergency situations. However, a preference for in-person classes was dominant, primarily driven by the humanistic aspects of teaching and learning.

[1] The Immigrant Education Society. (2023). *Toolkit for sustainable hybrid instruction for adult literacy learners: Balancing flexibility & structure.* *https://assets-global.website-files.com/62a261233764c47324d0e8cc/6553c5d28d4d499632adcf22_TIES%20RPD%20-%20Toolkit%20for%20Hybrid%20Instruction%20for%20Adult%20Literacy%20Learners.pdf*

Introduction

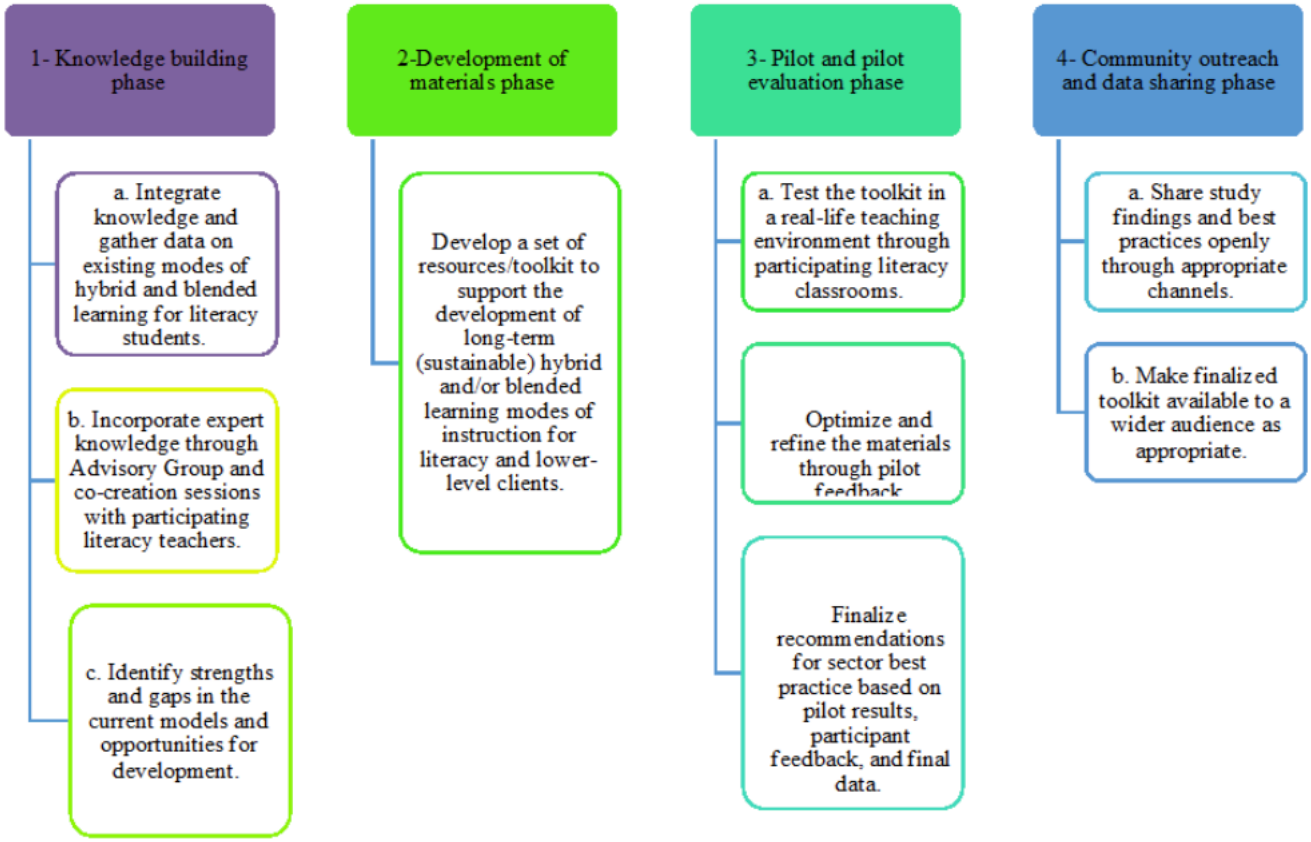
The Hybrid Education for Literacy Learners Optimization (HELLO) project emerged as a response to the evolving landscape of literacy education, particularly in the context of LINC (Language Instruction for Newcomers to Canada) literacy learners. This initiative seeks to explore and refine sustainable hybrid modes of instruction, aiming to identify sector best practices for enhancing newcomer literacy education within a hybrid format. Informed by the challenges brought forth by the COVID-19 pandemic and the subsequent shift to remote and hybrid learning, HELLO stands as a crucial endeavor to address the nuanced needs of literacy clients.

The complexities of supporting adult literacy learners are magnified by the multiple demands of supporting processes of language acquisition, familiarization with classroom routines, as well as literacy, numeracy, and digital skill development. The urgency to cultivate digital literacy skills becomes increasingly imperative, considering the prevalence of digital tools and spaces in contemporary classrooms and the broader digital landscape. The project strategically collaborates with the LINC Literacy programs at TIES and the Edmonton Catholic School District (ECSD), employing a community-based participatory research model with multiple phases of engagement from the literacy teaching community.

As illustrated in Figure 1, the HELLO project unfolded across four interconnected phases, emphasizing a holistic and collaborative approach to understanding and addressing the challenges faced by literacy learners. In response to these challenges, the HELLO project endeavored to provide educators with a toolkit of resources tailored to the unique needs of literacy students engaged in hybrid, remote, and online English language classes. By leveraging the advantages of online learning while remaining attuned to the distinctive requirements of ESL and literacy learners, the HELLO project aspires to be a catalyst for positive transformations in literacy education.

Figure 1

Four phases of the HELLO project



Methodology

Research Design: Given the participatory community-based research approach underlying the development of the HELLO toolkit, a quasi-experimental design is intentionally chosen for this impact assessment. The dynamic and collaborative nature of community-based research often makes it impractical or ethically challenging to implement a traditional experimental design with strict control over conditions. A quasi-experimental design aligns seamlessly with the real-world, community-driven ethos of the HELLO project, allowing for a more authentic examination of the toolkit's impact within the existing literacy programs.

Participants: The study involved 16 literacy students from 6 classes in the pilot group and 15 literacy students from 6 classes in the comparison group.

Measurement Instruments: A comprehensive questionnaire was developed, comprising 6 questions assessing digital literacy skills, 6 questions evaluating attitudes toward computers, and additional questions regarding attitudes toward online and hybrid classes. These questions used a Likert-scale format. An open-ended question was included to gather qualitative insights into participants' experiences regarding the hybrid classes in the pilot group. Structured interviews conducted by translators proficient in the participants' languages served as the primary method for data collection.

Intervention: The toolkit, designed specifically for literacy learners, was implemented with the pilot group over the course of one semester. This intervention aimed to explore the toolkit's impact on improving digital literacy skills and shaping positive attitudes toward computers in comparison to a comparison group.

Post-Intervention Assessment: The same questionnaire was administered to both the pilot and comparison groups after the toolkit intervention. In the case of the pilot group, the questionnaire was administered at two different time points: at the beginning and at the end of the class.

Given the current context where all TIES literacy classes are conducted in a hybrid format, with no fully in-person option available, data from new students were collected to form the comparison group. This approach ensures relevance and comparability of data.

Data Analysis: Quantitative analysis was conducted to assess the differential impact of the toolkit on the pilot group compared to the comparison group. Simultaneously, qualitative analysis was performed on responses to the open-ended question, extracting insights into participants' feedback regarding online-hybrid classes.

Findings: In the subsequent section of this report, demographic statistics of clients of both the pilot and comparison groups will be presented. Following this, inferential analysis techniques, specifically Independent Samples T-Test and Paired Sample T-test, will be employed to address four key research questions:

1. Is there a statistically significant difference in digital literacy skills between the pilot group and the comparison group?
2. Is there a statistically significant difference in attitudes toward computers between the pilot group and the comparison group?
3. Is there a statistically significant difference in digital literacy skills within the pilot group before and after the implementation of the toolkit?
4. Is there a statistically significant difference in attitudes toward computers within the pilot group before and after the implementation of the toolkit?

Additionally, clients' perspectives on their satisfaction with hybrid classes were elicited through an open-ended question, and the results were analyzed using open coding.

Findings

A- Demographic Information

See Table 1 for detailed information regarding the demographic characteristics of the participants.

Table 1

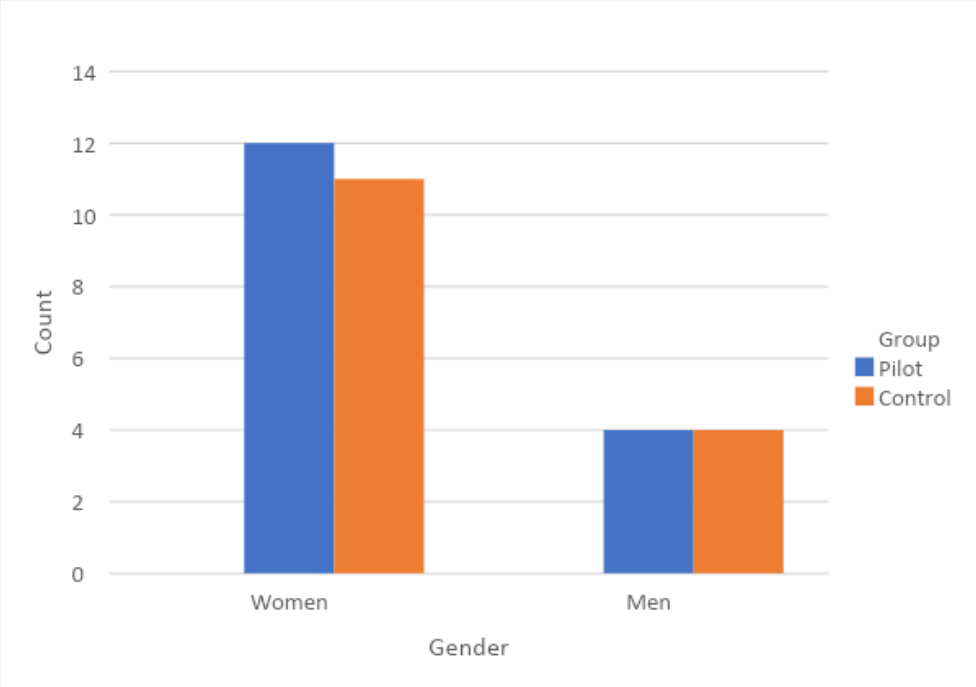
Demographic Characteristics of Participants

Descriptive characteristic	Pilot		Comparison	
	n	*%*	*n*	*%*
Gender				
Women	12	75%	11	73.3%
Men	4	25%	4	26.7%
Country of origin				
Afghanistan	4	25%	8	53.3%
Chad	0	0	1	6.7%
Eritrea	5	31.3%	0	0
Ethiopia	0	0	1	6.7%
India	1	6.3%	0	0
Iran	0	0	1	6.7%
Pakistan	1	6.3%	0	0
South Sudan	1	6.3%	0	0
Syria	2	12.5%	4	26.7%
Venezuela	1	6.3%	0	0
Language				
Arabic	4	25%	6	40%
Dari	2	12.5%	4	26.7%
Farsi	0	0	1	6.7%
Hindi	1	6.3%	0	0
Pashto	2	12.5%	3	20%
Pashto & Dari	0	0	1	6.7%
Spanish	1	6.3%	0	0
Swahili	1	6.3%	0	0
Tigrinya	3	18.8%	0	0
Urdu	2	12.5%	0	0
Age				
≤25	2	12.5%	1	6.7%
26-35	4	25%	5	33.3%
36-45	4	25%	5	33.3%
≥46	6	37.5%	4	26.7%

Gender: The majority of participants in both groups were women, constituting almost three-fourths of the participants.

Figure 2

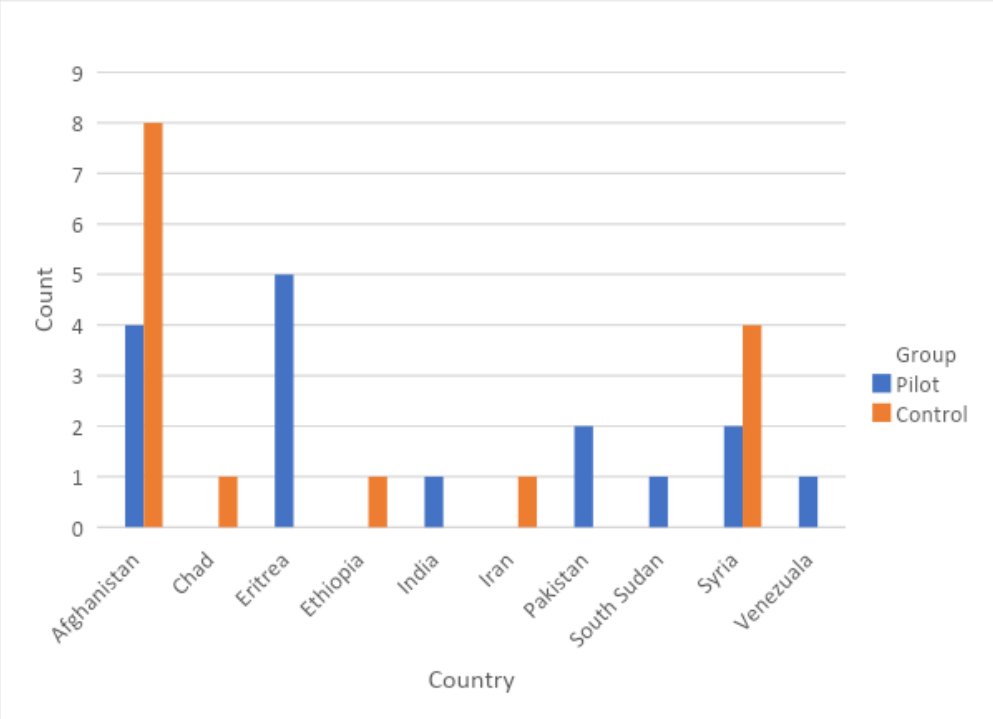
Gender Distribution of Participants



Country of Origin: Afghanistan and Syria constitute the most represented countries of origin in both the pilot and comparison groups. Notably, Afghanistan is more frequent in the comparison group, making up 53.3% of its participants. Syria, on the other hand, is consistently present in both groups, contributing to 26.7% of the comparison group and 12.5% of the pilot group.

Figure 3

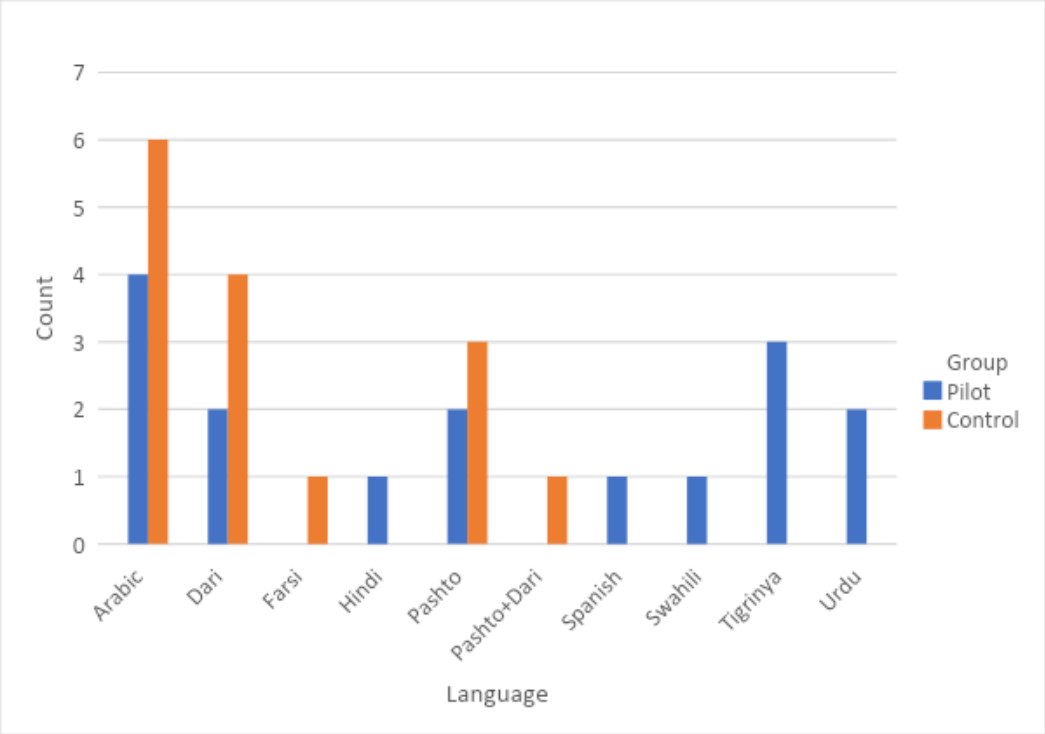
Distribution of Participants Based on their Country of Origin



First Language: Figure 4 illustrates the distribution of participants based on their first language in both the pilot and comparison groups. Arabic emerges as the predominant language in both groups, with a higher prevalence in the comparison group, accounting for 40%.

Figure 4

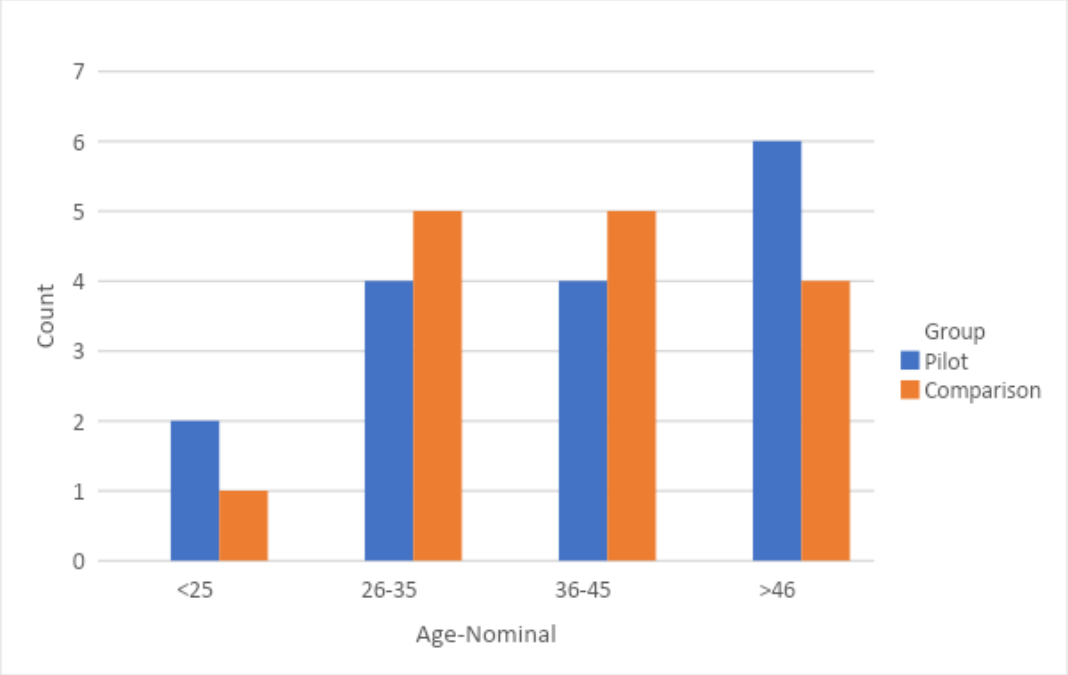
Distribution of Participants Based on their First Language



Age: In both the pilot and comparison groups, the majority of participants are aged 26 and above. Specifically, a noteworthy proportion in both groups falls within the 26-45 age range, reflecting a substantial presence of participants within this demographic.

Figure 4

Age Distribution of Participants



B- Answering Research Questions

Research Question 1: Is there a statistically significant difference in digital literacy skills between the pilot group and the comparison group?

To assess whether there is a significant difference in digital literacy skills between the pilot and comparison groups, independent samples t-test was conducted. The descriptive statistics indicate notable differences in digital literacy skills between the pilot and control groups (Table 2). The digital literacy skills in the pilot group (M = 9.75, SD = 3.29) increased by approximately 74% compared to the comparison group (M = 5.60, SD = 5.475)[2].

The results of the independent samples t-test further confirm these observations, indicating a statistically significant difference in digital literacy skills between the groups (t (29) = 2.576, p = .008). The t-test statistics are summarized in Table 2.

Table 2

Test Results for Digital Literacy Skills Comparison between Pilot and Comparison Groups

Group	Pilot		Comparison		T (29)	*p*
	M	*SD*	*M*	*SD*		
Digital Literacy Skills	9.75	3.29	5.60	5.47	2.57	.015

[2] The increased percentage was calculated using this formula: (Mean Pilot−Mean Comparison)/Mean Comparison×100.

Research Question 2: Is there a statistically significant difference in attitudes toward computers between the pilot group and the comparison group?

To examine differences in attitudes toward computers between the pilot and comparison groups, an independent sample t-test was employed. The results (Table 3) revealed that the pilot group demonstrates significantly higher levels of positive attitudes (M = 9.81, SD = 4.8) compared to the comparison group (M = 5.93, SD = 6), t (29) = 1.99, p = 0.028.

The attitudes toward computers in the pilot group is approximately 65.5% higher than that in the comparison group.

Table 3

Test Results for Attitudes Toward Computers Comparison between Pilot and Comparison Groups

Group	Pilot		Comparison		T(29)	*p*
	M	*SD*	*M*	*SD*		
Attitude Toward Computers	9.81	4.8	5.93	6	1.99	0.028

Research Question 3: Is there a statistically significant difference in digital literacy skills within the pilot group before and after the implementation of the toolkit?

To evaluate changes in digital literacy skills within the pilot group, participants were requested to assess their digital literacy skills both before and after attending the class. The results were analyzed using a paired-sample t-test and revealed a significant difference in digital literacy skills within the pilot group (t(15)= -5.89, p= 0.001). The mean digital literacy skills increased significantly from 5.13 (SD = 3.55) before the class to 9.75 (SD = 3.29) after the class, representing a remarkable 90% improvement in their digital literacy skills.

Table 4

Test Results for Digital Literacy Skills Comparison within the Pilot Group

Baseline	Before		After		T(15)	*p*
	M	*SD*	*M*	*SD*		
Digital Literacy Skills	5.13	3.55	9.75	3.29	-5.89	0.001

Research Question 4: Is there a statistically significant difference in attitudes toward computers within the pilot group before and after the implementation of the toolkit?

To assess changes in attitudes toward computers within the pilot group, participants were surveyed to report their attitudes toward computers both before and after the class. A paired-sample t-test was conducted and the results showed a significant increase in the mean attitude toward computers within the pilot group (t(15) = -5.78, p = 0.001), rising from 3.44 (SD = 4.06) before the toolkit implementation to 9.81 (SD = 4.80) after the implementation. This indicates more than a twofold improvement in participants' attitudes toward computers.

Table 5

Test Results for Attitude Toward Computers Comparison within the Pilot Group

Group	Before		After		T(29)	*p*
	M	*SD*	*M*	*SD*		
Attitude Toward Computers	3.44	4.06	9.81	4.80	-5.78	0.001

To gain a deeper understanding of clients' perspectives on the hybrid delivery mode, an open-ended question was employed in the pilot group, and open coding was used to identify two themes: (1) appreciation for flexibility and choice, and (2) a preference for in-person learning. The responses are summarized below.

Appreciation for Flexibility and Choice: Participants expressed overall satisfaction with the hybrid delivery mode option, valuing its inherent flexibility. The respondents highlighted the critical importance of hybrid delivery in their lives, particularly when facing health challenges, either personally or within their families. Noteworthy instances were cited, such as a participant leveraging the hybrid format during a period of physical limitation due to a broken leg, allowing them to successfully advance to the next level without interruption.

Preference for In-Person Learning: Despite this satisfaction, a prevailing inclination towards in-person classes was evident among the majority for different reasons. Participants expressed a preference for the in-person classroom environment because they perceived that it enabled more active engagement, contrasted with the perceived passivity of online learning. The significance of interpersonal connections in the classroom setting emerged as a crucial aspect, reflecting the participants' desire to develop friendships and a sense of belonging in their new home. The humanistic dimension of in-person learning helped participants feel that they were part of a community, reinforcing a positive self-identity. Language barriers and challenges related to getting online were among other obstacles. Additionally, several participants mentioned taking advantage of free on-site childcare during their classes, emphasizing that they would have a difficult time learning at home while taking care of their children.

Despite this inclination towards in-person classes, participants acknowledged the paramount importance of English language acquisition for successful integration into their new homeland. Consequently, in instances where challenges hindered in-person attendance, participants displayed a keen interest in hybrid classes, demonstrating a commitment to their ongoing learning journey. This aligns with IRCC's concern to use digital services to address gaps or

shortcomings, or both, in traditional in-person services to ensure that digital services are complementing rather than replacing them (Government of Canada, 2023)[3].

[3] Government of Canada. (2023) Introduction and overview to Settlement Program and Resettlement Program call for proposals (CFP) 2024. Retrieved November 24, 2023, from https://www.canada.ca/en/immigration-refugees-citizenship/corporate/partners-service-providers/funding/settlement-funding-2024/overview.html

Conclusion

The Impact Assessment of the HELLO Toolkit on Digital Literacy and Attitudes Toward Computers in LINC Literacy Students presents compelling evidence of the toolkit's efficacy in enhancing digital literacy skills and fostering positive attitudes toward computers among clients. Over the course of a semester and with the active involvement of six TIES literacy instructors, the study revealed a remarkable 74% improvement in digital literacy skills within the pilot group compared to the comparison group. Positive attitudes toward computers also exhibited a substantial shift, with the pilot group displaying a 65.5% increase in positive attitude compared to the comparison group.

Furthermore, within the pilot group, the implementation of the HELLO Toolkit resulted in a significant 90% improvement in digital literacy skills and a more than twofold increase in positive attitudes toward computers. While overall satisfaction with the hybrid delivery mode was evident, the prevailing preference for in-person classes among clients underscores the enduring importance of humanistic aspects in education. These findings emphasize the HELLO Toolkit's effectiveness in addressing the evolving needs of literacy learners, offering valuable insights into effective literacy education within hybrid modes of course delivery.