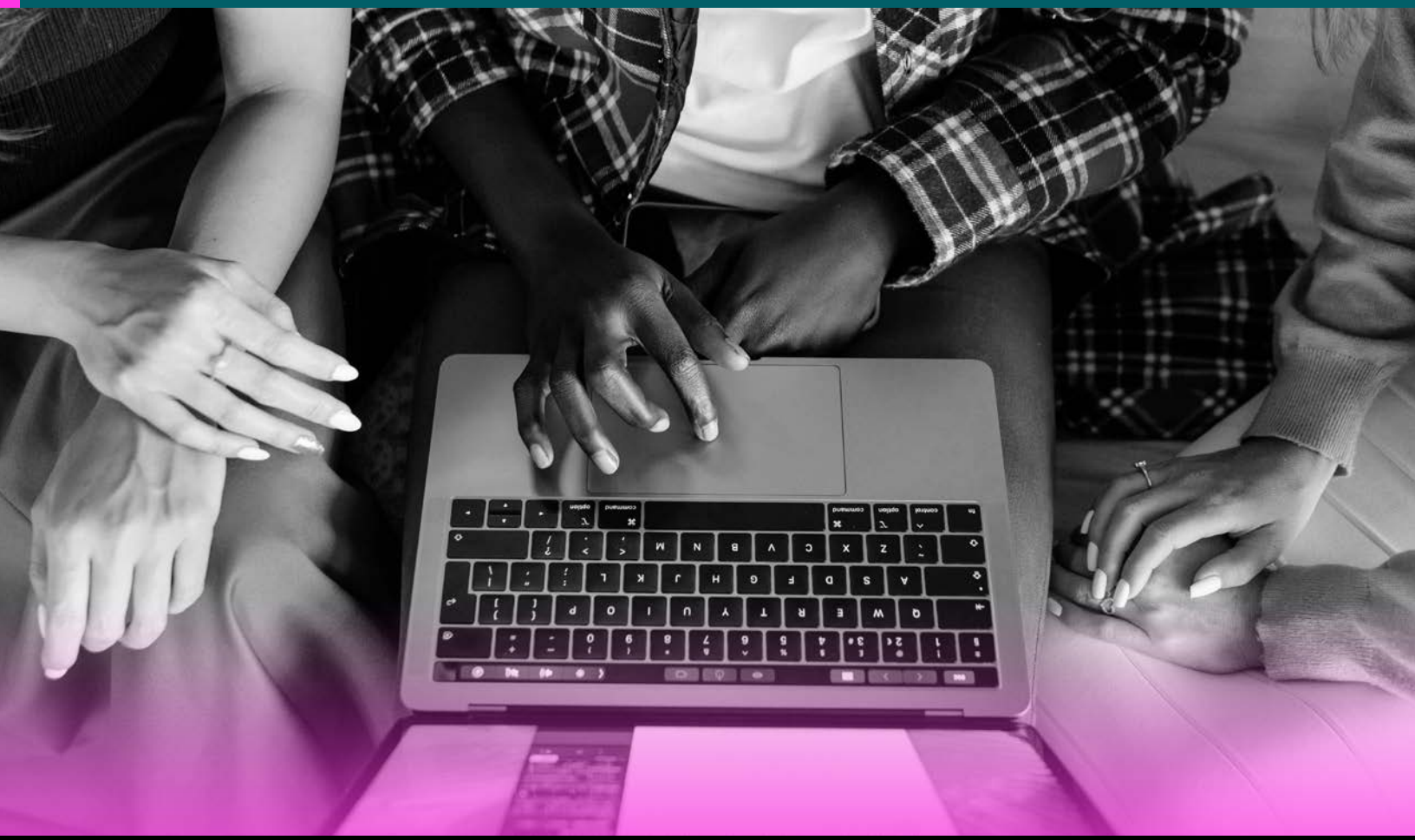
Technology-Enabled Innovations in Language Learning Programs



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Executive Summary

Communications skills are considered essential “skills for success” in Canada’s labour market and Canada invests heavily in language training programs to support immigrant social integration and labour market participation. At the same time, access to language training is limited, particularly in smaller communities and the results of training are uneven according to a range of research studies. There are opportunities to improve the design and delivery of language training programs by leveraging technologies like artificial intelligence, multimedia resources, mobile-assisted language learning, online learning platforms, and virtual/augmented reality. As technology plays a growing role in newcomer training and integration, bridging the digital divide by addressing challenges related to affordability, infrastructure access, and digital literacy is essential.

This report provides a comprehensive review of Canada’s language assessment frameworks, training programs, and emerging technology-enabled innovations. Our review highlights the need for stronger evaluation frameworks to measure the intended outcomes of language training programs and improve programming. As such, this report provides recommendations for the improved integration and implementation of technology in language training programs.

This report provides a comprehensive review of Canada’s language assessment frameworks, training programs, and emerging technology-enabled innovations.

The Government of Canada has taken a comprehensive approach to language training for immigrants. Federally funded programs like Language Instruction for Newcomers to Canada (LINC) and Cours de langue pour les immigrants au Canada (CLIC), whose programming are linked to internationally recognized language training standards including Canadian Language Benchmarks (CLB) and Niveaux de Compétence Linguistique Canadiens (NCLC). These are among the standardized language tests accepted by Immigration, Refugees and Citizenship Canada (IRCC).

Additionally, immigrants have access to many other language training programs. These include a variety of English as a Second Language (ESL) and French as a Second Language (FSL) classes. These classes are delivered by a variety of organizations including post-secondary institutions, local school boards, community organizations, occupation-specific language training, bridging programs, and classes offered by newcomer support organizations.

Despite this breadth of language training options, outcomes remain uneven. For example, many highly qualified immigrants struggle to translate language acquisition into meaningful employment. Moreover, there are other challenges associated with language training programs, such as the opportunity cost of attending classes in-person, costs for instructor salaries, materials, technology infrastructure, large class sizes, long waiting lists, and the availability of wraparound supports. These challenges underscore the importance of ongoing program evaluation and adaptation and the integration of technology-enhanced language learning tools to help expand learning options.

Technology-enhanced language learning (TELL) tools including AI-powered tools, mobile-assisted language learning (MALL), multimedia, virtual/augmented reality, and online collaboration tools, have revolutionized language learning. However, as a general practice, Canadian newcomer support organizations do not integrate them into their core curricula. Instead, these organizations typically use technological resources (e.g., Avenue, Tutela, Portfolio-Based Language Assessment) that were developed primarily for Canadian settlement agencies and their clients.

As a result, there is a significant opportunity to incorporate more TELL tools into Canadian language training programs to provide greater flexibility and accessibility. Widespread adoption of AI-powered tools, as seen in a recent survey conducted by the Association for Canadian Studies on the use of machine translation, indicates that individuals are becoming more comfortable using technology to overcome language barriers, access information, and navigate different environments (e.g., work, legal, health care). Additionally, initiatives like the Ismaili Council's English Language Connections (ELC) program have shown that online collaboration tools like Zoom can be used to successfully support language learning in regions where access to quality language instruction is limited.

Although the use of TELL tools in Canadian language training programs is somewhat limited, there are prominent examples of technological integration. These include online classes, self-paced online learning modules, learning management systems, virtual conversation circles, AI chatbot services, and digital and media literacy training, among others.

Unfortunately, there is a significant lack of formal evaluations of language training programs in Canada, including their use of technology. As a result, the direct links between technology use and improved language proficiency, social integration, and employment outcomes remains largely unmeasured. This makes it more difficult to justify continued investment, refine pedagogical approaches, and scale successful initiatives.

A stronger focus on evaluation and assessment, including the integration of technology-enabled innovations, can help governments and organizations determine which interventions are most beneficial for different client demographics. This information can then be used to improve programming and more accurately measure a range of outcomes including language proficiency gains, labour market integration, return on investment, client satisfaction, and technology adoption among learners. This level of transparency and reporting would also demonstrate that significant public funding in language training programs produces measurable outcomes.

To promote the long-term success and sustainability of technology-enabled innovations in Canadian language training programs, this report provides the following recommendations:

Outcomes based competency frameworks aligned to standardized tests, employer demands, and diverse learner needs and preferences should inform the design, delivery and evaluation of programs.

A co-ordinated national strategy should support effective integration of technology in language training, and could include shared research, platforms, training, implementation support, and evaluation tools, as well as wraparound supports for learners.

Better coordination and wayfinding is needed to help newcomers navigate language training standards, options, and integration support programs.

More research is needed to ensure consistent evaluation, information sharing, and support. This is necessary to test, replicate and scale innovative and effective approaches.

Organizations offering language training need to prioritize outcome-based learning, with personalized approaches to meet the needs of learners, but require support to redesign curricula and leverage new technologies to produce optimal results.

Wraparound supports are essential to meet the needs of diverse populations.

Consistent evaluation frameworks (e.g., surveys, interviews, focus groups) should be used to collect feedback from language learners on their experiences with TELL tools and teaching methodologies.

Learners must be empowered to take greater ownership of their language learning through improvements in self-directed learning skills within digital environments. More education is also needed on how to leverage technology, as well as digital content (e.g., podcasts, YouTube channels, streaming services) to supplement their formal learning.

Guidance needs to be provided to learners on digital well-being and responsible technology use in language learning.

Instructors should develop their skills in creating and managing digital learning materials, while actively integrating new digital tools and teaching strategies in their classes.

Introduction

Canada is a diverse and multicultural nation, and immigration remains a cornerstone of the country's identity, social fabric and economic strategy. According to the most recent census, newcomers represent around 23% of Canada's population, which is the largest percentage in Canada in 150 years and the highest among G7 countries.[1] In 2023, 471,771 permanent residents came to Canada, as did an additional 804,901 non-permanent residents. It is estimated that 2,661,784 non-permanent residents were living in Canada on Jan. 1, 2024.[2]

The government of Canada recognizes the importance of language skills in helping immigrants integrate into Canadian society and access employment opportunities. As such, it has made significant investments in official language (English and French) training for immigrants. For example, the Action Plan for Official Languages 2023–28 has allocated $4.1 billion over five years. This includes support for economic integration and language instruction for newcomers.[3]

The federal government also funds the Language Instruction for Newcomers to Canada (LINC) and Cours de langue pour les immigrants au Canada (CLIC) programs, which offer free language classes to eligible permanent residents and protected persons.[4] Additionally, the government has invested in self-assessment language tests — such as the Canadian Language Benchmarks (CLB) and Language for Success (LFS) — to help prospective immigrants gauge their language skills before arriving in Canada.[5,6] Educational institutions, school boards, community organizations, settlement agencies and non-

23%

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profit organizations also provide language training and assessment for Canadian newcomers. These diverse providers complement the federal government's efforts and ensure that immigrants have access to a wide range of language training options.

Research has highlighted the importance of official language proficiency on immigrant labour market outcomes.[7,8,9] For example, a recent Statistics Canada study examined the effects of test-based measures of official language proficiency across four dimensions (listening, speaking, reading and writing) on immigrant employment and earnings. The study found that test-based measures across the four dimensions had little effect on whether employment is gained, but significant positive effects on earnings. English and/or French skills were as important as pre-immigration Canadian work experience and more important than educational level and age at immigration in predicting initial earnings of applicants admitted under the Express Entry system.[10] However, it should be noted that it is difficult to establish a clear and direct link between language proficiency and immigrant employment outcomes due to other mediating factors such as discriminatory hiring practices, personality and individual characteristics, cultural understanding, and employment demand.[11]

Language training programs in Canada can be improved by integrating competency frameworks, consolidating resources to achieve economies of scale, implementing continuous evaluation processes, incorporating digital skills training, and providing wraparound supports. Technologies like virtual reality (VR), augmented reality (AR), artificial intelligence (AI), multimedia resources, mobile-assisted language learning (MALL), and online learning platforms can also be leveraged to enhance language training. At the same time, as the role of technology increases, bridging the digital divide becomes critically important. While this is often a function of access to infrastructure (e.g., high-speed Internet in northern, rural and remote communities), affordability and skill levels are also important considerations.

Access to digital tools is becoming a vital part of all training approaches, and language training is no exception. Recent Environics Institute research, for example, found that improving access to digital infrastructure in skills training can lead to better employment outcomes.[12] It should also be noted that the platforms and tools newcomers use are often different than those used by Canadian-born learners and job seekers.

This report provides a comprehensive review of Canada's language assessment frameworks, training programs, and emerging technology-enabled innovations. Through the review, this report outlines effective strategies for integrating technology-enabled language learning (TELL) tools in language training programs for immigrants. This report also emphasizes the need for stronger evaluation frameworks that measure the impacts of language training on employment and social integration of newcomers.

Canadian and International Skills and Language Assessment Frameworks

Introduction

Language proficiency is a cornerstone of successful integration for newcomers to Canada. It shapes their access to education, employment, and community life. As such, the frameworks and tools used to assess and develop language skills are important for individuals navigating the immigration process as well as educators and service providers.

This section will explore key Canadian and international competency frameworks for assessing language and skills proficiency including:

1. Canadian Language Benchmarks (CLB) and the Niveaux de compétence linguistique canadiens (NCLC),
2. Common European Framework of Reference for Languages (CEFR), and
3. Programme for the International Assessment of Adult Competencies (PIAAC).

In Canada, the CLB and NCLC offer a unified approach to guide curriculum design and assessment practices across the country. Outside of Canada, international frameworks like CEFR and PIAAC provide additional perspectives and benchmarks that can help situate Canadian practices within a broader global context.

Next, we examine the standardized language tests accepted by Immigration, Refugees and Citizenship Canada (IRCC) for immigration purposes, including an overview of the five recognized tests:

1. The International English Language Testing System (IELTS),
2. The Canadian English Language Proficiency Index Program (CELPIP),
3. The Pearson Test of English Core (PTE Core),
4. The Test d'évaluation de français pour le Canada (TEF Canada), and
5. The Test de connaissance du Français pour le Canada (TCF Canada).

Language proficiency is a formal and mandatory requirement for most economic immigration streams in Canada. For example, applicants to programs such as the Federal Skilled Worker Program, Canadian Experience Class, and the Federal Skilled Trades Program must demonstrate their ability in English or French by taking standardized language tests approved by IRCC. The results of these tests are measured against the CLB or NCLC, with each program specifying a minimum required level. These requirements reflect the role that language skills play in ensuring newcomers can successfully integrate into the Canadian workforce.

Defining language competencies

Canadian Language Benchmarks and Niveaux de compétence linguistique canadiens

The CLB is the official Canadian standard for describing, measuring and recognizing language proficiency of adult immigrants in English.[13] The CLB covers four primary language skill areas: listening, speaking, reading and writing. Each skill area is measured on 12 levels of proficiency, which are divided into three stages. (See Table 2 in the Appendix for more details.)

Stage 1	Stage 2	Stage 3
Basic language ability	Intermediate language ability	Advanced language ability
(CLB 1-4)	(CLB 5-8)	(CLB 9-12)

The NCLC is the French-language counterpart to the CLB and similarly consists of 12 levels grouped into three stages. However, it is important to note that the CLB and NCLC are separate frameworks and not translations of one another.[14]

The CLB and NCLC play crucial roles in assessing and developing language proficiency for newcomers to Canada, helping with immigration, integration and participation in Canadian society.[15] The scores are used to determine eligibility for immigration programs, such as the Canadian Experience Class, Federal Skilled Worker Program and Federal Skilled Trades Program.

These programs often have different language requirements. For example, a minimum of CLB 7 or NCLC 7 is required in all four language skill areas for Federal Skilled Worker Program eligibility. The Federal Skilled Trades Program, on the other hand, requires a minimum of CLB 5 or NCLC 5 in speaking and listening, and CLB 4 or NCLC 4 for reading and writing.[16] Applying for Canadian citizenship has lower requirements than the aforementioned programs, as applicants must demonstrate "adequate knowledge" of English or French, which is equivalent to CLB 4 or NCLC 4 in speaking and listening skills.[17]

Canadian research on the use of CLB in language teaching is uneven. A 2010 study[18] indicated that while most stakeholders believed in the importance of a national framework, there were some gaps in implementation. Other research has revealed that teachers and learners alike face

difficulties in understanding and interpreting the CLB, which are further exacerbated by the pressures of mandatory assessment protocols like the Portfolio-Based Language Assessment (PBLA).[19]

Common European Framework of Reference for Languages

While the CLB and NCLC are the primary frameworks used for assessing language proficiency in Canada, the CEFR uses a six-level alphanumeric scale (A1, A2, B1, B2, C1, C2). This is divided into three broad categories of basic (A1-A2), independent (B1-B2) and proficient (C1-C2) users,[20] and can be adapted for use in a variety of local contexts.[21] (See Table 3 in the Appendix for more details.)

Researchers have proposed a comprehensive research agenda to examine CEFR implementation across various educational contexts, including K-12 education, initial teacher education, and post-secondary language learning.[22] The CEFR was also used in the development of PTE Academic,[23] a computer-based English language proficiency test recognized by 98% of universities and colleges in Canada for student visa applications.[24]

Programme for the International Assessment of Adult Competencies

The PIAAC is a large-scale international study initiated by the Organisation for Economic Co-operation and Development (OECD) to assess and compare adult skills across countries.[25]

In the program, literacy is defined as "understanding, evaluating, using and engaging with written texts to participate in society, to achieve one's goals, and to develop one's knowledge and potential."[26] It is assessed using print-based and digital texts, and each individual is given a score from zero to 500 across six levels. (See Table 4 in the Appendix for more details.)

Data from PIAAC has been used in Canada to examine immigrant literacy[27] and its relationship to education and employment outcomes.[28] Because PIACC data has not been collected consistently, however, there are challenges in assessing the overall impact and other related policies.[29] Additionally, research suggests that language proficiency alone is not a sufficient explanation for underemployment of newcomers. There are other important factors, including access to social capital, challenges in navigating systems, and bias in hiring practices.[30]

Testing language competencies

Standardized language tests are designed to assess language proficiency for various purposes, including immigration, academic admission and professional certification.

An application for almost every category of economic immigration to Canada requires the results of a language test. The choice of test often depends on the requirements of the program.[31] Scores for all English and French language proficiency tests accepted by IRCC are converted to CLB/NCLC levels for immigration purposes.[32,33,34,35,36]

English language tests

Currently, IRCC accepts three standardized language proficiency tests: the International English Language Testing System (IELTS), the Canadian English Language Proficiency Index Program (CELPIP) and the Pearson Test of English Core (PTE Core).[37] The agency does not have a preferred test from among the three.[38]

The internationally available IELTS test is trusted by IRCC for all visas that require proof of English language proficiency.[39] It has two categories: General Training is accepted for work visas, professional recognition and permanent residency applications, while Academic is trusted by educational institutions as evidence of English language proficiency for study purposes.[40] Both tests assess English language proficiency across speaking, reading, listening and writing.

Meanwhile, CELPIP was designed by IRCC and tests proficiency in Canadian English, which contains elements of British and American English.[41] Like IELTS, the test has two categories. The General Test evaluates speaking, reading, listening and writing skills, and is used primarily for permanent residence applications and professional designation. The LS Test evaluates English speaking and listening skills and is used primarily for citizenship applications and professional designation.[42]

Developed by Pearson Canada Inc., PTE Core is a relatively new English proficiency test. It has recently been accepted by IRCC for use in Canadian immigration applications.[43] It assesses English speaking, reading, listening and writing skills.[44]

French language tests

There are two French language tests accepted by IRCC: the Test d'évaluation de français pour le Canada (TEF Canada) and the Test de connaissance du Français pour le Canada (TCF Canada).[45]

The Paris Île-de-France Chamber of Commerce and Industry administers the TEF Canada test, which assesses speaking, reading, listening and writing skills. It can be taken at one of 500 official test centres in more than 110 countries.[46] France Education International administers the TCF Canada test, which also assesses the four core language dimensions.[47] It can be taken at one of 600 exam centers located in 140 countries.[48]

Both tests are internationally recognized assessments that play crucial roles in assessing French language proficiency for various Canadian immigration programs.

Language training programs in Canada

The federal government takes a comprehensive approach to newcomer language training. Canada has several English and French language training programs to support integration, help secure employment, enhance or update skills, and facilitate paths to citizenship. These programs are primarily designed to facilitate integration into Canadian society and the workforce and are increasingly incorporating technology to enhance accessibility and effectiveness.

The LINC and CLIC language training programs are funded by IRCC and are free for eligible adult newcomers, including permanent residents and protected persons aged 18 or older.[49] The curricula are based on CLB for English and NCLC for French.[50] Classes are available in person, online, and through home study options, and in some locations, additional supports such as child care, transportation assistance, or classes for people with special needs are offered.[51,52] Upon completing CLB/NCLC Level 4 or higher in speaking and listening, learners receive a certificate that can be used as proof of language proficiency for citizenship applications.[53]

Canada has several English and French language training programs to support integration, help secure employment, enhance or update skills, and facilitate paths to citizenship.

Newcomers have access to many other language training programs in addition to LINC and CLIC. These include provincially funded English as a Second Language (ESL) and French as a Second Language (FSL) classes delivered through local school boards and community organizations. There are also occupation-specific language training opportunities, bridging programs, and classes offered by newcomer support organizations.

However, despite the breadth of language training options, outcomes remain uneven. For example, success in achieving test results often differs based on instructor qualifications, curriculum, the availability of supports for instructors and learners, or other factors.[54]

The impact of language training programs on employment outcomes is also mixed. A recent IRCC evaluation found that employment-focused language training was associated with more positive employment outcomes and greater use of official languages at work.[55] On the other hand, a recent Statistics Canada study found that test-based measures across four dimensions (listening, speaking, reading and writing) had little effect on whether employment was obtained – but significant positive effects on earnings for those who were employed. This may be because many highly qualified immigrants struggle to translate language acquisition into meaningful employment due to credential recognition issues, unfamiliarity with Canadian workplace norms, limited professional networks, persistent employer bias, and other factors.[56] The opportunity cost of attending language classes, particularly in person, is also a significant hurdle for many immigrants who often balance work and family responsibilities. In addition, participating in language training prevents many immigrants from actively seeking work, effectively delaying labour market integration.[57]

The costs associated with language training are substantial and include instructor salaries, materials, technology infrastructure, and wraparound supports such as child care and transportation. Large class sizes, which are often a response to funding constraints, can limit the effectiveness of instruction and opportunities for personalized feedback.

Additionally, high demand for subsidized programs like LINC and CLIC can result in long waiting lists. As a result, many immigrants experience delays accessing essential language services.[58]

These challenges underscore the importance of ongoing program evaluation and adaptation and the integration of technology-enhanced language learning tools to help expand learning options.

Technology-Enhanced Language Learning

Introduction

This section explores the rapidly evolving field of technology-enhanced language learning (TELL) and its impact on language acquisition. It examines five major types of technologies that have significantly influenced language learning:

> AI-powered tools,

> Mobile-assisted language learning (MALL),

> Multimedia,

> Virtual reality/Augmented reality (VR/AR), and

> Online collaboration tools.

It should be noted that Canadian newcomer support organizations, as a general practice, do not integrate the tools discussed in this section into their core curricula. Rather, these organizations typically use platforms and resources (e.g., Avenue, Tutela, Portfolio-Based Language Assessment) that were developed for Canadian settlement agencies and their clients to ensure that language instruction is aligned with CLB/NCLC and LINC/CLIC standards. However, TELL tools offer significant potential to improve Canadian language learning programs, as evidence supports their effectiveness in facilitating language acquisition among newcomers.

Review of the tools

The TELL approach encompasses a wide range of tools and approaches that often overlap in their features and functionalities. See Table 5 in the Appendix for more detailed outlines of various TELL tools and their uses.

Artificial intelligence powered tools

Artificial intelligence is rapidly transforming language learning. It offers highly personalized, adaptive, and interactive experiences that go beyond traditional pedagogical methods. This shift is driven by advancements in natural language processing (NLP), large language models, machine learning, and speech recognition technologies.

For example, NLP is a branch of AI that enables computers to comprehend, generate, and manipulate human language.[59] It can be used to analyze written or spoken language input to identify strengths, weaknesses and learning patterns. This data can then be used to inform intelligent tutoring systems that tailor content, adjust difficulty levels, and provide

personalized feedback.[60] This also underpins many other language learning technologies such as data-driven learning (DDL), automated writing evaluation (AWE), computerized dynamic assessment (CDA), intelligent tutoring systems (ITS), automatic speech recognition (ASR), and chatbots.[61]

Recent research estimated that the global NLP market was valued at $29.71 billion in 2024 and is projected to reach $158.04 billion by 2032, a compound annual growth rate of 23.2%.[62] In the education field, the impact and adoption of NLP-powered tools are accelerating,[63] and this influence extends across a broad range of language learning applications.

Data-driven learning (DDL) can be broadly defined as the use of corpus tools and techniques for language learners and teachers. This approach typically involves the use of real-world examples derived from authentic texts for learning vocabulary and grammar.[64] The capabilities of DDL are elevated by NLP by making the process more accessible, personalized and efficient. For example: Rather than having to manually search through large databases, NLP and other AI algorithms can automatically create and curate specialized texts tailored to a learner's individual needs, proficiency level or interests.[65]

Automated writing evaluation tools employ computational engines that rely on NLP, AI and statistical modelling approaches to analyze traits in written texts.[66] These AWE systems are increasingly being integrated into language instruction for their ability to provide immediate personalized feedback and alleviate teacher workload.[67] They can help learners quickly identify and correct mistakes, which facilitates a cycle of drafting and revision that is crucial for writing development.[68] A prominent example of this is Grammarly, which uses AI to analyze writing and provide feedback on grammar, spelling, punctuation and vocabulary.[69] Research on AWE tools like Grammarly have identified several benefits such as minimizing errors in writing products, enhancing paraphrasing skills, and improving vocabulary.[70]

The use of NLP is also found in computerized dynamic assessment (CDA), which integrates assessment and instruction into a unified activity.[71] Unlike traditional product-oriented language assessment that focuses solely on the final answer, CDA is process-oriented. When a learner encounters difficulty with a language task, the CDA software provides graduated mediation (e.g., hints, prompts, explanations) in an automated and individualized manner. These CDA programs have been developed for various language skills including grammar,[72] listening[73] and reading comprehension,[74] and vocabulary.[75]

Intelligent tutoring systems (ITS) are designed for computers to provide personalized and interactive instruction to students without

intervention from a human teacher.[76] As such, ITS leverage adaptive AI algorithms like NLP to provide highly personalized and adaptive experiences that go beyond traditional classroom settings. Many popular language learning apps like Duolingo, Babbel and Memrise often embody the key characteristics of ITS and can be considered forms of ITS.

Automatic speech recognition (ASR) is a technology that enables computers to interpret and transcribe human speech into written text.[77] Also known as speech-to-text, ASR leverages AI algorithms including deep learning and NLP models to analyze audio signals, recognize individual words, and convert spoken language into a machine-readable form.[78] It has numerous applications for language learning, including pronunciation practice and feedback,[79] listening comprehension,[80] and vocabulary acquisition.[81] Moreover, ASR has been effective in deepening learners' knowledge processing and memorization by strengthening the connections between audio and textual forms of language knowledge.[82,83]

Chatbots are computer programs designed to simulate conversation, often using NLP to understand and respond to user input.[84] They have emerged as sophisticated tools in language learning with the advent of large language models (LLMs) like ChatGPT. Chatbots offer a low-anxiety language practice environment and, unlike human instructors, provide around-the-clock availability. Many chatbot applications incorporate gamification techniques to make the learning process more enjoyable while allowing learners to control the pace and direction of instruction.[85]

Machine translation (MT) is another AI-powered technology that plays a significant and evolving role in language learning. It refers to the process by which a machine (e.g., web interface, browser plugin, mobile phone app) translates a written or spoken text from one language into another without involvement of a human translator.[86] Research has examined the benefits and challenges of integrating MT in language learning contexts. For example, numerous studies have reported that machine translation can improve writing fluency, vocabulary, grammar and expression.[87] However, despite its ease of use and accessibility, MT is accompanied by a set of challenges including limitations in capturing cultural nuance, potential over-reliance by students, and inherent risks in legal or medical settings. As a result, researchers have increasingly advocated that the use of machine translation requires careful thought and the development of "machine translation literacy."[88]

Machine translation has seen widespread adoption in Canada, as evidenced by a recent survey conducted by the Association for Canadian Studies.

Case study: Survey on artificial intelligence and translation[89]

Léger Marketing conducted an online survey of 1,000 people in Quebec for the Association for Canadian Studies on the theme of artificial intelligence and translation. Among survey respondents, 798 identified as francophones, 130 as anglophones, and 72 as allophones (a person whose first language is neither French nor English). Survey questions centred around the use of MT devices (e.g., Google Translate, Bing Translator, DeepL, ChatGPT), public trust in MT in different settings (e.g., workplace, legal, or health care), and its capacity to improve second-language knowledge and reduce language barriers.

Overall, the survey provided valuable insights into the use of MT in the Canadian context.

The survey found that 51% of respondents sometimes or often used MT devices. However, this percentage was higher (60%) for respondents born outside of Canada. On the other hand, 20% of respondents indicated that they never used MT devices.

Of those who reported using sometimes or often using MT, 59% of respondents used it for assimilation of information (e.g., translating text from an unfamiliar language for personal use), 41% for dissemination of information (e.g., writing something in an unfamiliar language to share with others), and 24% for translation-mediated interaction in real-time (e.g., communicating with residents in a foreign country while travelling).

Several survey questions asked respondents to indicate their level of trust using MT in different settings. When asked whether they trusted humans or MT devices to translate, 36% of respondents indicated that they trust humans more, 11% trust MT devices more, and 47% trust both equally. Interestingly, immigrants were more than twice as likely to trust MT devices than Canadian-born respondents (23% vs. 10%).

With respect to different settings: 70% of respondents trusted MT devices in translation for entertainment purposes (e.g., films, TV shows), while 63% trusted MT devices in an educational setting (e.g., communicating with teachers or administrators).

When communicating with colleagues or associates who speak another language in a workplace setting, 65% of respondents trusted MT devices. However, there was a significant disparity in the trust of MT devices in the workplace between immigrants (75%) and Canadian-born respondents (64%).

In legal settings (e.g., communicating with a lawyer or judge), trust of MT devices was lower, with only 38% of respondents indicating trust. Again though, immigrants (49%) were more trustful than Canadian-born respondents (37%). In health-care settings (e.g., communicating with doctor or nurse) trust in MT devices was higher, with 50% of respondents reporting trust, with newcomers once again reporting higher levels of trust than Canadian-born respondents (57% vs. 49%).

The survey also found that a similar percentage of respondents used MT to translate from French to another language (60%) and English to another language (59%). Critically, 80% of respondents reported that MT improved their second-language knowledge and 52% believed that MT will reduce language barriers.

On the prevailing theme that newcomers use and trust MT more than Canadian-born respondents: Perhaps this is due to immigrants having more familiarity and experience with MT devices in various contexts.

Regardless, these results and those from similar studies can help inform further research to understand the role that MT can play in language training as a primary and supplementary tool.

Mobile-assisted language learning

The MALL form of language learning utilizes mobile devices like smartphones, tablets and other portable devices to enhance language acquisition.[90] Advantages of mobile technologies for language learning discussed in the literature include high accessibility, support for various learning styles, and enriching content with narratives, game playing, and hands-on activities.[91] Research has also found that mobile technology has been widely applied in blended use with other technologies such as GPS[92] and emotion recognition software.[93]

Many of the most popular language learning apps (e.g., Duolingo, Babbel or Rosetta Stone) incorporate game-based learning elements and have been the subject of extensive research. Game-based learning, which involves the integration of game elements in delivering instructional content and conducting learning activities,[94] has been shown to promote learner engagement, triggered interactions, and enhanced knowledge comprehension in language courses.[95]

Research identifying gamification elements in MALL apps identified 22 gamification elements in Duolingo's design including progress indicators (daily goals), feedback (correct/incorrect answers), fixed reward schedule (experience points), time-dependent rewards (streaks), customization (buying outfits for the owl mascot), challenges, leaderboards, badges and achievements, as well as virtual economy (lingots and gems).[96]

Studies have generally indicated a positive correlation between the use of Duolingo and foreign language performance including academic achievement in English,[97] and improvement in English vocabulary,[98] listening[99] and communication skills.[100] Research also found that Duolingo was also shown to improve the writing skills of children with Down syndrome.[101]

However, other studies reported no significant improvements in elementary student Spanish achievement and self-efficacy after 12 weeks of Duolingo use[102] and no significant differences between college students who learned Italian at home using Duolingo and those who learned it through an online slideshow.[103]

Gamification elements of Duolingo were also perceived positively in several studies. For example, badges and streaks were linked to student motivation,[104] experience points and leaderboards created a community-oriented learning environment,[105] the use of in-game currency contributed to participant engagement,[106] and users appreciated feedback on activities and mistakes.[107] However, several studies discussed concerns over possible distractions that come along with using a mobile device for learning,[108] over-reliance on reading and listening skills as opposed to writing and speaking skills,[109] and lack of grammatical explanations.[110]

Babbel's effectiveness as a language learning tool has also been the focus of various research studies. One study examined 325 Babbel users learning Spanish and found that 92% of participants improved their test scores after two months of study with the app. The study concluded that Babbel users would need about 21 hours of study to achieve the same results as one college semester of Spanish.[111] Another study examined

the effectiveness of Babbel for developing receptive linguistic knowledge of vocabulary and grammar and oral communicative ability in Spanish. A total of 54 English speakers studied Spanish on Babbel over 12 weeks and results showed that 96% of learners saw better test scores on grammar and vocabulary and 73% improved their speaking skills.[112] Further research from Yale University's Center for Language Study demonstrated Babbel's effectiveness for building oral proficiency. In a study involving 117 participants learning Spanish, 100% improved their oral proficiency over three months, with gains ranging from novice to intermediate levels.[113] Finally, research comparing the effectiveness of Babbel and Duolingo for studying Turkish as a foreign language showed no significant differences between test scores. However, Babbel users perceived their app to be more effective for learning grammar, pronunciation and culture while Duolingo users felt more motivated to use their app because of its game-based elements.[114]

Rosetta Stone was created more than 30 years ago and has been the subject of numerous academic studies. A 2009 study found that, after 55 hours of using Rosetta Stone, Spanish learners showed significant improvement in their language skills with the average WebCAPE score increasing to a level equivalent to one semester of college Spanish study. Additionally, 56-72% of participants improved their oral proficiency by at least one sublevel on the American Council on the Teaching of Foreign Languages (ACTFL) scale.[115]

A 2019 efficacy study found that Rosetta Stone users gained about 21 test points per hour of study on a Spanish college placement test. The study also reported high user satisfaction, with 97% finding it easy to use and 94% finding it helpful and enjoyable.116 However, one exploratory study revealed qualitative differences in learners' speech and strategies when using Rosetta Stone compared to traditional classroom instruction. The study suggests that while Rosetta Stone may have some benefits, it may not be as effective as classroom learning for developing certain language skills.[117]

Research has found that the use of multimedia in language learning deepens knowledge processing, facilitates retention, and promotes motivation.

Multimedia

Multimedia-assisted language learning refers to presenting language knowledge or conducting learning activities using videos, audio and images.[118] Research has found that the use of multimedia in language learning deepens knowledge processing, facilitates retention, and promotes motivation.[119] The effectiveness of multimedia for language learning is supported by several theoretical frameworks such as the cognitive theory of

multimedia learning (CTML), which posits that presenting information through both visual and auditory channels optimizes human cognitive processing.[120] Dual-coding theory also holds that combining verbal and pictorial information enhances memory retention due to the interconnected nature of these two systems.[121]

Research on the use of multimedia in language learning has found a significant positive impact on vocabulary comprehension and retention. For example, presenting new vocabulary with auditory and visual input has been shown to lead to better learning and retention than using text or audio alone.[122,123] Similarly, audio-visual input, such as videos with captions or subtitles, has been shown to significantly improve listening comprehension by providing contextual cues that support auditory processing, allowing learners to link spoken words with their written forms.[124]

Research has also shown that multimedia confers a wide array of benefits for language learners beyond boosting cognitive processes. Multimedia is often more stimulating and interactive than text-based material, which can foster more enjoyable learning experiences.[125] For example, multimedia can be integrated into gamified elements of language learning apps and that can make practice more fun and incentivize continued engagement.126 Moreover, multimedia can accommodate various learning styles (e.g., visual, auditory, kinesthetic) by presenting information in multiple formats. This can help engage and empower a wider range of learners. Multimedia can also expose learners to the natural speech rhythms, body language and gestures of native speakers, which are difficult or impossible to convey through text alone.[127]

Augmented reality and virtual reality

In recent years, AR and VR have shown great promise in the field of language education. Augmented reality uses apps, consoles, screens and projections to overlay or combine digital information with real-world environments.[128] Virtual reality is a three-dimensional computer-generated simulated environment, which attempts to replicate real-world or imaginary environments and interactions.[129] Research on the effectiveness of AR and VR for language learning generally points to significant benefits across various linguistic skills.

A recent systematic review of AR and VR enhanced language learning found that both technologies improved student learning outcomes, enhanced motivation, and reduced learning anxiety.[130] In particular, AR was found to improve performance, increase motivation and engagement, and foster greater collaboration among learners.[131] Another review identified the main benefits of AR in language learning, which included increase of motivation, improvement of learning outcomes, enhancement of interactions, and creation of opportunities for authentic language tasks.[132] However, research has also identified challenges associated with AR, such as increased cognitive load, distracted students, increased technology expenses, technical difficulties, and resistance from teachers.[133]

A recent meta-analysis found that VR had a positive impact on learners' language skills and confidence. Results indicate that VR-assisted language learning had a medium effect on the linguistic and affective gains of students compared to non-VR conditions.[134] Research has found that the VR has the largest effect on speaking, followed by listening and vocabulary, with the smallest effect being on writing skills.[135] Despite its potential, VR in language learning faces several challenges such as the cost and accessibility of hardware, potential physical discomfort, technical issues (e.g., software crashes), limited high quality content, and pedagogical integration.[136]

Online collaboration tools

Research has highlighted the effectiveness of online collaboration tools in enhancing various aspects of language learning. These include collaborative writing tools (e.g., Google Docs, Microsoft OneNote), video conferencing tools (e.g., Zoom, Microsoft Teams), cloud-based communication platforms (e.g., Slack, Discord), and collaborative learning management systems (e.g., Moodle, Canvas), among others.

Research has shown that collaborative writing improves writing performance, motivation and self-efficacy among EFL learners.[137] Moreover, collaborative writing has been associated with better content development, organization and word choice among language learners.[138] Research also indicates that working together on shared documents allows students to discuss ideas and negotiate meaning. This aligns with socio-cultural theories of learning that emphasize learning is a social process facilitated through interaction and collaboration.[139]

Video conferencing tools provide authentic opportunities for real-time language practice. A recent meta-analysis found that the use of video conferencing tools led to positive, medium overall effects on the speaking and listening abilities of second-language learners.[140]

Additionally, interactive features such as screen-sharing, chat boxes and reactions have been linked to higher engagement and participation.[141] However, studies have identified several challenges and limitations of video conferencing tools, including technical issues (e.g., Internet speed fluctuations, audio/video quality),[142] student distraction,[143] and unequal access to reliable Internet and appropriate devices.[144]

Online collaboration tools have also been shown to enhance language learning in blended and flipped learning contexts, where more instruction takes place at home and class hours are used for practice and traditional "homework." [145] For example, one study found that the use of Facebook supported a flipped language class and was effective in improving speaking skills by facilitating peer-to-peer interactions inside and outside the classroom.[146] A prominent example of online collaboration tools being used to facilitate language instruction is the Ismaili Council English Language Connections (ELC) program.

Case study - The English Language Connections program[147,148,149]

The ELC program aims to enhance English language proficiency among members of the Ismaili community in Afghanistan and other regions where access to quality language education is limited. The program was developed as part of the Afghanistan, Badakhshan, Canada (ABC) initiative, which was established by the Canadian Ismaili Council to train a cohort of qualified English teachers in Afghanistan who could go on to train others. Other organizations that have helped develop the program include Aga Khan Education Services, Ismaili Tariqah and Religious Education Board and the Parwaz Early Child Development Program in Afghanistan.

Initially delivered by an international volunteer team of 32 educators and 12 co-ordinators, the program was launched in September 2020 during the COVID-19 pandemic. Classes were offered to students in the Kabul, Badakhshan, Baghlan, and Balkh regions of Afghanistan and focused on building connections between students and teachers. The program has been described as a “virtual teacher training school” that is contextual and sensitive to the culture and realities of daily living in Afghanistan. Instruction was based on CEFR standards.

The program was initially designed to have four instructors teach in-person classes in Afghanistan. However, due to COVID-19 restrictions, ELC was redesigned using virtual classes delivered through Zoom and online learning platforms such as Off2Class and Learning Upgrade. Since its launch, the program has grown significantly in scope from around 100 students in Afghanistan to about 2,000 in Afghanistan, India, Iran, the United Arab Emirates, Syria and Turkey. Program staff has also increased significantly to include over 200 international volunteers filling roles as coaches, teaching assistants and program managers.

Initial results have been promising. During the 30-week course, 78% of participants improved their grammar skills significantly, and 48% increased a grade level. Graduating students have also been given the opportunity to become trainers themselves, thereby expanding the program’s reach.

The success of the program informed the development of a pilot program for students aged 14 to 17 years that supplemented their language, social and networking skills. The English Language Student Programme (ELSP) Journeys-Safarha was piloted for 50 teenage students in Kabul, with participants citing many benefits, including improvement in English speaking skills.

Evaluation and Impact

Introduction

While language training programs are widely available across Canada, there is evidence that some organizations lack sufficient resources to support language training in a timely fashion. This can impede pathways to integration for newcomers.[150]

An evaluation of language training services conducted by IRCC identified several barriers for newcomers in accessing and attending classes. These include long waitlists, past trauma, physical injuries and disabilities, mental health issues, lack of access to support services, caring for family members, competing appointments, and the need to work.[151] Another significant barrier was long wait times to access child care that primarily affected immigrant women, families with multiple children, and single-parent families.[152]

In addition, approaches to language training in Canada often emphasize structured courses rather than competency-based frameworks. This can limit their effectiveness in addressing the individual needs of students. For example, many language training programs prioritize completing a set curriculum rather than ensuring that students acquire competencies relevant to their personal and professional contexts. This can lead to situations where students finish classes without developing the practical language skills needed in their work environments.[153]

Additionally, many language training programs adopt a standardized approach (e.g., the CLB) that aim to provide consistency and quality in language instruction but often do not account for the varying backgrounds, experiences and learning paces of individual immigrants. Some programs incorporate more flexible and responsive elements such as alternative delivery methods or wraparound supports, but significant gaps remain.

There is also evidence to suggest that the outcomes of language training programs in Canada are uneven. For example, the IRCC evaluation of language training services found that some components of language training programs are associated with greater improvement in immigrant language skills (e.g., full-time training, multi-level classes) while others lowered chances of

progression (e.g., continuous intake classes, where students can enrol and begin studies at any time, not just on a set start date). The evaluation also found that progression varied significantly across different language dimensions and client demographics. Additionally, immigrants in employment-focused language training were more likely to progress and use official languages and had more positive employment outcomes than immigrants who participated in general language training.[154] These findings highlight the importance of tailoring language training to contexts to enhance effectiveness.

To address these challenges, a range of technology-enabled innovations are being adopted by Canadian organizations to make language training more accessible, responsive and effective. This section explores technological approaches used in LINC and CLIC programs, such as online and correspondence learning, the Avenue learning management system, Portfolio-Based Language Assessment (PBLA), and Tutela, a digital platform aimed at supporting LINC/CLIC instructors.

This section also discusses government of Québec initiatives, such as the recently launched Francisation Québec portal, free online French courses for international students and future immigrants offered by the ministère de l'Immigration, de la Francisation et de l'Intégration (MIFI). It also covers digital skills training provided alongside French language courses by institutions like the Centre de services scolaire de Montréal.

Immigrants in employment-focused language training were more likely to progress and use official languages and had more positive employment outcomes than immigrants who participated in general language training.

Additionally, the section will explore the need for stronger evaluation frameworks to measure the intended outcomes of language training programs and improve programming.

Applications of technology

Since the onset of the COVID-19 pandemic in March 2020, newcomer support organizations such as IRCC have increasingly focused on the digital transformation of settlement services. There has been an emphasis on TELL. A recent evaluation of the IRCC Settlement Program found that most newcomers were able to access digital services, primarily through mobile devices. However, the evaluation also identified several groups — including resettled refugees,

seniors, and clients with lower education and literacy levels — that may need additional support such as digital skills training or access to devices, to use online services.[155]

In recent years, the Settlement Program and other Canadian organizations have delivered language training through a variety of modes along the e-learning continuum. In more traditional classroom settings, technology tools and digital resources are used as classroom aids controlled by the instructor to supplement classroom activities. In blended learning environments, some face-to-face class time is replaced with online learning, where students have some control over the timing and place of learning. Finally, in distance or fully online learning, there are no scheduled face-to-face classes, and the learner works at their own pace in their own environment.[156] This evolution toward technology-enabled language training has expanded access and flexibility for many newcomers, making it possible to reach individuals who might otherwise face barriers to participation. However, it has also highlighted the importance of addressing digital inequities to ensure that all newcomers can benefit equally from these innovations.

The LINC and CLIC courses have incorporated technology to enhance language learning. For example, LINC Home Study Canada is a program for permanent residents, Convention refugees, protected persons, and certain temporary residents who are unable to attend LINC classes in person.[157] The program, delivered by several organizations across Canada, offers online instruction using a computer with Internet access, or correspondence learning using CDs. Students are expected to study independently for at least five hours each week and participate in weekly telephone calls with instructors.[158] Unfortunately, there are no recently published evaluation results or data detailing the outcomes or effectiveness of the LINC Home Study program.

Since 2010, the Avenue platform has supported LINC and CLIC by providing interactive course activities that cover listening, speaking, reading and writing skills. In September 2023, language training programs funded by the Ontario Ministry of Labour, Immigration, Training and Skills Development joined IRCC-funded agencies in having access to the project's learning technology services.[159] This platform allows for

blended learning, allowing learners to engage with course materials at their own pace while also participating in collaborative discussions with peers. Avenue also provides an electronic learner portfolio solution in the Moodle LMS. It's a virtual space where teachers can store digital resources for future use, track the amount of time students spend in their Moodle course, and more. In response to the COVID-19 pandemic, LINC/CLIC teachers adapted Avenue for online remote learning, ensuring continuity of language instruction when in-person classes were not possible.[160] The platform supports around 20,000 active users per month and almost one-half of all LINC and CLIC programs in Canada implement Avenue in their operations.

Portfolio-based language assessment is a comprehensive, systematic and collaborative approach to assessing language learning. It is primarily used in federally funded adult English and French language programs for newcomers to Canada. In PBLA, teachers and learners work together to set language learning goals and collect samples of the learner's work across listening, speaking, reading and writing skills. Digital tools are leveraged to support this process. For example, electronic portfolios allow learners and instructors to organize, submit and review work online, and learning management systems (such as Avenue) enable the storage of digital resources, tracking of learner progress, and remote collaboration between students and teachers. It is now a standard feature in LINC programs and is supported by the Centre for Canadian Language Benchmarks in collaboration with IRCC.[161]

A recent evaluation of PBLA suggested that it has promise, with 68% of respondents believing that PBLA helped them to learn more. However, interviewees from the study indicated that PBLA can be expensive, time-consuming and inadequate for clients with low language levels, literacy needs or cognitive disabilities. Furthermore, the evaluation acknowledged that continuous or open-entry classes (where there is no set start date) are disruptive, although they increase occupancy levels. An instructor survey conducted by the study found that 92% of respondents agree it is much more difficult for learners to catch up to the class level in continuous classes.

The evaluation also acknowledges that multi-level classes should have fewer varying CLB levels. Focus groups conducted for the report found multi-level classes are more challenging for clients than classes at the same level. The IRCC language training services evaluation also covered the varying approaches used to address the needs of newcomers. The expert panel used in the study expressed that flexibility in the programs is important, as many newcomers have responsibilities to address. For example, in the client survey, 53% of respondents preferred morning and afternoon sessions.[162]

While the primary focus of Avenue and PBLA is course delivery and learner engagement, Tutela is an IRCC-funded platform aimed at supporting LINC/CLIC instructors by enabling them to collaborate, share resources and access professional development opportunities.[163] It also offers 400 Sharable

Content Object Reference Model (SCORM) learning objects that LINC/CLIC instructors can incorporate into their courses.[164] A recent survey of LINC/CLIC instructors revealed that nearly all respondents (98%) knew about Tutela, but the extent of its use is unclear.[165] Their website provided ample anecdotal testimonies from satisfied users but no evaluation.

Quebec has embraced technology to enhance French language training for immigrants. One of the most significant technological advancements is the Francisation Québec portal launched in June 2023. This platform serves as a single point of service for coordinating all French language learning services in Quebec, including those for newcomers and future immigrants wishing to learn French ahead of their arrival.[166] The ministère de l'Immigration, de la Francisation et de l'Intégration offers free online French courses for international students that allow learners to study at their own pace. Courses are available to international students in Québec and international students who are still in their country of origin and who hold a Certificat d'acceptation du Québec (Québec acceptance certificate).[167] Some organizations, like the Centre de services scolaire de Montréal, offer digital skills training alongside French language courses. This approach helps immigrants develop the necessary language and technical skills to better integrate into the Québec labour market.[168]

There are two types of fully online courses for immigrants living in Québec. Tutored courses have a resource person facilitating online classes and answering questions. The tutor also corrects homework and evaluates participation in the course. Self-study courses, on the other hand, have students complete online exercises and activities on their own. Students can also chat online with other students in the course. Self-study courses also offer specialized modules by job area including administration, law and business, engineering and applied sciences, health and nursing, and tourism and trade.[169]

The government of Québec also offers online French courses with in-person support for immigrants living in Québec. These deferred distance learning courses allow students to learn French from home with the option to meet with teaching staff at a training centre. Teaching staff establish training plans with students, support their work, and evaluate their learning at the end of each course.[170]

More than 90,000 people participated in French language training through Francisation Québec between April 1, 2024, and March 31, 2025, representing a 25% increase over the previous year. This expanded service delivery was made possible due to a growing network of 133 partners, including school boards, non-profits and universities, as well as increased classroom availability throughout the year. Despite these gains, there are still significant waitlists, with 25,000 people waiting for a course as of March 2025, although this is down from 47,000 the previous year.[171] While these statistics provide a snapshot of participation in government-supported French

language training, publicly available statistics on the total number of people taking all types of language courses (including English or private/non-governmental programs) in Quebec are limited.

The evaluation gap

Despite substantial government investment, and the recognition that language proficiency is essential for immigrant integration and economic contribution, there is a significant lack of formal evaluations of language training programs in Canada. This absence of assessment makes it difficult to determine the impact and effectiveness of language training programs, including those that leverage technology-enabled innovations.

Although programs like LINC and CLIC have incorporated various technologies, evaluation of the direct links between technology use and improved language proficiency or employment outcomes remains limited. This creates an environment where public spending is not fully understood, making it more difficult to justify continued investment, refine pedagogical approaches, and scale successful initiatives. Additionally, existing evaluations are often fragmented and inconsistent, making it challenging to compare the effectiveness of various approaches, including technology-enabled innovations. As a result, the true return on investment of language training programs remains largely unmeasured which weakens the evidence base for continued allocation of resources.

Stronger evaluation frameworks in language training programs can enhance accountability, program optimization and strategic growth. Consistent assessment

Despite substantial government investment, and the recognition that language proficiency is essential for immigrant integration and economic contribution, there is a significant lack of formal evaluations of language training programs in Canada.

of language training programs allows governments and organizations to clearly demonstrate that significant public funding is producing measurable outcomes. This transparency can help build public trust and provide further justification for continued investment in language training programs that support immigrant integration and economic participation.

Additionally, a commitment to increased evaluation is crucial for program optimization. The current state of evaluation efforts is fragmented and inconsistent, which prevents a clear understanding of what works and for whom. A stronger focus on evaluation can help assess different program components, including technology-enabled innovations, to understand which interventions are most beneficial for different client demographics. This information can then be used to improve programming, refine teaching methods, and guide curriculum adjustments.

Finally, more robust evaluation frameworks can support strategic planning and scalability. When program outcomes are clearly measured, successful initiatives that are deemed suitable for wider implementation can be identified. This involves expanding language services to reach larger populations or new geographic areas, including programs that incorporate technology-enabled innovations. In support of these goals, evaluation frameworks can measure a range of program outcomes, including language proficiency gains, employment (e.g., labour market integration, economic mobility and earnings), cost-effectiveness (e.g., return on investment, cost-benefit analysis of technology tools), client satisfaction (e.g., surveys, interviews, focus groups), and technology adoption among learners.

Newcomer support organizations across Canada offer language training programs that use technology to improve accessibility and enhance learning. Organizations like Achēv,[172] COSTI Immigrant Services,[173] Immigrant Services Society of BC,[174] and Calgary Catholic Immigration Society[175] have adopted a range of technological solutions to facilitate language learning and newcomer integration including online classes, self-paced online learning modules, learning management systems, virtual conversation circles, AI chatbot services, and digital and media literacy training.

While these initiatives show great promise, there is limited evidence of the extent of technology use or its impact. As a result, more research and evaluation is needed to ensure that good practices are replicated and scaled. Newcomer support organizations are uniquely positioned to bridge the evaluation gap in language training programs, as the trust they have established with immigrants can help them collect more nuanced and authentic feedback. Additionally, their role in providing wraparound supports enables them to evaluate integration outcomes such as access to housing, transportation, health care, and child care in addition to language gains.

Conclusions and Recommendations

The ability to speak one of Canada's official languages is critical to full participation in Canadian society. Internationally recognized standards for language skills are used as benchmarks for a variety of opportunities in Canada, including access to education, work permits, and more. While significant resources have been devoted to newcomer language training in English and French, the results are uneven in part due to very disparate learner needs. At the same time, new technological tools offer the potential to achieve more with fewer resources, provide more convenient and accessible programming. Adaptive solutions tailored to learners with different needs, skill levels, and competencies are possible.

Data on language learning outcomes is fragmented and tracking progress is difficult. Evaluations that have been conducted, including large scale audits, suggest that improvements are needed. Rapidly evolving technology as well as innovative pedagogical processes appear to offer promise, but a more systematic approach is needed to ensure a coordinated strategy with maximum impact and value for money.

This report makes the following recommendations aimed at enhancing Canada's language training programs through technology-enabled innovations:

> **A coordinated national strategy is needed** to support effective integration of technology in language training. It could include shared research, platforms, training, implementation support, and evaluation tools, as well as wraparound supports for learners.

> **Outcomes based competency frameworks aligned** to standardized tests, employer demands, and diverse learner needs and preferences should inform the design, delivery and evaluation of programs.

> **Better coordination and wayfinding** is needed to help newcomers navigate language training standards, options, and integration support programs.

> **More research is needed** to ensure consistent evaluation, information sharing, and support. Research is necessary to test, replicate and scale innovative and effective approaches.

> **Organizations offering language training** need to prioritize outcome-based learning, with personalized approaches to meet the

needs of learners. However, organizations require support to redesign curricula and leverage new technologies to produce optimal results.

> **Wraparound supports are essential** to meet the needs of diverse populations.

> **Consistent evaluation frameworks** that include surveys, interviews, focus groups, should be used to collect feedback from language learners on their experiences with TELL tools and teaching methodologies.

> **Learners must be empowered** to take greater ownership of their language learning through improvements in self-directed learning skills within digital environments. They should be educated on how to leverage technology, as well as digital content (e.g., podcasts, YouTube channels, streaming services) to supplement their formal learning.

> **Guidance needs to be provided** to learners on digital well-being and responsible technology use in language learning.

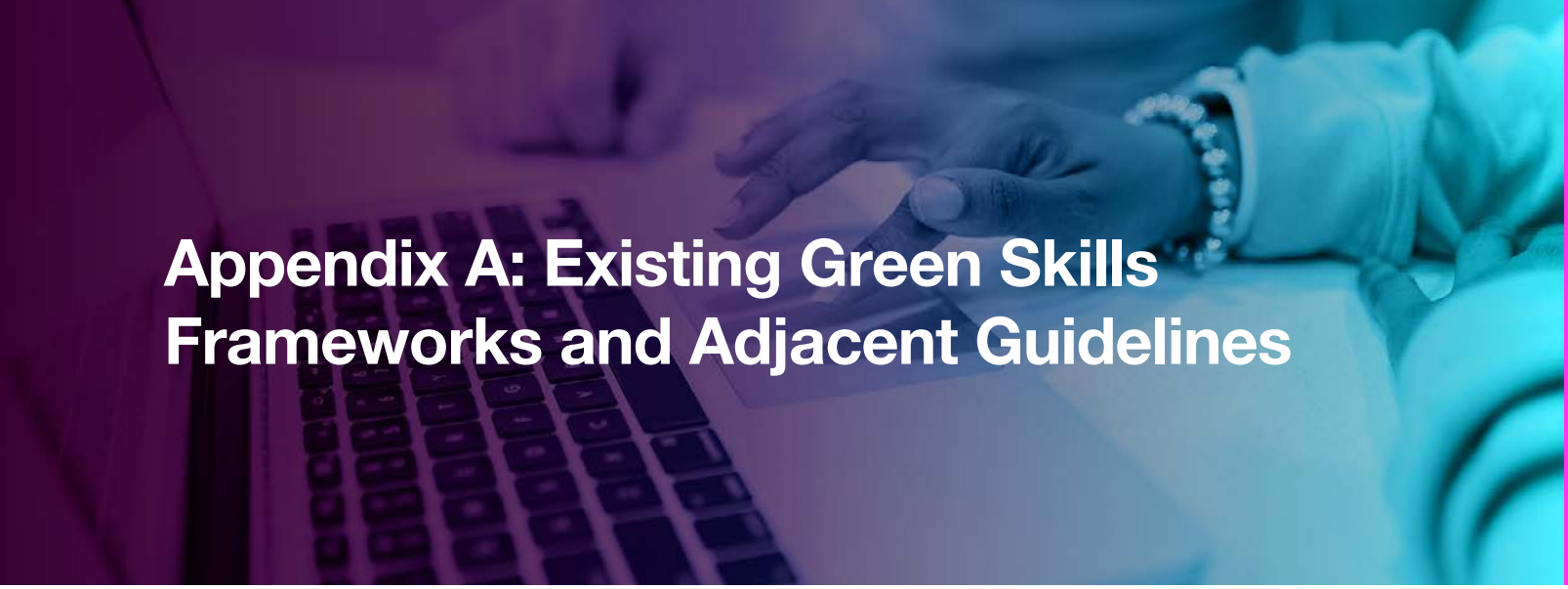
> **Instructors should develop their skills** in creating and managing digital learning materials, while actively integrating new digital tools and teaching strategies in their classes.

To ensure the long-term success and sustainability of technology-enhanced language training in Canada, it is essential to foster cross-sector collaboration among government agencies, educational institutions, community organizations, technology developers, and learners themselves. These partnerships can drive innovation by aligning policy goals with on-the-ground realities, co-developing culturally responsive and accessible digital tools, and sharing best practices across regions and sectors.

It is essential to foster cross-sector collaboration among government agencies, educational institutions, community organizations, technology developers, and learners themselves.

Furthermore, a commitment to continuous improvement through iterative design, participant feedback loops, and adaptive learning systems can help ensure that language training programs remain responsive to evolving learner needs and technological advancements.

Through sustained collaboration, Canada can ensure its language training systems are inclusive and innovative, as well as responsive to the evolving demands of a rapidly changing world.



Appendix A: Existing Green Skills Frameworks and Adjacent Guidelines

Table 1

Comparison of the Canadian Language Benchmarks, Common European Framework of Reference for Languages, and Programme for the International Assessment of Adult Competencies

Component	Canadian Language Benchmarks (CLB)	Common European Framework of Reference for Languages (CEFR)	Programme for the International Assessment of Adult Competencies (PIAAC)
Skills Assessed	Listening, speaking, reading, writing	Spoken production, spoken interaction, listening, reading, writing	Literacy, numeracy, problem-solving in technology-rich environments
Proficiency Levels	12 levels (CLB 1-12)	Six levels (A1 to C2)	Six levels (Below Level 1 to Level 5)
Stages	3 stages: Basic, Intermediate, Advanced	3 broad bands: Basic, Independent, Proficient	Continuous scale divided into proficiency levels
Focus	English and French language proficiency in the Canadian context	Providing a comprehensive method for learning, teaching, and assessing language proficiency across Europe and around the world	Adult skills assessment
Target Audience	Adult immigrants and prospective immigrants in Canada	Language learners, educators, and policy makers internationally	Adult population (16-65 years old)

Table 2

Canadian Language Benchmarks competency levels

CLB Level	Listening	Speaking	Reading	Writing
CLB 1	Understand individual greetings, introductions and goodwill expressions; very short, simple instructions, commands and requests related to immediate personal needs; expressions to attract attention and to request assistance in situations of immediate personal need; very simple information about highly familiar, concrete topics.	Use and respond to basic courtesy formulas and greetings. Give brief, simple, common, routine instructions to a familiar person. Make and respond to simple requests related to immediate personal needs. Give basic personal information in response to direct questions. Ask for basic personal information.	Understand short greetings and simple goodwill messages, as well as very short, simple instructions for common, familiar everyday situations. Get information from very short, simple, common formatted texts. Recognize names, numbers and some basic details in very simple, short texts related to everyday situations and immediate needs.	Convey greetings or other goodwill messages by completing very short, simple standard texts. Copy numbers, letters, words, short phrases or sentences. Complete very short, simple or simplified forms that require only basic personal identification information. Write a few words to complete a short, guided text or answer simple questions.
CLB 2	Understand greetings, introductions, requests, goodwill expressions and an expanding range of basic courtesy formulas; short, simple, common instructions, commands, requests and directions related to immediate personal needs; expressions to make and respond to requests and warnings in situations of immediate personal need; and simple information about familiar, concrete topics.	Use and respond to courtesy formulas and greetings. Give short, simple, common, routine instructions. Make and respond to simple requests related to common everyday activities. Ask for basic personal information. Give very simple warnings and cautions, expanded basic personal information, and basic descriptions of concrete familiar objects.	Understand short greetings and other goodwill messages. Create short, simple, clearly sequenced instructions for common, familiar everyday situations. Use some basic details in very simple, short texts related to everyday, familiar, situations and topics. Get information from simple formatted texts.	Convey an expanding range of goodwill messages by guided notes. Copy from simple lists or very short passages, to complete short tasks. Complete short, simple or simplified forms that require basic personal identification or familiar information. Write a few words to complete a short, guided text or answer simple questions.

CLB Level	Listening	Speaking	Reading	Writing
CLB 3	Understand simple social exchanges, including styles of greetings, introductions and leave-taking; instructions and directions related to familiar, everyday situations of immediate personal relevance; expressions used in familiar everyday situations; and short, simple, descriptive communication about a person, object, situation, scene, personal experience or daily routine.	Use courtesy formulas and greetings. Give simple instructions and directions. Make and respond to simple requests related to everyday activities. Give an expanding range of simple warnings, apologies and cautions. Ask for and give information about immediate needs and some feelings. Give simple descriptions of concrete objects, people or experiences.	Understand short personal social messages; short, simple, clearly sequenced instructions for familiar everyday situations. Understand the purpose, main idea, key information and some details in simple short texts related to everyday familiar and relevant situations and topics. Get information from simple formatted texts, and short business or service texts.	Convey short, personal, informal social messages on familiar topics. Copy or record information from short texts. Complete short, simple forms with basic familiar information and some responses to simple questions. Write short, simple business or service messages, or a few sentences to describe a person, object, place, situation or event.
CLB 4	Understand short social exchanges containing introductions, casual small talk and leave-taking; common, sequentially presented instructions and directions related to familiar, everyday situations of personal relevance; short communication intended to influence or persuade others in familiar, everyday situations; and short descriptive or narrative communication on topics of personal relevance.	Use courtesy formulas and some casual small talk. Give a set of simple instructions and directions. Make and respond to a range of requests and offers. Ask for and give information about needs and feelings related to common everyday activities. Give brief descriptions of personal experiences, situations or simple processes.	Understand simple personal social messages; short, simple, clearly sequenced instructions and instructional texts for familiar everyday situations; and the purpose, main idea, key information and specific details in simple short texts related to everyday familiar situations and topics. Get information from simple formatted texts and short business or service texts.	Convey short, personal, informal social messages related to familiar situations. Copy or record expanded information from short texts. Complete simple forms with basic familiar information and some responses to simple questions. Write simple service messages and a short paragraph to describe a familiar situation, event, personal experience or future plans.

CLB Level	Listening	Speaking	Reading	Writing
CLB 5	Understand the gist and some details in moderately complex common and predictable social exchanges and communication intended to influence or persuade; simple to moderately complex directions and instructions for generally familiar and relevant procedures; and descriptive or narrative monologues or presentations related to everyday, personally relevant topics or situations.	Participate in basic social conversations. Give instructions and directions for everyday activities and processes. Give and respond to informal requests, permission, suggestions and advice. Ask for and give information related to routine daily activities. Describe sequences of events; incidents in the past, present or future; or describe scenes, pictures or daily routines.	Understand simple to moderately complex personal and public social messages, step-by-step instructions and for multistep procedures related to everyday situations and descriptive or narrative texts on familiar topics. Interpret information contained in formatted texts. Locate and use one or two pieces of information from moderately complex formatted text.	Convey personal messages in short, formal and informal correspondence. Reduce short, factual, oral discourse to notes, and an information page to a list of details. Write short correspondence for routine personal needs. Complete forms with detailed personal information. Write a paragraph about a familiar sequence of events or a description.
CLB 6	Understand common social exchanges; moderately complex directions and instructions for technical or non-technical tasks; moderately complex communication intended to influence or persuade in everyday personally relevant situations; short group interactions and discussions on familiar topics; and descriptive or narrative monologues or presentations on generally familiar and relevant topics.	Participate in routine social conversations. Give sequential instructions and directions. Give/respond to informal/somewhat-formal suggestions and indirect requests. Ask for and give somewhat detailed information; express opinions, feelings, obligation and ability. Give detailed, sequenced descriptions of incidents in the past, present or future, or of simple processes. Describe or compare people or places.	Understand moderately complex social messages related to a familiar context; instructions and instructional texts for multi-step procedures related to everyday situations, where the sequence is inferred; and descriptive or narrative texts on familiar topics. Locate and use two or three pieces of information. Get information from moderately complex business/service texts.	Convey personal messages in short, formal and informal correspondence. Reduce short, factual oral discourse to notes, and an information page to an outline or summary. Write short service correspondence for routine purposes. Complete extended forms. Write one or two connected paragraphs to relate a familiar sequence of events, describe or compare.

CLB Level	Listening	Speaking	Reading	Writing
CLB 7	Understand moderately complex social exchanges and communication intended to influence or persuade related to personal or general experiences; moderately complex, but slightly longer, directions and instructions for technical or non-technical tasks; and sometimes unsequenced extended descriptive, narrative monologues or presentations about personal experiences, general knowledge or familiar work-related topics.	Participate in less routine social conversations for many everyday purposes. Give instructions and directions for technical and non-technical tasks, procedures and processes; extended warnings, suggestions, recommendations or advice; and detailed information. Express and qualify opinions and feelings, reservations, approval, disapproval, possibilities and probabilities.	Understand moderately complex personal and public social messages; instructional texts for multi-step procedures related to familiar tasks; and extended descriptions, reports and narrations on familiar topics. Locate and use three or four pieces of information. Get information from and interpret moderately complex formatted texts.	Convey personal messages in formal and informal correspondence. Reduce short oral discourse to notes, and text of two pages to a summary. Write service correspondence for less routine purposes. Complete an expanded range of forms. Write two or three connected paragraphs to sequence events, to describe or compare in depth.
CLB 8	Understand moderately complex social exchanges; extended multi-step directions or instructions for technical or nontechnical tasks; communication intended to influence or persuade related to personal decisions about abstract and complex ideas on familiar topics; and extended monologues or presentations on topics that are generally familiar and related to general knowledge.	Participate in less routine social conversations for most everyday purposes. Give instructions and directions for a broad range of technical and nontechnical tasks, procedures and processes. Propose or recommend solutions to problems in a familiar area. Give detailed information. Express and qualify opinions or concerns. Present solutions.	Understand moderately complex social messages; extended, multi-step instructions and instructional texts for established procedures; and extended descriptions, feature articles, reports and narrations. Locate, integrate and use three or four pieces of information, get information from moderately complex business or service texts. Understand and interpret information contained in moderately complex formatted texts.	Reduce oral discourse into instructions from a text of about two pages to an outline or summary. Write short reports and memos. Complete extensive complex forms and documents. Write three or four paragraphs to describe, explain, express and analyze opinions. Write a paragraph to explain information in tables, graphs, flow charts or diagrams.

CLB Level	Listening	Speaking	Reading	Writing
CLB 9	Understand main intent and some implied meanings in complex communication between speakers with varying roles and relationships; complex multi-step directions and instructions for familiar procedures; complex and extended communication intended to influence, persuade or inform significant decisions; complex, extended discussions between several speakers; and extensive lectures or presentations.	Manage a range of personal and business interactions that involve needs, feelings and attitudes. Give complex instructions for some technical and non-technical tasks, procedures and processes. Ask for, give and discuss detailed information and opinions.	Understand complex written communication conveying general opinions and points of view, and formal instructions for familiar procedures in complex texts. Obtain and accurately interpret information from complex texts to inform significant decisions. Understand the organization, underlying structure, development of complex, formatted texts. Interpret ideas.	Convey correspondence understanding audience, formality and language. Reduce complex information and ideas from multiple sources as notes, outlines. Complete complex forms and documents with pre-set formats. Write semi-formal reports and proposals; and texts to relate the past, describe and compare complex ideas, phenomena or processes, and express and analyze opinions.
CLB 10	Understand complex communication to identify attitudes, emotions, motivations and intentions; complex multi-step directions and instructions for less familiar procedures in some urgent or demanding situations; content, values and assumptions in communication to influence or persuade; and complex expository or argumentative exchanges or discussions between several speakers, extensive lectures or presentations.	Manage an expanding range of personal and business interactions that involve needs, feelings and attitudes. Give complex instructions for some technical and non-technical tasks, procedures and processes. Ask for, give and discuss detailed complex information and opinions.	Understand complex communication conveying stated and unstated values and assumptions; and summarize complex instructional texts about familiar procedures. Obtain and accurately interpret information from multiple complex texts. Understand, summarize and evaluate the development of arguments in complex texts. Interpret and summarize information and ideas contained in complex formatted texts.	Reduce complex, extensive information and ideas from multiple sources as an accurate outline, summary or abstract. Write service correspondence for a broad range of purposes and for external use. Write formal business reports, requests for proposals and proposals. Create forms and other materials with pre-set formats.

CLB Level	Listening	Speaking	Reading	Writing
CLB 11	Understand propositionally and linguistically complex communication between diverse speakers; complex multi-step directions and instructions for unfamiliar procedures in urgent or demanding situations; nuances and subtleties of communication intended to influence or persuade; and complex, detailed and specialized discussions between several speakers; and complex, detailed and extensive lectures or presentations.	Manage an expanded range of interactions to appropriately respond to needs, feelings and attitude). Give complex instructions for technical and non-technical tasks, procedures and processes. Ask for, give and discuss detailed complex information to solve problems, make decisions.	Understand complex communication conveying disagreement or conflict; extensive instructions for unfamiliar, complex procedures; and understand, summarize and outline position, assumptions, bias, values and motives from different texts. Obtain and interpret, analyze and evaluate information from multiple complex texts. Analyze, summarize and synthesize information and ideas contained in complex formatted texts.	Reduce and synthesize very complex and extensive information from multiple sources into a variety of formats. Write business or service correspondence for a broad range of purposes and for external use; formal business reports, requests for proposals and formal proposals; and effective, stylistically complex text.
CLB 12	Understand nuances and subtleties of propositionally and linguistically complex communication between diverse speakers and of communication intended to influence or persuade. Evaluate detailed, extensive oral instructions; and critically evaluate complex, detailed and specialized discussions, interviews, formal debates and detailed and extensive lectures or presentations.	Manage a broad range of personal and business interactions in formal and informal situations to appropriately and effectively negotiate needs, feelings and attitudes. Give complex instructions on technical and non-technical tasks, procedures and processes. Ask for, give and discuss detailed complex information to advise or counsel.	Understand complex communication conveying social politeness and cooperation, or their violations, and evaluate and revise them for clarity. Obtain and accurately interpret, summarize, analyze and evaluate information in multiple texts. Understand the content, organization, language, tone and style of complex continuous and formatted texts, and evaluate them.	Reduce and synthesize very complex and extensive information from multiple sources. Write highly specialized, complex formal correspondence and documents; effective and stylistically polished texts to inform, convince and persuade others. Evaluate, revise and edit summaries and other reduced forms of very complex and extensive information and information texts.

Source: Centre for Canadian Language Benchmarks. (n.d.). *Overview of CLB and NCLC competency levels.* https://www.language.ca/wp-content/uploads/2019/02/CLB_NCLC_Overview-of-Competencies.pdf

Table 3

Common European framework of reference for languages levels

Proficient user	C2	Can understand with ease virtually everything heard or read. Can summarize information from different spoken and written sources, reconstructing arguments and accounts in a coherent presentation. Can express him/herself spontaneously, very fluently and precisely, differentiating finer shades of meaning even in more complex situations.
	C1	Can understand a wide range of demanding, longer texts, and recognize implicit meaning. Can express him/herself fluently and spontaneously without much obvious searching for expressions. Can use language flexibly and effectively for social, academic and professional purposes. Can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organizational patterns, connectors and cohesive devices.
Independent user	B2	Can understand the main ideas of complex text on concrete as well as abstract topics, including technical discussions in his/her field of specialization. Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
	B1	Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise while travelling in an area where the language is spoken. Can produce simple connected text on topics which are familiar or of personal interest. Can describe experiences and events, dreams, hopes and ambitions, and briefly give reasons and explanations for opinions and plans.
Basic user	A2	Can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g., very basic personal and family information, shopping, local geography, employment). Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. Can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.
	A1	Can understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type. Can introduce him/herself and others and can ask and answer questions about personal details such as where he/she lives, people he/she knows and things he/she has. Can interact in a simple way provided the other person talks slowly and clearly and is prepared to help.

Source: Council of Europe. (2024). *Global scale - Table 1 (CEFR 3.3): Common Reference levels*. https://www.coe.int/en/web/common-european-framework-reference-languages/table-1-cefr-3.3-common-reference-levels-global-scale

Table 4

Programme for the International Assessment of Adult Competencies (PIAAC) literacy proficiency levels

Level	Score Range	Descriptors of Literacy Tasks
5	376-500	At this level, tasks may require the respondent to search for and integrate information across multiple, dense texts; construct syntheses of similar and contrasting ideas or points of view; or evaluate evidence-based arguments. Application and evaluation of logical and conceptual models of ideas may be required to accomplish tasks. Evaluating reliability of evidentiary sources and selecting key information is frequently a key requirement. Tasks often require respondents to be aware of subtle, rhetorical cues and to make high-level inferences or use specialized background knowledge.
4	326-375	Tasks at this level often require respondents to perform multiple-step operations to integrate, interpret or synthesize information from complex or lengthy continuous, non-continuous, mixed, or multiple type texts. Complex inferences and application of background knowledge may be needed to perform successfully. Many tasks require identifying and understanding one or more specific, non-central ideas in the text to interpret or evaluate subtle evidence-claim or persuasive discourse relationships. Conditional information is frequently present in tasks at this level and must be taken into consideration by the respondent. Competing information is present and sometimes seemingly as prominent as correct information.
3	276-325	Texts at this level are often dense or lengthy, and include continuous, non-continuous, mixed, or multiple pages of text. Understanding text and rhetorical structures become more central to successfully completing tasks, especially navigating complex digital texts. Tasks require the respondent to identify, interpret, or evaluate one or more pieces of information, and often require varying levels of inference. Many tasks require the respondent to construct meaning across larger chunks of text or perform multi-step operations to identify and formulate responses. Tasks often also demand that the respondent disregard irrelevant or inappropriate content to answer accurately. Competing information is often present, but it is not more prominent than the correct information.
2	226-275	At this level, the medium of texts may be digital or printed, and texts may comprise continuous, non-continuous, or mixed types. Tasks in this level require respondents to make matches between the text and information, and may require paraphrasing or low-level inferences. Some competing pieces of information may be present. Some tasks require the respondent to cycle through or integrate two or more pieces of information based on criteria; compare and contrast or reason about information requested in the question; navigate within digital texts to access and identify information from various parts of a document.

Table 5

Technology-enabled language learning tools and their uses

Category	Examples	Key features	Uses	Benefits
AI-powered tools	ChatGPT, Google Gemini, Grammarly, ELSA Speak, LingoChamp	Personalized learning paths, instant feedback, conversational AI chatbots, automated assessment	Personalized practice, pronunciation improvement, writing enhancement, conversation practice, vocabulary acquisition	Increased engagement and motivation, self-regulated learning, accessibility, unbiased feedback
Mobile-assisted language learning	Duolingo, Babbel, Rosetta Stone, Memrise, Anki	Gamification, micro-lessons, notifications, multimedia integration	On-the-go practice, supplemental learning, vocabulary and grammar drills, listening comprehension, pronunciation exercises	Flexibility, increased motivation, consistent practice, accessibility
Multimedia	YouTube, podcasts and audiobooks, streaming services with captions, digital textbooks with embedded audio/video, online news outlets	Multi-sensory input, audio/video integration, authentic content, interactivity, user control	Listening to native speakers, comprehension tasks, cultural exposure, creative assignments	Enhanced engagement, improved listening, cultural awareness, better retention
Virtual reality/ Augmented reality	Immerse, ENGAGE VR, Mondly VR/AR, AR dictionaries	Immersive 3D environments, real-life scenarios, contextual learning, cultural simulations	Simulated conversations, scenario-based tasks, cultural immersion, vocabulary/ speaking practice	Increased engagement, reduced anxiety, improved autonomy, real-world language use
Online collaboration tools	Google Docs, Microsoft Teams, Zoom, Slack, Moodle	Real-time editing, group chats, forums, peer review, project-based tasks	Group writing, peer feedback, online discussions, collaborative projects, cross-cultural exchanges	Enhanced communication, teamwork, authentic interaction, critical thinking

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