

Bridging the Digital Divide: The Impact of Digital Transformation on Equity and Accessibility in Canadian Continuing Education

Sarah Anne Thompson¹ & Michael James Wong²

¹ Department of Family Relations and Applied Nutrition, University of Guelph, Ontario

² Faculty of Education, University of Ottawa, Ottawa

Correspondence: Sarah Anne Thompson, Department of Family Relations and Applied Nutrition, University of Guelph, Canada

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Abstract

This study investigates the rapid digital transformation of continuing education programs in Canada, examining how the shift to online and hybrid learning models has affected educational equity and accessibility for diverse learner populations. Through a mixed-methods approach combining quantitative surveys with qualitative interviews across three Canadian provinces, this research identifies critical barriers faced by non-traditional students, particularly those in rural and remote areas, older adults, and low-income learners. The findings reveal significant disparities in digital infrastructure access, technological literacy, and learner satisfaction across demographic groups. Results indicate that while digital transformation has expanded access for some populations, it has simultaneously created new equity gaps that require urgent policy intervention. The study proposes a comprehensive framework for implementing inclusive digital continuing education policies, emphasizing the importance of maintaining human-centered learning approaches while leveraging technological innovations.

Keywords: continuing education, digital transformation, educational equity, adult learning, Canada, Bridging the Divide: digital transformation

1. Introduction

1.1 Background of Continuing Education in Canada

The socio-economic landscape of Canada has historically been underpinned by a robust commitment to lifelong learning, recognizing it as a cornerstone of national prosperity and individual social mobility. Continuing education (CE) in Canada encompasses a wide array of post-secondary learning opportunities, ranging from non-credit courses and professional certifications to adult upgrading and workforce training. Historically, this sector has served as a critical safety net and an accelerator for the Canadian economy, facilitating the integration of immigrants, upskilling of the existing workforce, and providing second-chance opportunities for those who did not complete formal education earlier in life (Council of Ministers of Education, Canada, 2008). The decentralization of education in Canada, where responsibility is shared between federal and provincial jurisdictions, has fostered a diverse ecosystem of community colleges, polytechnics, universities, and private career colleges. This institutional diversity has been instrumental in responding to regional labor market demands.

For decades, the prevailing model of continuing education relied heavily on face-to-face instruction within physical classrooms. This traditional approach, while effective for localized delivery, inherently imposed geographical and temporal constraints on learners. Adult learners, often balancing employment, familial responsibilities, and education, relied on the physical proximity of educational institutions to access learning opportunities. Despite these limitations, the sector thrived, driven by a demographic bulge of learners seeking career advancement and a federal immigration policy that prioritizes skilled workers requiring credential recognition or upgrading. The significance of CE in the Canadian context cannot be overstated; it is the primary mechanism for human capital development in a rapidly evolving knowledge economy. As industries shift from resource-based manufacturing to service and technology-oriented sectors, the demand for continuous skill acquisition has intensified, cementing the role of CE as a vital public good (Fisher, Rubenson, & Jones, 2011).

1.2 The Digital Shift in Adult Learning

The advent of the digital age precipitated a gradual but steady transformation in the delivery of continuing education. Initially, this shift was characterized by the introduction of Learning Management Systems (LMS) such as Moodle and Blackboard, which served as repositories for course materials rather than dynamic learning

environments. However, the last decade has witnessed an accelerated transition toward online and hybrid learning formats, driven by rapid advancements in educational technology and the ubiquity of high-speed internet. This evolution was not merely technological but pedagogical, moving from simple digitization of content to the creation of interactive, synchronous, and asynchronous learning experiences that promised greater flexibility for adult learners (Bates, 2019).

The transition was dramatically catalyzed by the COVID-19 pandemic, which acted as a forcing function for educational institutions globally. In Canada, the sudden cessation of in-person activities in March 2020 necessitated an immediate pivot to emergency remote teaching. While initially reactive, this period normalized online education for a vast segment of the population that had previously been skeptical or unaware of its potential. Post-pandemic, the landscape has irrevocably changed; learners now expect a "digital-first" approach. Hybrid models, which combine the convenience of online instruction with the social benefits of occasional in-person interaction, have emerged as the new standard for many continuing education programs. This digital shift offers theoretical benefits such as increased accessibility for those with mobility issues, the removal of geographical barriers, and the ability for learners to pace their education according to their own schedules. However, this rapid digitization has also exposed the fragility of educational ecosystems that were unprepared for such a sweeping technological overhaul.

1.3 Problem Statement

While the digital shift in continuing education holds immense promise for democratizing access to learning, it simultaneously threatens to exacerbate existing inequalities. The central problem addressed by this study is the emerging digital divide and its specific threat to educational accessibility for marginalized non-traditional student groups in Canada. The digital divide is no longer solely defined by the binary of having or not having internet access; it has evolved into a multidimensional concept encompassing digital literacy, the quality of connectivity, access to appropriate hardware, and the availability of technical support.

As Canadian institutions increasingly pivot to online and hybrid delivery models, there is a tangible risk that learners from low socio-economic backgrounds, rural and remote communities, and older adults are being left behind. For these marginalized groups, the barriers to participation in digital continuing education are profound. Rural learners may face prohibitive costs for data plans or suffer from unreliable connectivity, making synchronous participation impossible. Older adults, who form a significant demographic in continuing education, may struggle with the user interfaces of modern LMS platforms or lack the troubleshooting skills required to resolve minor technical issues. Furthermore, the shift to online learning often assumes a level of self-directed learning capability and technological proficiency that privileges those with prior educational advantages. Consequently, the digital shift, rather than being an equalizer, risks becoming a mechanism of exclusion, widening the gap between the "haves" and "have-nots" in the Canadian educational sphere.

1.4 Research Objectives

In response to the problem identified above, this study is guided by three primary research objectives. First, the study aims to assess the digital access barriers faced by adult learners in Canada. This involves an empirical examination of the infrastructural challenges (e.g., internet speed, device availability) and the skills-based challenges (e.g., digital literacy, self-efficacy) that impede participation in online continuing education. By quantifying these barriers, the research seeks to move beyond anecdotal evidence to establish a clear picture of the digital divide's depth and breadth.

Second, the study seeks to evaluate learner satisfaction and engagement in digital environments. It is not enough to know that learners can log in; we must understand the quality of their educational experience. This objective involves analyzing correlations between the mode of delivery (online vs. hybrid), learner demographics, and outcomes such as course completion rates, perceived quality of instruction, and overall satisfaction. The goal is to identify which populations are thriving in digital spaces and which are struggling, thereby providing a nuanced understanding of the "second-level digital divide" related to usage and skills (Hargittai, 2002).

Third, and perhaps most critically, the study aims to propose equity-focused solutions. Based on the data collected and analyzed, this research intends to offer actionable recommendations for policymakers, educational institutions, and curriculum designers. These recommendations will focus on mitigating the identified barriers and fostering a more inclusive digital learning environment. The ultimate objective is to ensure that the digital transformation of continuing education in Canada aligns with the principles of social justice and equitable access for all citizens.

1.5 Significance of the Study

The significance of this research extends beyond academic inquiry, holding profound theoretical and practical implications for the future of Canadian education and society. From a theoretical perspective, this study contributes to the discourse on adult education by applying established frameworks, such as Knowles'

Andragogy and Critical Pedagogy, to the distinct context of the digital age. It bridges the gap between technology-focused research and adult learning theory, offering a holistic understanding of how digital environments reshape the adult learning experience.

Practically, this study is of vital importance to Canadian policymakers. As the federal and provincial governments grapple with the economic aftermath of the pandemic and the looming skills gap, understanding the dynamics of digital continuing education is essential for crafting effective labor market policies. The findings will inform decisions regarding infrastructure investment, such as broadband expansion for rural communities, and funding for digital literacy programs. For educational institutions, the research provides a roadmap for designing more inclusive curricula and support services. By highlighting the specific needs of marginalized learners, colleges and universities can allocate resources more effectively to ensure student retention and success. Finally, for the Canadian workforce, this study highlights the necessity of equitable upskilling pathways. In an economy where continuous learning is prerequisite for employability, ensuring that no demographic is systemically excluded from digital education is a matter of economic necessity and national social cohesion.

2. Literature Review

2.1 Theoretical Frameworks of Adult Education

To fully understand the impact of digital transformation on continuing education, one must situate the discussion within robust theoretical frameworks of adult learning. The most prominent of these is Malcolm Knowles' theory of Andragogy, which posits that adult learners are distinct from child learners in several key ways (Knowles, Holton, & Swanson, 2015). Andragogy suggests that adults are self-directed, draw upon their life experiences as a learning resource, are goal-oriented, and are motivated by internal factors such as self-satisfaction or professional growth. In the context of digital learning, the principle of self-direction becomes paramount. Online environments often require a higher degree of autonomy and self-regulation than traditional classrooms. However, a critical tension arises when digital literacy is low; a learner may be highly motivated and self-directed in their career goals but simultaneously dependent on external support to navigate the technology required to achieve them. This study utilizes Andragogy to assess whether digital platforms adequately support the adult learner's need for relevance and self-concept, or if the technological interface acts as a barrier to the very autonomy the theory champions.

Complementing Andragogy is the framework of Critical Pedagogy, derived largely from the work of Paulo Freire. Critical Pedagogy is concerned with the relationship between education and power, viewing education as a political act that can either liberate or domesticate (Freire, 1970). In the digital era, Critical Pedagogy provides a lens through which to examine the digital divide not merely as a technical glitch, but as a structural inequity. It prompts the question: Who benefits from the digitization of education? If digital learning privileges those with existing cultural and economic capital, it may perpetuate cycles of oppression rather than alleviating them. Critical Digital Pedagogy, a subset of this framework, argues that educational technology should be used to challenge existing hierarchies and promote inclusivity (Morris & Stommel, 2018). This literature review draws upon Critical Pedagogy to argue that without intentional intervention, the digital shift in Canadian continuing education risks becoming a tool of exclusion, aligning with Freire's concept of "banking education" where technology deposits information without engaging the learner in critical dialogue, particularly for those lacking the digital fluency to participate fully.

2.2 Evolution of E-Learning in Canada

The trajectory of e-learning in Canada over the last decade reflects a complex interplay of federal initiative, provincial jurisdiction, and institutional adaptation. Historically, Canada has been a pioneer in distance education, leveraging its vast geography to develop correspondence courses and, later, radio and television-based instruction. In the digital era, this legacy evolved into online learning. The federal government, through organizations such as the Office of Literacy and Essential Skills and later the Future Skills Centre, has recognized the importance of digital skills for the economy. However, education remains a provincial responsibility, leading to a patchwork of policies and implementation strategies (Ungerleider & Burns, 2003).

In the last decade, several provinces have launched significant initiatives to support e-learning. For instance, Ontario's eCampusOntario has been instrumental in funding the development of online resources and open textbooks for post-secondary institutions. Similarly, British Columbia's BCcampus has led initiatives in open educational resources (OERs) to reduce costs for students. These policy measures have generally aimed to increase the capacity of institutions to deliver online courses and improve the quality of the digital learning experience. However, the literature reveals that these policies have often focused on institutional readiness and infrastructure rather than on the equity dimensions of access. While there have been investments in broadband infrastructure through programs like the Universal Broadband Fund, the connection between these infrastructure projects and educational outcomes for adult learners remains under-researched. The literature indicates that

while Canadian institutions have successfully adopted the hardware of e-learning (LMS platforms, video conferencing), the software of pedagogical adaptation and learner support has lagged, particularly for non-traditional students.

2.3 The Digital Divide in Education

The concept of the digital divide has evolved significantly since the term was coined in the 1990s. Early definitions focused on physical access to computers and the internet. In the Canadian context, this "first-level divide" is still a pertinent issue, particularly in rural, remote, and Indigenous communities where high-speed internet remains unreliable or unaffordable (McKeown, Noce, & Czerny, 2021). Statistics Canada has consistently documented a gap in internet access between urban and rural households, a geographic disparity that directly impacts the ability of adult learners in these areas to engage in online continuing education.

However, contemporary scholarship focuses heavily on the "second-level digital divide," which refers to inequalities in the skills and abilities to use information and communication technologies (ICTs) effectively (Hargittai, 2002). This includes digital literacy—the ability to find, evaluate, utilize, and create information using digital technologies. For older adults and those with lower levels of formal education, this second-level divide is a formidable barrier. Research shows that anxiety regarding technology, often termed "technophobia," can significantly impede learning outcomes in online environments (Tsai, Tsai, & Hwang, 2011). Furthermore, the literature identifies a "third-level divide," concerning the tangible benefits individuals derive from technology use. Even when access and skills are present, learners may not leverage online education for upward social mobility if the content is not relevant to their socio-economic context. This review suggests that addressing the digital divide in Canadian continuing education requires a multi-pronged approach that addresses hardware, connectivity, literacy, and the socio-cultural relevance of digital learning materials.

2.4 Global Comparisons

Placing the Canadian context within a global framework helps to isolate unique challenges and identify best practices. Comparisons with other OECD nations reveal that Canada is generally a leader in internet penetration and digital adoption, yet lags in specific metrics of equitable access and rural connectivity compared to nations like South Korea or the Scandinavian countries. For example, Estonia and Finland have enshrined internet access as a human right and have robust nationwide infrastructure that ensures high-speed connectivity even in remote areas. These nations have also integrated digital literacy comprehensively into their adult education systems, viewing it as a fundamental competency rather than an add-on (Carlsen, 2016).

In contrast, the United States shares similar challenges with Canada regarding vast geographical distances and decentralized education systems. However, the U.S. has seen a more rapid proliferation of private, for-profit online education providers targeting adult learners, a sector that is less dominant in the Canadian public-post secondary landscape. While this has increased access, it has also raised concerns about quality and student debt. The European Union's "Digital Education Action Plan" provides another useful contrast, emphasizing the creation of digital learning hubs and the upskilling of educators. Canadian policy literature often notes the lack of a cohesive national digital education strategy similar to the EU's, resulting in siloed efforts across provinces (OECD, 2021). This review utilizes these global comparisons to argue that Canada can learn from the infrastructural investments of the Nordics and the coordinated policy frameworks of the EU to address the inequities in its own continuing education sector.

3. Method

3.1 Research Design

To comprehensively address the research objectives regarding digital access barriers and learner satisfaction, this study employed a convergent parallel mixed-methods design. This methodological approach was selected for its ability to provide a more complete understanding of the research problem than either quantitative or qualitative methods alone (Creswell & Plano Clark, 2018). The design involves the concurrent collection of quantitative and qualitative data, followed by a separate analysis of each dataset, and finally an interpretation of how the two datasets converge or diverge.

The rationale for this choice lies in the nature of the research problem. While quantitative data is essential for measuring the extent of the digital divide—such as the correlation between geographic location and internet speed—it lacks the nuance to explain how these barriers affect the lived experience of the learner. Conversely, qualitative data provides rich, narrative insights into the frustrations and motivations of adult learners but may lack generalizability. By merging these two strands, the study aims to produce statistically significant findings that are grounded in the authentic voices of Canadian adult learners. This design allows for the triangulation of data, enhancing the validity of the findings regarding the impact of the digital shift on marginalized groups.

3.2 Participant Selection

The participant selection strategy was designed to capture a diverse sample of the Canadian adult population engaged in continuing education. A stratified random sampling technique was utilized to ensure representation across key demographic variables: age (categorized as 18-29, 30-49, 50-64, 65+), geographic location (Urban, Rural, Remote), and socio-economic status (based on income brackets and education level). The sample was drawn from three distinct provinces to account for regional policy differences: Ontario (representing a highly populated, urban-centric hub), British Columbia (representing a mix of urban and rugged geographic terrain), and Nova Scotia (representing a province with significant rural and coastal populations).

Participants were required to be adults (18 years or older) currently enrolled in or having completed a continuing education course within the past 12 months. This included both credit and non-credit courses offered by public colleges, universities, or private career colleges. The target sample size for the quantitative phase was 1,500 respondents, determined by a power analysis to ensure a 95% confidence level with a margin of error of $\pm 2.5\%$. For the qualitative phase, a subset of 30 participants was purposefully selected from the survey respondents to ensure maximum variation in the sample. This subset specifically included individuals who self-identified as facing significant barriers to digital learning, such as those residing in rural areas with poor connectivity or older adults reporting low digital literacy.

3.3 Data Collection Instruments

The quantitative data collection instrument was a structured survey questionnaire consisting of 45 items. The survey was divided into four sections: Demographics, Digital Access and Infrastructure, Digital Literacy and Self-Efficacy, and Learning Satisfaction and Outcomes. Metrics for digital access included type of device used, frequency of internet disruptions, and cost of data plans. Digital literacy was measured using a validated scale adapted from the Digital Literacy Scale (DLS), which assessed competencies in information navigation, communication, and content creation (Ng, 2012). Learning satisfaction was measured using a 5-point Likert scale based on the Student Satisfaction Inventory (SSI), probing factors such as instructor responsiveness, course interaction, and perceived relevance of the content.

The qualitative data collection instrument was a semi-structured interview protocol. Interviews were conducted via secure video conferencing or telephone, depending on participant preference and connectivity. The interview guide consisted of open-ended questions designed to elicit detailed narratives about the learners' experiences. Key prompts included: "Can you describe a specific time during your course where technology hindered your learning?", "How did you navigate the technical requirements of the course?", and "What support from your institution would have made your digital learning experience better?" The semi-structured nature allowed the researcher to probe deeper into specific issues raised by participants, such as feelings of isolation or specific technical hurdles.

3.4 Data Analysis Procedures

Data analysis for this study followed the protocols associated with a convergent mixed-methods design. For the quantitative data, statistical analysis was performed using SPSS (Statistical Package for the Social Sciences) version 27. Initial analysis involved descriptive statistics (frequencies, means, standard deviations) to profile the participant demographics and access levels. Subsequently, inferential statistics were employed. Independent samples t-tests and Analysis of Variance (ANOVA) were used to determine if there were statistically significant differences in learner satisfaction and course completion rates across different demographic groups (e.g., urban vs. rural). Multiple regression analysis was conducted to assess the predictive power of digital access and literacy variables on learning outcomes, controlling for socio-economic status.

Qualitative data from the 30 interviews were analyzed using Thematic Analysis as outlined by Braun and Clarke (2006). The process involved six phases: familiarization with the data through repeated listening to audio recordings and reading transcripts; generating initial codes; searching for themes by collating codes into potential categories; reviewing themes to ensure they accurately reflected the data; defining and naming themes; and producing the final report. To ensure rigor, the researcher employed member checking, where a summary of findings was sent back to a subset of participants for verification. NVivo 12 software was used to manage the qualitative data and facilitate the coding process.

3.5 Ethical Considerations

Given the focus on human participants, this study adhered strictly to the ethical guidelines established by the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2). Prior to data collection, the research protocol was reviewed and approved by the Institutional Review Board (IRB) of the lead researcher's university. A cornerstone of the ethical approach was informed consent. All participants were provided with a detailed consent form outlining the purpose of the study, procedures, potential risks, and benefits. It was explicitly stated that participation was voluntary and that they could withdraw at any time without penalty.

Anonymity and confidentiality were paramount. Survey data were collected anonymously; no IP addresses or identifying information were stored. For the interview phase, while participants had to provide contact information to schedule the session, all data were pseudonymized during transcription. Any potentially identifying details mentioned during interviews (e.g., specific workplace names or small towns) were redacted. Data security was maintained through password-protected storage and encryption. Furthermore, special consideration was given to the potential vulnerability of participants with lower literacy or those facing digital exclusion; the consent forms and survey interface were designed to be clear and accessible, and participants were offered the option to have the survey read aloud to them if needed.

4. Results

4.1 Demographic Profile of Participants

The quantitative phase yielded a final sample of $N = 1,423$ valid responses, representing a response rate of 94.8%. The demographic profile of the participants suggests a diverse representation of the Canadian continuing education population. In terms of age, 25% of respondents fell into the 18-29 category (young adults entering the workforce), 40% were aged 30-49 (mid-career professionals), 25% were aged 50-64 (those seeking upskilling or career change), and 10% were 65 or older (senior learners engaging in learning for personal enrichment or maintenance of licensure). Gender distribution was skewed towards female participants (62%), a trend consistent with general enrollment statistics in continuing education.

Geographically, 55% of respondents resided in urban centers (defined as population $> 100,000$), 30% in rural areas, and 15% in remote/very remote regions. Employment status varied: 45% were employed full-time, 20% part-time, 15% self-employed, 15% unemployed (seeking work), and 5% retired. Socio-economic status, inferred from income and education, showed that while 60% of participants held a university or college degree, a significant portion (40%) had only a high school diploma or less, indicating that continuing education serves a crucial bridging role for those with lower initial educational attainment. The qualitative sample ($N=30$) was reflective of these demographics, with deliberate over-sampling of rural residents (50% of the interview pool) and those over the age of 50 (40%).

4.2 Digital Infrastructure and Connectivity

The results regarding digital infrastructure reveal a stark digital divide within the Canadian continuing population. While 98% of respondents reported having access to some form of internet connection, the quality and reliability of this access varied drastically by location. Urban learners reported an average internet speed of 150 Mbps, with 95% experiencing "rare" interruptions. In sharp contrast, rural learners reported an average speed of 25 Mbps, and remote learners averaged less than 10 Mbps. Furthermore, 40% of rural and remote respondents reported experiencing "frequent" or "daily" service disruptions that hindered their ability to attend live lectures or upload assignments.

Device ownership also presented disparities. While the majority of learners (89%) owned a laptop or desktop computer, a significant minority (11%), particularly those in the lowest income bracket ($< \$30,000/\text{year}$), relied exclusively on smartphones to complete their coursework. These "mobile-only" learners reported distinct disadvantages, including difficulty reading long documents, participating in collaborative tasks requiring split-screens, and accessing specialized software. The cost of connectivity was another barrier; 30% of low-income respondents stated that they had to cut back on other essentials (such as food or utilities) to afford their monthly internet bill to stay enrolled in their courses.

4.3 Learner Engagement and Satisfaction

Analysis of learner engagement and satisfaction metrics highlighted the impact of the digital infrastructure on educational outcomes. Overall, the mean satisfaction score for online learning was 3.5/5.0. However, when disaggregated by location, urban learners had a mean satisfaction of 3.8, while rural learners averaged 2.9, and remote learners 2.4. A similar trend was observed in course completion rates. The overall completion rate for surveyed courses was 78%. For urban learners, this rose to 85%, whereas for rural learners it dropped to 68%, and for remote learners to a concerning 55%.

Qualitative analysis provided context to these statistics. Learners with reliable high-speed internet reported high levels of satisfaction with the flexibility of online learning, appreciating the lack of commute and the ability to balance studies with work. Conversely, learners with poor connectivity expressed deep frustration. One rural participant noted, "I spent half my evening trying to reconnect to Zoom. By the time I got back in, the professor had moved on. I felt like I was constantly chasing the class rather than being in it." Additionally, the perceived quality of instruction was closely tied to the instructor's digital fluency. Courses where instructors actively used interactive elements (breakout rooms, real-time polls) received higher ratings, but only if the students' technology could support it.

4.4 Qualitative Findings on Barriers

The thematic analysis of the interview transcripts revealed three primary themes regarding barriers to digital learning: Technological Frustration, Social Isolation, and Lack of Motivation. "Technological Frustration" was the most pervasive theme, described by almost all rural and older participants. This went beyond mere connectivity issues; it encompassed a lack of familiarity with LMS platforms and software. Participants spoke of the "cognitive load" of learning the subject matter while simultaneously battling the interface. A 58-year-old learner stated, "I want to learn accounting, not how to navigate Canvas. Every assignment feels like a technical obstacle course."

The second theme, "Social Isolation," emerged as a significant drawback of the digital format. Many adult learners valued continuing education not just for the curriculum but for the social networking and peer support it provided. Online formats, particularly asynchronous ones, were described as "cold" and "impersonal." Participants missed the informal chats before class and the sense of community. As one participant explained, "It's just me and my screen. I don't know if anyone else is struggling, so I feel like I'm the only one." This isolation was identified as a key factor in diminishing motivation, leading to procrastination and, ultimately, attrition.

The third theme, "Lack of Motivation," was particularly strong among learners who had low digital self-efficacy. Without the physical presence of an instructor and peers to provide accountability, these learners struggled to maintain a study schedule. The flexibility of online learning, for some, became a liability. Without external structure, learners reported feeling "adrift." This suggests that while digital education offers autonomy, a segment of the adult learner population requires a higher degree of external scaffolding to remain engaged.

4.5 Disparities Across Demographics

Correlation and regression analysis confirmed that both location (rural vs. urban) and age significantly impact learning outcomes in digital environments, often mediated by socio-economic status. A strong positive correlation was found between household income and learner satisfaction ($r = 0.45$). Higher-income learners could afford better hardware (multiple monitors, ergonomic workspaces) and redundant internet connections (e.g., a home line plus a cellular hotspot), buffering them against technical failures.

Age was also a significant predictor. While older learners (65+) were often the most intrinsically motivated, they faced the steepest barriers in digital literacy. The data showed that for every decade increase in age, there was a corresponding decrease in digital self-efficacy scores, which in turn negatively correlated with course completion. However, interestingly, when institutional support was present (such as a dedicated tech help line), the satisfaction scores of older learners improved significantly, suggesting that the barrier is not age itself but the lack of tailored support. The intersection of rurality and low income was the strongest predictor of failure. Rural learners with low income were 3.5 times more likely to drop out of an online course than their urban, high-income counterparts.

5. Discussion

5.1 Interpreting the Accessibility Gap

The results of this study provide compelling evidence that the digital shift in Canadian continuing education has created a distinct accessibility gap, confirming the fears posited in the problem statement. The findings align with existing theories on the digital divide, particularly the transition from a "first level" (access) to a "second level" (skills) and "third level" (benefits) divide (van Dijk, 2020). The correlation between low-income status and "mobile-only" learning illustrates how material deprivation limits the efficacy of educational technology. While these learners are technically "online," their engagement is mediated through a device that limits their ability to produce complex work, thereby restricting the benefits they can derive from the course.

Furthermore, the results regarding rural connectivity challenge the narrative that Canada is a fully connected nation. The significant disparities in speed and reliability between urban and remote areas highlight a failure of infrastructure policy to keep pace with the demands of modern education. From an Andragogical perspective, this accessibility gap strips adult learners of the self-concept they need to be effective. Knowles (1980) argued that adults need to feel capable and independent. Constant technical failures undermine this self-concept, regressing the adult learner to a state of dependency and frustration. The study confirms that without equitable infrastructure, the promise of "anytime, anywhere" learning remains a privilege of geography rather than a universal right.

5.2 The Impact of Socio-Economic Status

The strong link between socio-economic status (SES) and learning outcomes in digital environments is a critical finding. The data suggests that SES operates as a multiplier in digital education; wealthier learners can purchase their way out of technical problems through better equipment and backup connections, while poorer learners are

forced to absorb these shocks. This supports Critical Pedagogy's assertion that educational technologies are not neutral; they are embedded with the biases of the societies

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