
Navigating the Digital Divide: Exploring the Reluctance of Pre-Service Language Teachers toward Technology-Enhanced Pedagogies

PAUL MIKE G. OMANDAM

Graduate School, St. Vincent's College Incorporated
Dipolog City, Philippines
pmomandam@gmail.com

SHEILA S. DALUMPINES

Graduate School, St. Vincent's College Incorporated
Dipolog City, Philippines

Abstract — The integration of technology in education is increasingly essential for enhancing teaching and learning experiences. However, many pre-service teachers exhibit reluctance toward adopting technology-enhanced pedagogies. This qualitative study explores factors contributing to this reluctance among pre-service language teachers. Using a single case study design following Merriam's (1998) framework, six pre-service language teachers demonstrating reluctance were interviewed one-to-one. Findings analyzed through the Theory of Planned Behavior reveal that reluctance stems from psychological and cognitive factors, including cognitive overload and overthinking tendencies, performance anxiety stemming from fear of technical failure, low technological self-efficacy, anxiety rooted in self-doubt, and cautious adaptation and safety behavior. Contextual and Environmental factors include limited and unreliable technological resources, digital divide and connectivity challenges, power interruptions and instructional uncertainty, and psychological, pedagogical, and environmental influences on technology use. Previous experiences manifest through experiential barriers, strategic coping and adjustment, psychological effects of tech failures, and technical familiarity and mastery issues. Participants recommended provision of reliable technology and resources, professional development and familiarity with technology, and affective readiness and confidence building. Findings underscore the need for holistic approaches strengthening psychological readiness, ensuring equitable technological access, and expanding mastery-based experiential learning.

Keywords: Technology Reluctance, Pre-Service Language Teachers, Perceived Behavioral Control, Digital Divide, Theory of Planned Behavior

I. INTRODUCTION

The integration of technology in education has become a critical component in enhancing teaching and learning processes. Despite its recognized importance, a persistent gap exists between technological preparation and its actual application in pedagogical practice. This study investigates the reluctance of pre-service language teachers to adopt technology-enhanced pedagogies within the context of St. Vincent's College Incorporated in Dipolog City. In this research, reluctance is not construed as mere resistance but as a complex form of hesitation or unwillingness that emerges from the tension between technological training and its practical enactment in instructional settings.

Although pre-service teachers are often characterized as digital natives and are exposed to technology-related coursework, many still demonstrate avoidance, limited engagement, or apprehension in integrating digital tools into their teaching. Existing literature suggests that while these individuals generally hold positive attitudes toward technology, they frequently lack the necessary confidence to apply it effectively (Eckleberry-Hunt et al., 2023). This limitation is further associated with insufficient pedagogical knowledge for meaningful integration (McGarr & McDonagh, 2021). In addition, concerns related to self-efficacy continue to influence their willingness to utilize technology in classroom contexts (Harris et al., 2021). Beyond individual factors, external conditions also shape technology adoption. Teachers often report feeling overwhelmed by the rapid pace of technological change and the lack of adequate institutional support (Hennessy et al., 2020). Moreover, beliefs about technology have been found to significantly influence the adoption of innovative pedagogical practices (Ghavifekr & Athirah, 2022). In some cases, pre-service teachers express apprehension that their students may possess more advanced technological skills, which further contributes to their reluctance to integrate digital tools in instruction (Jamieson-Proctor et al., 2022).

Anchored in the Theory of Planned Behavior, this study foregrounds perceived behavioral control as a critical determinant of pre-service teachers' engagement with technology. By isolating this construct, the research offers a more focused theoretical lens for understanding how control beliefs influence the translation of technological knowledge into pedagogical action. In doing so, it reconceptualizes reluctance as a multidimensional construct that arises from the interaction

between perceived individual capabilities and external constraints, rather than viewing it solely as a deficit in attitude or competence.

Situated within the Philippine higher education context, where technology integration is embedded in teacher education through frameworks such as Technological Pedagogical Content Knowledge (TPACK), this study addresses a notable gap in the literature concerning pre-service language teachers. It contributes both empirically and theoretically by providing a nuanced explanation of how perceived control beliefs shape observable technology integration practices. Ultimately, the findings aim to inform the enhancement of teacher education programs, guide policy development, and support the design of targeted interventions that strengthen digital readiness and bridge the gap between preparation and practice.

Literature Review

Technology in Language Education

Technology has become an indispensable tool in language education, offering a wide range of possibilities for both learners and teachers. By utilizing technology, educators can create dynamic, interactive, and personalized learning environments that promote language acquisition and cultural appreciation. Despite the clear benefits of technology, many pre-service teachers still prefer traditional methods, such as the "chalk-and-talk" approach (Mee Mee et al., 2020). According to Napanoy et al. (2021), pre-service teachers often struggle to integrate technology into their teaching practices. Many express uncertainty about their ability to effectively use digital tools during demonstration teaching due to limited prior experience and resistance to embracing new educational technologies.

The integration of technology into language teaching has been a focal point of educational research for several decades (Iqbal et al., 2021). However, the adoption of technology-enhanced pedagogies (TEP) by emerging generations presents a complex interplay of opportunities and challenges. Pre-service language teachers encounter distinct obstacles when integrating technology to support language acquisition. For instance, while technologies like augmented reality (AR) and mobile-assisted language learning (MALL) can support vocabulary development, their application to more complex skills such as writing, speaking, or intercultural communication

remains less clear (Okumuş, 2021). Despite their reputation as digital natives, pre-service teachers often exhibit reluctance to fully engage with TEP. This paradoxical behavior suggests a complex relationship between technology, pedagogy, and the unique characteristics of this generation.

Generational Differences, Attitudes, and Familiarity with Technology

Interestingly, younger generations of pre-service teachers often demonstrate a higher familiarity with technology, which can lead to initial confidence in using Information and Communication Technology (ICT). However, this familiarity does not always translate into effective teaching practices. As noted by Hülshoff and Jucks (2024), a lack of practical experience in classroom settings can lead to overconfidence that masks underlying anxieties about actual implementation. Moreover, Woods (2020) identified that older generations of teachers, such as baby boomers, tend to have lower technology efficacy compared to millennials. Nonetheless, this does not imply that younger pre-service teachers automatically excel in TEP. Although younger generations are generally more familiar with technology, they often lack specific skills necessary for educational technology integration (Woods, 2020).

Further research by Pozas et al. (2024) identified two distinct clusters among pre-service teachers: the "Can-do-ICT" type and the "Discouraged-ICT" type. The latter group exhibited lower self-efficacy and greater concerns regarding ICT, directly impacting their willingness to engage with technology in educational settings. This indicates that positive attitudes and beliefs about technology are essential for encouraging its use among pre-service teachers. While these future educators generally exhibit favorable attitudes toward integrating digital games into education, they often lack the practical knowledge required for effective implementation (Belda-Medina & Calvo-Ferrer, 2022). In language teaching specifically, existing literature shows that pre-service teachers are more willing to use technology for receptive language skills (e.g., vocabulary and grammar) than for productive skills like writing and speaking. There is limited research exploring why pre-service teachers are reluctant to use technology for productive skills despite their critical importance in language learning.

Perceived Relevance and Value of Information and Communications Technology (ICT)

The perceived relevance of technology in teaching significantly influences pre-service teachers' willingness to adopt it. Research indicates that when pre-service teachers recognize the value of ICT in enhancing learning outcomes, they are more likely to embrace its use. Conversely, if they view technology as an additional burden rather than a beneficial tool, reluctance may ensue. Findings from Tondeur et al. (2017) support this notion by suggesting that teachers' educational belief profiles significantly influence their approach to ICT-assisted teaching. Hülshoff and Jucks (2024) concurred that many pre-service teachers do not feel adequately prepared for ICT-assisted teaching, contributing further to their reluctance. Pre-service teachers have expressed discomfort with applying these tools in real-world teaching settings due to unfamiliarity and limited exposure to such technologies (Belda-Medina & Calvo-Ferrer, 2022).

Role of Educators as Technology Role Models

Adlina (2023) surveyed EFL pre-service teachers to understand their perceptions regarding technology use during teacher training. The findings indicated that pre-service teachers valued several key aspects of TEP: role modeling, reflection, instructional design, collaboration, authentic experiences, and feedback. These factors represent vital components of teacher training that directly influence pre-service teachers' preparedness and willingness to integrate technology into their classrooms. One of the strongest influences on their perceptions was the role of educators themselves; it was the highest-rated variable in the study. Pre-service teachers reported that observing their educators' use of ICT in educational settings inspired them to integrate technology into their own teaching practices; however, they felt that these examples were often not sufficiently concrete or practical for future application.

Lack of Training and Preparation

Napanoy et al. (2021) highlight that pre-service teachers are often inadequately prepared to use technology for pedagogical purposes. While many recognize the importance of technology in today's classrooms, a discrepancy between theoretical understanding and practical application

frequently leads to hesitation in adopting technology-focused learning environments. According to Woods (2020), one primary barrier identified is the lack of access to adequate training and resources. Pre-service teachers across generations reported feeling unprepared to incorporate emerging technologies into their classrooms. This suggests a need not only for providing technical skills but also for offering opportunities to apply these skills in pedagogically meaningful ways.

Consequently, as quoted by Napanoy et al. (2021), Takaoğlu (2017) emphasized the necessity of understanding how to use technology successfully and efficiently; he discovered that technological integration is a significant issue faced by pre-service teachers both before and during lesson activities.

According to the Commission on Higher Education (CHED) report from 2004, cited by Napanoy et al. (2021), the quality of pre-service teacher education is crucial for enhancing overall education quality in the Philippines. Higher Education Institutions (HEIs) bear significant responsibility for preparing future educators for primary and secondary education roles. The effectiveness with which these educators fulfill diverse roles directly impacts educational quality; therefore, establishing rigorous standards for objectives, components, and processes within the pre-service teacher education curriculum is essential. Despite high standards established within the 21st-century curriculum framework, pre-service teachers at a Philippine state college have demonstrated deficiencies in lesson planning, classroom management, and effective use of technology during teaching demonstrations (Napanoy et al., 2021).

This literature review highlights the critical role of technology in language education, emphasizing its potential to create dynamic and interactive learning environments. Despite the advantages, many pre-service language teachers show a notable reluctance to adopt TEP. This reluctance is paradoxical, given their familiarity with digital tools; however, it stems from various factors, including limited practical experience, attitudes, implementation, role models, and a lack of adequate training and preparation.

While existing research has explored the integration of technology in language education, there is a significant gap in understanding the specific reasons behind the reluctance of pre-service language teachers to utilize technology, leaving a void in the literature regarding the challenges and hesitations faced by these pre-service teachers in adopting TEP.

This study aims to explore and understand the reluctance of pre-service language teachers toward the utilization and adoption of technologies in their pedagogical practices. By investigating their perceptions, experiences, and barriers encountered when integrating technology into teaching, this research seeks to provide insights that can also inform the refinement of teacher training programs. Ultimately, this research aims to contribute to a more effective use of technology in language education, ensuring that pre-service teachers are equipped with the necessary skills and confidence to leverage digital tools for enhancing student learning outcomes.

II. METHODOLOGY

Research Design

This study employed a qualitative design, specifically a single case study approach as framed by Merriam, S.B. (1998). This design is appropriate for exploring the reluctance of pre-service language teachers to adopt TEP. The single case under investigation is the collective experience of pre-service teachers enrolled in the Bachelor of Secondary Education Major in English program at St. Vincent's College Incorporated during the academic year 2024–2025. This group was chosen as the bounded system for the case study because they represent a unique and relevant context where the phenomenon of reluctance toward TEP can be observed, explored, and understood in depth. Their experiences, attitudes, and contextual challenges provide rich, meaningful data for qualitative inquiry. By narrowing the focus to this defined group and institutional setting, the study aims to gain a detailed, clear understanding of the factors influencing their reluctance to integrate technology in language teaching. Thus, a single case study design is well-suited to this research as it enables an in-depth exploration of a specific phenomenon within its real-life educational environment.

Research Environment

This study was conducted at St. Vincent's College Incorporated, a Diocesan Catholic higher education institution offering a Bachelor of Secondary Education major in English program. As part of its teacher education curriculum, St. Vincent's College Incorporated has integrated

Technology for Teaching and Learning I as a professional education course and Technology in Language Education as a major course in the English program. While pre-service language teachers have undergone training, learning sessions, and applications of new digital tools, it has been observed that they are reluctant to incorporate TEP into their teaching practices.

Research Participants and Sampling

This study involved a specific group of pre-service language teachers who were observed to be reluctant to integrate TEP. These participants are enrolled in the Teacher Education program at St. Vincent's College Incorporated, majoring in English. Following Campbell's (2015) case study design, which aligns with Merriam's framework, six (6) participants are sufficient and selected based on specific criteria to ensure alignment with the study's goals and objectives. To be eligible for participation, individuals must meet the following criteria: (1) be enrolled in the Bachelor of Secondary Education Major in English program; (2) be undergoing their practice teaching or internship during the academic year 2024-2025; and (3) demonstrate reluctance or minimal use of technology-enhanced pedagogies in their teaching practice. These criteria ensure that the participants are contextually relevant and representative of the phenomenon under investigation. Moreover, to validate the consistency of the participants' responses, one Practicum Coordinator from the English Program was also interviewed. As someone who directly oversees and monitors the teaching practice of pre-service teachers, the Practicum Coordinator serves as a key informant whose observations provide an additional layer of verification for the data gathered from the primary participants.

Research Instrument and Validity

In this study, semi-structured interviews served as the primary data collection method. The interview protocols and guides were developed to align with the study's objectives and goals. One central question and five sub-questions were formulated by the researcher in alignment with the suppositions of the Theory of Planned Behavior, specifically the construct of perceived behavioral control, and were rigorously reviewed by the research adviser. The questions focus on pre-service language teachers' internal and external factors influencing technology use, experiences that may

contribute to their reluctance, the challenges they face, and potential interventions or suggestions to support the adoption of TEP in language instruction. To further ensure the validity of the interview questions, a panel of experts in Technology Integration in Language Teaching evaluated them. Based on their feedback and the results of the validity check, the researcher made necessary adjustments to ensure coherence and alignment among the questions. This meticulous process guaranteed the validity of the questions, thereby enhancing the integrity of the study's findings.

To further strengthen validity, triangulation was employed through multiple data sources. Alongside the interviews with the six pre-service language teacher participants, one Practicum Coordinator from the English Program was also interviewed to verify and cross-check the consistency of the participants' responses. In addition, the syllabi of Technology for Teaching and Learning 1 and Technology in Language Education were used as documentary sources to provide contextual basis for understanding the technological preparation pre-service teachers are expected to have, and to examine whether the competencies outlined in these courses reflect the participants' actual reported experiences. Together, these data sources supported a more comprehensive and trustworthy interpretation of the findings.

Data Gathering Procedure

This study followed Merriam's (1998) single case study model to explore the reluctance of pre-service language teachers toward TEP. Merriam's methodology provides a systematic framework for data collection, analysis, and interpretation, enabling a comprehensive understanding of participants' experiences while allowing flexibility to adapt to emerging themes. The bounded case focuses on pre-service language teachers enrolled in the Bachelor of Secondary Education majoring in English at St. Vincent's College Incorporated, specifically those demonstrating reluctance in adopting TEP. The case is framed within the context of teacher education and teaching internship experiences.

The research was conducted through the following step-by-step procedures:

Step 1: Gaining Approval, Recruitment, and Ethical Clearance

The researcher adhered to strict ethical guidelines throughout the study. Each participant received comprehensive information about the research objectives and procedure before providing written informed consent. They were informed of their rights to voluntary participation and the freedom to withdraw at any time without consequences. All data were handled with confidentiality in accordance with the Data Privacy Act, ensuring participants' privacy and data security throughout the research process.

Purposive sampling was employed to identify six (6) pre-service language teachers who met the study criteria. Participants must be: (1) enrolled in the English major of the BSEd program; (2) completed their practice teaching internship during the academic year 2024-2025; and (3) observed to be reluctant in TEP. Consent forms and interview protocols were distributed to eligible participants.

Step 2: Conducting Semi-Structured Interviews

Data were gathered through one-on-one semi-structured interviews, which allow for both consistency across participants and flexibility to probe further based on emerging responses. Interview questions were guided by the study's sub-questions and supported by the conceptual framework of the Theory of Planned Behavior, particularly focusing on perceived behavioral control. Interviews were audio-recorded with participant consent.

Step 3: Transcription and Data Management

All interview recordings were transcribed verbatim. The transcripts were reviewed for accuracy and anonymized to ensure confidentiality. Data were stored securely, accessible only to the researcher, and backed up digitally.

Step 4: Data Coding and Thematic Analysis

Transcripts were manually and iteratively coded using thematic analysis. This process involves identifying recurring patterns, categories, and themes related to participants' reluctance toward technology-enhanced pedagogy. Initial codes were refined

into broader thematic categories. The analysis employed inductive coding, category development, and theme interpretation of the participants' narrative responses.

Step 5: Constant Comparative Method

Using Merriam's model, data were analyzed using a constant comparative method, comparing responses within and across interviews to build patterns and refine emerging categories. This approach allows for depth and variation in understanding the phenomenon under study.

Step 6: Validation of Findings

To enhance credibility, data were validated by cross-referencing emerging categories. Any inconsistencies were examined to ensure a balanced and rigorous interpretation. Validation from the Practicum Coordinator, along with the alignment of results to the course syllabi for Technology in Language Education and Technology for Teaching and Learning 1, was incorporated as part of the study's methodological triangulation and validation process. Further, member checking was conducted by allowing the participants to validate the accuracy of the transcripts, confirmatory statements, and interpretations.

Step 7: Theoretical Interpretation

Finally, findings were interpreted in light of the Theory of Planned Behavior, focusing on the construct of perceived behavioral control to understand the participants' internal and external factors that influence their reluctance. This theoretical lens provides an explanatory structure for the observed behaviors and attitudes.

Ethical Considerations

The ethical integrity of this study was grounded in the fundamental principles of respect for persons, beneficence, and justice, ensuring the protection of participants' rights, dignity, and well-being throughout the research process. Prior to data collection, all participants provided informed consent after receiving comprehensive information about the study's purpose,

procedures, anticipated duration of involvement, and potential benefits and risks. The consent process ensured full comprehension, allowing participants ample opportunity to seek clarifications. Participants were explicitly informed of their unconditional right to withdraw from the study at any stage without penalty, prejudice, or negative impact on their academic standing or institutional relationships.

To safeguard participant identities, confidentiality protocols were implemented. Each participant was assigned a code used consistently across all data collection instruments and transcripts. All interview recordings and transcripts were securely stored in password-protected digital files accessible only to the researcher, with any physical documents kept in locked storage. Participation was entirely voluntary, with explicit assurance that declining to participate or choosing to withdraw would not affect academic evaluations, internship assessments, or faculty relationships. During data collection, participants retained the right to decline answering specific questions without providing justification. While this study posed minimal risk, the researcher remained attentive to potential discomfort when participants discussed challenges and issues.

III. RESULTS AND DISCUSSION

This section presents a comprehensive discussion of the findings derived from the analysis of the factors influencing pre-service language teachers' reluctance to adopt technology-enhanced pedagogies within the case of St. Vincent's College Incorporated – Teacher Education program. Five (5) major categories emerged from the following: (1) Psychological and Cognitive Factors (2) Contextual and Environmental Factors, (3) Experiences with Educational Technology, (4) Challenges Encountered, and (5) Suggestions to Mitigate Reluctance.

Psychological and Cognitive Factors Perceived by Pre-Service Language Teachers as Contributing to Their Reluctance to Adopt Technology-Enhanced Pedagogies

Within the bounded context of St. Vincent's College Incorporated–Teacher Education program, internal psychological barriers appear not simply as individual shortcomings but as indicators of misalignment between program support and pedagogical demands. Although the

program provides individualized mentoring, technology integration coursework with feedback, and accessible faculty support through open office hours, persistent experiences of cognitive overload, performance anxiety, low technological self-efficacy, self-doubt, and cautious adaptation suggest that these supports are not fully responsive to pre-service teachers' affective and cognitive needs. These patterns point to a critical gap: while technical scaffolding is in place, psychological scaffolding, such as fostering resilience, emotional regulation, and growth-oriented mindsets needed for confident technology use, remains insufficiently developed.

Cognitive Overload and Overthinking Tendencies

The study reveals that cognitive overload and persistent overthinking significantly hinder pre-service teachers' willingness to adopt technology in teaching. Participants frequently imagined negative scenarios like technical failures and embarrassment, intensifying their fear and diminishing their motivation to integrate digital tools. This experience is closely linked to Perceived Behavioral Control (PBC) in the Theory of Planned Behavior (Ajzen, 1991), where belief in one's capability and control over behavior critically determines intention. Research by Zhao and Watterston (2021) extends and corroborates this, showing that managing pedagogical, technological, and classroom factors simultaneously raises cognitive load, reducing confidence in using technology. Cheng and Xie (2021) also found that pre-service teachers' perfectionism and fear of judgment exacerbate overthinking, especially under public technical scrutiny.

Further, cognitive complexity has been singled out as a major factor lowering perceived control, as mental rehearsals of worst-case tech scenarios consume cognitive resources crucial for lesson planning (Adlina, 2023; Tondeur et al., 2020). The syllabi for Technology in Language Education (CLO A) and Technology for Teaching and Learning 1 (CLO 1 and 2) demand high ICT proficiency but lack explicit scaffolding for managing associated cognitive and emotional loads. The Practicum Coordinator also noted that many pre-service teachers "tend to overthink" failures, illustrating that cognitive overload is widespread, amplified by the evaluative pressures of teaching demonstrations, thus weakening PBC and intentions to adopt technology.

Performance Anxiety Stemming from Fear of Technical Failure

Performance anxiety emerged as a major emotional barrier, with participants associating technology use with risks such as system glitches and public embarrassment. This anxiety shapes PBC by undermining teachers' confidence to successfully implement technology-enhanced lessons (Ajzen, 2002). This pattern confirms Backfisch et al.'s (2021) findings that this is due to fear of technical failure, leading pre-service teachers to avoid and be anxious about digital tools in favor of traditional methods, especially in high-stakes environments. Scherer et al. (2021) further noted that performance anxiety mediates between competence and actual technology use, with anxiety diminishing perceived control even among technically skilled teachers. Hülshoff and Jucks (2024) reinforced this, showing that anxiety reduces willingness to experiment despite ICT training.

While moderate anxiety can motivate preparation and backup plans (Petko et al., 2020), the anxiety reported here was maladaptive, leading to avoidance rather than confidence. Emotional self-regulation skills were found crucial to overcoming such barriers but are lacking in the participants' preparation, as the syllabi emphasize technical mastery but not emotional regulation (Taimalu & Luik, 2021). The Practicum Coordinator's observation of visible distress during tech failures highlights the need for emotional safety in training, complementing the syllabi's physical and digital safety goals (TTL1 CLO 5). Without addressing affective barriers, achieving program outcomes for effective technology use remains challenging.

Low Technological Self-Efficacy

Low self-efficacy regarding technological skills was consistently reported as a major internal barrier. Participants expressed doubts about their ability to handle ICT tools effectively, linking unfamiliarity to fear and hesitation. This links directly to PBC, where belief in one's capabilities strongly influences behavioral intentions (Bandura, 1997; Ajzen, 2002). Tondeur et al. (2021) and Tondeur et al. (2017) confirm this pattern, where they found that low technological self-efficacy predicts reduced technology adoption despite training, revealing a gap between theoretical knowledge and confidence in practical application. Guillén-Gámez et al. (2020) emphasized that hands-on mastery experiences, rather than theory alone, build robust self-efficacy.

Moreover, Hatlevik et al. (2021) established that confidence to troubleshoot unpredictable issues is crucial, as even technically competent pre-service teachers report low self-efficacy without this. Christensen and Knezek (2017) showed that self-efficacy drops in authentic problem-solving contexts despite overestimations in low-stakes settings. Encouragingly, Schmid et al. (2020) demonstrated that incremental, scaffolded experiences with positive feedback improve technological self-efficacy significantly. The syllabi's expectations for ICT competence (PO 6.3.1.f, PO 6.2.e) contrast with participants' lack of comfort and confidence, pointing to insufficient practical mastery. The Practicum Coordinator's remarks confirm this persistent gap, underscoring the necessity for confidence-building strategies beyond skill transmission.

Anxiety Rooted in Self-Doubt

Self-doubt emerged as a particularly insidious psychological barrier, reflecting deep mistrust in one's ability to succeed under pressure. Participants' concerns focused on their potential failure rather than learning outcomes, indicating that self-doubt undermines PBC by weakening beliefs about control and problem-solving capacity (Ajzen, 2002). This is confirmed and corroborated by Admiraal et al. (2021), who found self-doubt predicts avoidance of technology more strongly than skill deficits, as internalized inadequacy discourages risk-taking with new tools. Starkey (2020) linked self-doubt to perfectionism and fear of judgment, especially in evaluative teaching contexts, which creates a vicious cycle blocking mastery experience accumulation. Harris et al. (2021) noted that self-doubt is especially prominent where tech integration is evaluation-driven but lacks scaffolded practice.

Buabeng-Andoh (2021) showed that self-doubt mediates between external pressures and minimal technology use, echoing this study's findings of cautious compliance rather than genuine engagement. Napanoy et al. (2021) recognized self-doubt as a foundational barrier requiring explicit attention in teacher preparation. Eckleberry-Hunt et al. (2023) indicated digital native students' heightened self-doubt arises from mismatches between consumer technology use and pedagogical demands, exacerbated by perceived instructor techno-insecurity. The syllabi require ICT skills development (CLO A and CLO 3) but omit psychological resilience or self-doubt management, a critical gap. The Practicum Coordinator's note on self-doubt influenced by past

failures highlights its systemic nature, signaling a need for psychological readiness alongside technical preparation.

Cautious Adaptation and Safety Behavior

Pre-service teachers commonly employed cautious adaptation and safety behaviors, such as extensive backup planning, repeated rehearsals, and simplified tool choice, aiming to minimize risk rather than refuse technology outright. This strategic risk management reflects efforts to maintain PBC despite perceived limited control over technological outcomes (Ajzen, 2020). Instefjord and Munthe (2020) frame these actions as rational responses to high-stakes evaluative environments where tech failure risks negative consequences.

Tondeur et al. (2022) positioned cautious adaptation as a transitional phase toward fuller technology mastery, suggesting scaffolding and successful experiences can foster growth beyond safety behaviors. However, Ertmer et al. (2021) caution that entrenched safety behaviors may limit pedagogical innovation and willingness to experiment. McGarr and McDonagh (2021) found practical field experiences often reinforce cautious approaches due to modeling by cooperating teachers. The syllabi support safe and secure learning environments (TTL1 CLO 5) and positive ICT use (CLO A, CLO B). Participants' safety practices align with responsible teaching but may conflict with curricular goals calling for inquiry-based tech activities. The Practicum Coordinator's observation of risk aversion confirms the prevalence of these behaviors. Recognizing cautious adaptation as developmental rather than resistant could guide teacher education programs to provide structured opportunities for gradual confidence-building in technology use.

Contextual and Environmental Factors Influencing Pre-Service Language Teachers' Perceived Control Over Technology Use

External factors function as environmental constraints that shape perceived behavioral control regardless of pre-service teachers' internal readiness. Within St. Vincent's College Incorporated–Teacher Education program, these constraints are particularly evident because practicum placements often occur in under-resourced schools whose technological conditions

differ markedly from those assumed in coursework. While the campus provides relatively reliable technological support, such as computer laboratories, internet access, and classroom projectors, many practicum sites lack even basic digital infrastructure. This gap between campus-based learning environments and practicum realities creates a form of infrastructural culture shock that weakens the sense of control developed during training.

Although the program includes pre-practicum exposure to field sites through observation activities, these experiences have not sufficiently prepared pre-service teachers for teaching in resource-limited contexts. The continued presence of external barriers suggests a need for more deliberate preparation that equips pre-service teachers to adapt technology integration strategies to infrastructural constraints

Limited and Unreliable Technological Resources

Pre-service teachers frequently encounter limited and unreliable technological resources in their practicum sites, critically constraining their PBC to integrate technology effectively. Participants reported shared projectors, outdated laptops, and malfunctioning equipment that disrupted lessons, forcing simplification or abandonment of planned technology use. According to TPB, external control factors such as resource availability influence behavioral control and intention (Ajzen, 2002). When resources are inadequate or faulty, teachers perceive diminished control, reducing motivation to adopt technology. This study's findings align with Basilotta-Gómez-Pablos et al. (2022), who identified resource scarcity as the most cited barrier, and Carrillo and Flores (2020), who highlighted how unreliable infrastructure induces uncertainty that erodes teachers' confidence and long-term technology use.

The syllabi for Technology in Language Education emphasize ICT skill demonstration and resource preparation (CLO A and B), while institutional mandates call for technology facilitation in language learning (PO 6.3.1.f). However, participants' lived experiences with faulty and shared devices reveal a disconnect between curricular expectations and practical realities. The Practicum Coordinator confirmed that limited resources slow technology adoption, underscoring this systemic barrier. While some literature (Pettersson, 2021) suggests resource constraints can spur creativity, such innovation demands pedagogical expertise rarely possessed by novice teachers.

Teacher education programs must either ensure better resource access or incorporate training on adapting to constrained environments to sustain realistic PBC and technology integration intentions.

Digital Divide and Connectivity Challenges

The digital divide and unstable connectivity emerged as significant external barriers limiting pre-service teachers' PBC in technology use. Participants described unreliable internet, unequal device access among students, and financial hardships restricting participation in online learning, compelling them to adjust instruction toward non-digital methods. These disparities represent external control factors in TPB that restrict behavioral execution despite intentions or self-efficacy (Ajzen, 2020). Zhao and Watterston (2021) documented how pre-service teachers adopt risk-averse strategies, favoring offline lesson designs where connectivity is uncertain. Similarly, Selwyn et al. (2020) framed the ethical conflict in deploying technology that excludes disadvantaged learners, causing teachers to prefer equitable, traditional teaching despite institutional digital integration mandates.

The Technology for Teaching and Learning 1 syllabus requires positive ICT use and diverse resource selection (CLO 2 and 3), yet these outcomes presuppose student access unreflective of classroom realities where many students lack devices or stable internet access. The Practicum Coordinator confirmed that connectivity issues are common challenges impacting adoption. While some advocate leveraging shared and offline resources to bridge divides (Rapanta et al., 2021), participants indicated insufficient training on managing digital inequities. Teacher education should explicitly prepare pre-service teachers to navigate resource-poor contexts effectively, bolstering PBC amid structural inequities to maintain instructional quality and technology utilization.

Power Interruptions and Instructional Uncertainty

Power interruptions represent a critical external condition eroding pre-service teachers' PBC by inducing instructional uncertainty and doubling planning demands. Participants

consistently reported unstable electricity in practicum schools, leading them to prepare dual lesson plans, technology-based and manual, generating anxiety over lesson execution. Infrastructure unpredictability disrupts behavioral control by creating expectations of failure, which diminishes intention to use technology (Ajzen, 2002). Scherer and Teo (2020) highlighted chronic uncertainty from unstable infrastructure as a key adoption barrier, while Trust and Whalen (2020) noted the cognitive and emotional toll of preparing alternative delivery methods, culminating in defaulting to non-digital approaches. Participants' automatic shift to manual methods upon power failure (P6) mirrors international findings of infrastructural stress reducing technology use (Takaoğlu, 2017; König et al., 2020).

Despite syllabi demands for ICT-integrated assessments and innovative design (TTL1 CLO 4), infrastructure flaws conflict with expectations. The Practicum Coordinator's recognition of power interruptions as a source of uncertainty highlights this gap. Though some posit that overcoming such challenges builds adaptive expertise (Philipsen et al., 2020), study participants lacked adequate support to leverage these experiences positively, instead exhibiting anxiety and reluctance. Teacher education programs should incorporate training for flexible lesson planning and rapid adaptation in unstable environments, strengthening PBC and preparedness for real-world teaching conditions.

Psychological, Pedagogical, and Environmental Influences on Technology Use

External conditions such as noisy classrooms, social pressures, and environmental chaos trigger internal psychological and pedagogical responses that further constrain technology adoption. Participants reported that these stressors heightened anxiety, frustration, and self-doubt, frequently leading them to simplify or abandon technology use. This dynamic illustrates that PBC derives from interactions between external barriers and psychological responses, not from external or internal factors alone (Ajzen, 2020). Cheng et al. (2022) described this cascade where environmental disruptions provoke emotional reactions shaping pedagogical choices, resulting in technology-light instruction. Though the Technology for Teaching and Learning 1 syllabus promotes safe, secure learning environments (CLO 5), its focus on digital safety overlooks broader psychological safety necessary for risk-taking and experimentation. Participants emphasized that

supportive, well-equipped environments boost confidence and willingness to integrate technology. Conversely, chaotic, under-resourced settings erode confidence and foster conservative teaching. Mentored navigation of challenging conditions can foster resilience (Kim & Kim, 2022), but participants lacked such support, resulting instead in anxiety and simplification. The Practicum Coordinator affirmed that psychological and environmental factors produce instructional uncertainty, underscoring a need for holistic approaches incorporating emotional regulation, mentoring, and psychologically safe practice spaces to strengthen PBC.

Experiences with Educational Technology that Shape Pre-Service Language Teachers' Current Reluctance Toward Adopting It in Language Teaching

Past experiences with educational technology strongly influence current attitudes and intentions toward its use, especially when negative experiences occur during high-stakes evaluations. At St. Vincent's College Incorporated, where teaching demonstrations function as key assessment points, technology failures during these moments often become lasting professional memories that reduce pre-service teachers' willingness to use digital tools. Although the program provides post-demonstration feedback and mentoring support, these practices have not consistently helped pre-service teachers turn negative technology experiences into learning opportunities. Instead, technology failures during evaluated teaching tend to reinforce reluctance, suggesting that existing support structures do not adequately address the emotional impact of these experiences.

Experiential Barriers

Direct negative experiences during high-stakes teaching demonstrations have heavily influenced pre-service teachers' reluctance to adopt technology, significantly eroding their PBC. Participants described emotionally charged memories of technology failures during evaluative lessons, which fostered lasting anxiety and avoidance. TPB emphasizes how past experiences shape PBC and behavioral intentions (Ajzen, 2002), with negative public failures deeply impacting confidence. Bozkurt et al. (2020) documented that single critical technology failures reduce pre-service teachers' self-efficacy disproportionately, especially when professional identity is

evaluated. Tondeur et al. (2020) highlighted that internalizing failure as personal inadequacy rather than systemic issues exacerbates this reluctance.

The syllabi require demonstration of ICT competencies in teaching (Technology in Language Education CLO A), yet insufficient scaffolding exists for coping with inevitable failures. The Practicum Coordinator noted “psychological effects of tech failures slow down enthusiasm,” confirming these experiential barriers' lasting impact. Starkey (2020) suggested negative experiences can foster resilience if supported by reflection and reframing, but participants lacked such support, leading to avoidance instead of growth. These findings underscore the need for teacher education programs to incorporate explicit resilience-building and failure management strategies to protect and rebuild PBC after adverse experiences.

Strategic Coping and Adjustment

Despite such challenges, some pre-service teachers have developed strategic coping mechanisms to maintain or restore PBC and technology use intentions. These include rigorous backup planning, multiple equipment tests, and acceptance of imperfection. According to TPB, adapting expectations and developing compensatory strategies can sustain behavioral control post-negativity (Ajzen, 2020). Prestridge (2021) found that confident technology users exhibit learned strategic behaviors such as rehearsal and contingency planning. Kimmons and Hall (2021) observed that deliberate preparation reduces anxiety and increases willingness to experiment. Bozkurt and Sharma (2020) framed these as adaptive expertise traits enabling persistence through setbacks.

The participants' backup planning aligns with the “responsible use of technology” emphasized in Technology for Teaching and Learning 1 (CLO 2) but contrasts with expectations for fluent, flexible tech use (TTL1 CLO 4). The Practicum Coordinator's recognition of “strategic coping like adjusting using alternatives” validates this adaptive yet incomplete confidence. Teacher education should formally teach strategic coping as a valuable skill and scaffold progression toward spontaneous problem-solving and confidence.

Psychological Effects of Tech Failures

Technology failures generate intense psychological responses, fear, embarrassment, ongoing anxiety, that profoundly shape technology adoption attitudes. Participants recounted being emotionally overwhelmed, developing persistent fear of repeating failures, and consequently avoiding technology use. TPB relates affective experiences to future intentions by influencing attitudes and PBC (Ajzen, 2020). Zhang and Liu (2021) found emotional responses to tech failure predict adoption more than competence, with shame from public failures solidifying negative associations that endure despite skill acquisition. Drossel et al. (2020) termed this a “negativity bias,” where single negative events outweigh multiple successes in self-efficacy development.

Course syllabi call for reflecting on technology use to improve pedagogy (Technology for Teaching and Learning 1 CLO 6) but neglect emotional resilience or regulation training. The Practicum Coordinator’s observation that “fear of failure, pressure, overthinking, and self-doubt” reduce adoption readiness confirms the prevalence of these affective barriers. Collie and Martin (2021) noted emotional distress can motivate growth if supported constructively; however, the current participants lacked such interpretive frameworks, resulting in maladaptive avoidance. Teacher education programs urgently need to address emotional readiness alongside technical skills, equipping pre-service teachers to process failure healthily and rebuild PBC.

Technical Familiarity and Mastery

Limited technical mastery and unfamiliarity critically undermine pre-service teachers’ PBC and technology adoption willingness. Participants cited difficulty troubleshooting, restricting themselves to simple, familiar tools to ensure lesson success. TPB views actual behavioral control, skills and knowledge, as central to PBC (Ajzen, 2002). Guillén-Gámez and Mayorga-Fernández (2020) found that deep technical competence, especially troubleshooting ability, predicts actual use better than broad exposure. Schmid et al. (2021) emphasized hands-on practice in authentic settings converts knowledge into mastery and confidence, whereas superficial coursework delivery leaves gaps. Mishra and Koehler’s (2006) TPACK framework stresses integration of technological, pedagogical, and content knowledge for effective technology use, implying mere tool exposure is inadequate.

Participants' struggles illustrate discontinuity between theory-heavy syllabi demands and unpredictable practicum realities. The Technology in Language Education and Technology for Teaching and Learning 1 outcomes require demonstration of skills and confident application (CLOs 2–3), yet participants reported insufficient hands-on training, with one stating, “there is a lack of training, we weren't really trained how to use certain apps”. Backfisch et al. (2021) linked troubleshooting confidence with persistence: lacking it leads to avoidance. Ottenbreit-Leftwich et al. (2021) suggested adaptive expertise and learning-to-learn skills are vital over exhaustive mastery, but foundational competence remains crucial early on. The Practicum Coordinator confirmed many “lack technical familiarity and mastery,” reinforcing the need for practice-intensive, mastery-focused training to enhance PBC and adoption intentions.

Challenges Encountered by Pre-Service Language Teachers in Adopting Technology in Their Teaching Practice

The difficulties pre-service language teachers face in integrating technology reflect a combination of infrastructural, cognitive, and emotional barriers that weaken their sense of control. These challenges are especially evident during practicum placements in under-resourced schools, where technological limitations differ greatly from those encountered in campus-based learning. Although the program provides various support structures, these have not fully prepared pre-service teachers to sustain technology use when faced with multiple, overlapping obstacles. The continued presence of infrastructure limitations, gaps in digital skills, and emotional barriers suggests that existing support remains insufficient and not fully aligned with practicum realities.

Technological Infrastructure and Resource Challenges

Pre-service language teachers face significant infrastructure and resource issues, including unreliable devices, incompatible software, and the constant need for backup solutions, which severely restrict their PBC in technology integration. Participants reported using malfunctioning laptops, experiencing software crashes, and shifting platforms mid-lesson, undermining intentions despite competence or motivation. These environment-driven barriers override individual readiness and capabilities, key control factors in the Theory of Planned Behavior (Ajzen, 2020).

Carrillo and Flores (2021) affirmed infrastructure reliability as the top global impediment transcending cultural and economic differences, particularly restricting pre-service teachers lacking institutional authority to resolve systemic problems. This echoes participants' anxious experiences managing device failures. Trust and Maloy (2021) described adaptation through workarounds, which demand added time, skill, and emotional effort, explaining participants' constant platform shifting.

The syllabi's assumption of access to functional and compatible ICT contradicts these realities (Technology in Language Education CLO A and D; Technology for Teaching and Learning 1 CLO 3). Participants' accounts of malfunctioning borrowed equipment and incessant backup needs demonstrate this disconnect, leaving them unable to meet evaluative expectations. The Practicum Coordinator acknowledged that "there are no stable devices or internet," confirming systemic infrastructural deficits. Programs must either ensure sufficient practicum technology or revise integration expectations to reflect these constraints, preserving realistic PBC.

Digital Literacy and Access Barriers

Participants also face digital literacy deficiencies and access challenges, such as unstable connectivity, insufficient application training, and gaps in hands-on competence, which reduce both internal and external dimensions of PBC. Slow internet and frequent power disruptions disrupt lessons, while limited training fosters uncertainty in using specific digital tools. Luik et al. (2021) challenged assumptions that being digital natives equates to pedagogical technology proficiency, revealing glaring competency gaps in lesson design and troubleshooting. Falloon (2020) emphasized specialized knowledge requirements for effective technology use beyond consumer familiarity, matching participants' reports of inadequate app training (P6). Eckleberry-Hunt et al. (2023) described a broader "AI generation gap" where fascination with consumer tech diverges from pedagogical preparedness. Instefjord and Munthe (2021) linked programmatic emphasis on hands-on, iterative skill development to increased confidence, suggesting current gaps may stem from theoretical-heavy training. Romero-Ivanova et al. (2020) acknowledged digital literacy as lifelong learning but noted immediate practical challenges remain unmet for pre-service teachers.

The syllabi expect demonstration of ICT understanding and skills (Technology for Teaching and Learning 1 CLO 1 and 2), but participants confirmed that course completion did not secure this functional literacy. Unstable infrastructure further complicates expectations of ICT integration in resource-limited classrooms. The Practicum Coordinator's statement that "some do not know how to use the apps or tools" confirms persistent literacy gaps. Teacher education must pivot to more intensive, authentic digital literacy development and prepare pre-service teachers for limited connectivity environments.

Affective and Cognitive Barriers to Technology Adoption

Emotional and cognitive obstacles, frustration, panic, peer comparison anxiety, and fear of losing classroom control, profoundly shape reluctance to adopt technology despite technical competency. Participants reported nervousness during malfunctions, pressure comparing themselves to more skilled peers, and fears of losing student attention. TPB recognizes affective states as critical to PBC and behavioral intent (Ajzen, 2020). Joo et al. (2021) found emotional responses to tech challenges more predictive of adoption than competence alone; teachers feeling anxiety or embarrassment tend toward avoidance, paralleling participants' preference for traditional methods. Kearney and Maher (2020) identified "technological performance anxiety" centered on fears of losing instructional authority, aligning with participants' concerns about student attention loss during technical issues. Hülshoff and Jucks (2024) confirmed affective barriers mediating the competence-to-implementation link.

Although moderate concern can motivate care (Martin et al., 2021), participants exhibited maladaptive anxiety causing avoidance. The syllabi's focus on creating safe learning environments (Technology for Teaching and Learning 1 CLO 5) and pedagogical reflection (CLO 6) neglects pre-service teachers' emotional readiness. The Practicum Coordinator's observation of "fear of failure, pressure, overthinking, and self-doubt" underscores the centrality of psychological barriers. Teacher education must integrate emotional regulation and resilience training as core components to bolster PBC and authentic technology adoption.

Suggestions to Mitigate the Reluctance of Future Pre-Service Teachers to Adopt Technology-Enhanced Pedagogies in Language Instruction

Pre-service language teachers' suggestions for reducing technology reluctance among future cohorts reflect a clear understanding of the barriers they have faced and a practical view of needed institutional improvements. These recommendations are especially meaningful because they come from lived experiences navigating the gap between curricular expectations and practicum realities. Participants' suggestions also align with perceived behavioral control, emphasizing the need to strengthen both personal skills and external conditions that affect technology use. While the program's existing support structures, such as mentoring, consultation, and feedback sessions, provide a starting point, meaningful changes are needed to shift from reactive support toward proactive development of technological capability.

Provision of Reliable Technology and Resources

Reliable technology and resource provision emerged as foundational to enhancing pre-service teachers' PBC technology adoption. Participants emphasized the need for offline-accessible apps with auto-backup, high-quality hardware, stable internet, and institutional support, highlighting the crucial role of environmental resources in enabling intended behaviors (Ajzen, 2020). Research consistently shows that reliable infrastructure predicts sustained technology integration more strongly than pedagogical training alone. Prestridge and de Aldama (2021) found teachers with dependable devices and stable connectivity maintain long-term adoption, whereas those with recurrent infrastructure issues revert to traditional methods. Schildkamp et al. (2020) noted partial or inconsistent resource provision generates frustration exceeding even no provision, as failing technology imposes planning burdens. Petko et al. (2021) evidenced that removal of resource uncertainties significantly boosts teachers' self-efficacy and intentions.

The syllabi for Technology in Language Education and Technology for Teaching and Learning 1 require functional ICT use (PO 6.3.1.f, PO 6.2.e), assuming stable infrastructure that the participants' practicum realities contradict. The Practicum Coordinator confirmed institutional responsibility for "stable internet, computers, and software." The findings call for teacher education programs to ensure resource provision or pragmatically revise integration expectations

to reflect contextual constraints, recognizing resource provision as key to enabling PBC and confident technology use.

Professional Development and Familiarity with Technology

The participants stressed hands-on, continuous professional development as essential to building internal PBC by enhancing actual behavioral control. Their recommendations for iterative workshops and authentic ICT tool exposure underscore that competence and confidence arise from deliberate practice, not one-off theoretical training (Ajzen, 2002). Harris and Hofer (2020) emphasized sustained planning, implementation, and feedback cycles are needed for deep technological pedagogical content knowledge (TPACK). Koehler et al. (2020) demonstrated scaffolded, progressive practice sharply improves reluctant teachers' self-efficacy, aligning with calls for practical experience pre-practicum. Hennessy et al. (2020) further advocated integrating ICT throughout teacher education rather than isolated courses.

Participants' critiques of insufficient hands-on training reflect incomplete achievement of syllabi's skill-building goals (Technology in Language Education CLO A and B; Technology for Teaching and Learning 1 CLO 2 and 3). The Practicum Coordinator's endorsement of "workshops, guided practice, and exposure to ICT tools" highlights the need for profound curricular restructuring to foster mastery-based competence and robust PBC.

Affective Readiness and Confidence Building

Participants identified affective readiness, emotional support, encouragement, peer collaboration, as critical to fostering risk-taking and experimentation necessary for technology integration. TPB situates such affective factors as core determinants of PBC, directly influencing confidence and interpretation of setbacks (Ajzen, 2020). Le Fevre (2020) highlighted emotional scaffolding, normalized failure, growth-focused feedback, and effort celebration, as vital for resilience and persistence. Krutka et al. (2021) demonstrated professional learning communities offer emotional encouragement and practical aid, counteracting competitive isolation that hampers

adoption. Jamieson-Proctor et al. (2022) similarly found affective readiness under-addressed across cultures.

While syllabi mention student safety and pedagogical reflection (TTL CLO 5 and 6), they neglect pre-service teachers' psychological safety and anxiety management. The Practicum Coordinator confirmed the necessity of "supportive environment, encouragement, a safe environment." This underscores that beyond technical skills, comprehensive preparation addressing cognitive and emotional dimensions is essential to build PBC and facilitate authentic technology integration in language teaching.

Integrative Discussion of Categories

The categories identified in this study: internal factors, external factors, past experiences with educational technology, challenges encountered, and suggested supports, are closely interconnected and collectively shape pre-service language teachers' reluctance to integrate technology. Psychological and cognitive responses such as anxiety, self-doubt, and cautious adaptation are not isolated traits but emerge in response to contextual and environmental conditions, particularly practicum environments marked by limited infrastructure and high-stakes evaluations. Negative past experiences, especially technology failures during evaluated teaching demonstrations, further intensify these internal responses by reinforcing fear of failure and reducing perceived control. As a result, challenges related to infrastructure, digital skills, and emotional readiness interact rather than operate separately, producing a compounded effect that weakens confidence and sustains reluctance. Pre-service teachers' coping strategies and recommendations reflect their awareness of this interaction. Strategic behaviors such as extensive backup planning and conservative tool use arise from the convergence of external uncertainty, prior negative experiences, and institutional pressures that reward reliability over experimentation. At the same time, participants' suggestions emphasize that addressing a single category, such as skills training or infrastructure alone, is insufficient. Instead, they point to the need for aligned support that simultaneously strengthens technical competence, emotional readiness, and contextual adaptability. Taken together, the categories illustrate that technology reluctance is

shaped by a dynamic system of experiences and conditions, underscoring the importance of integrated, context-sensitive preparation rather than isolated interventions.

IV. CONCLUSION

This study demonstrates that pre-service language teachers' reluctance to adopt technology-enhanced pedagogies is shaped by a complex interaction of internal, external, experiential, and contextual factors that collectively weaken their perceived behavioral control (PBC) within the Theory of Planned Behavior. Internally, cognitive overload and overthinking tendencies, performance anxiety stemming from fear of technical failure, low technological self-efficacy, anxiety rooted in self-doubt, and cautious adaptation and safety behavior heighten emotional and cognitive strain, reducing confidence in navigating technology. Externally, limited and unreliable technological resources, digital divide and connectivity challenges, power interruptions and instructional uncertainty, and broader psychological, pedagogical, and environmental influences restrict both perceived and actual control over technology use. These are compounded by experiential influences, such as experiential barriers, strategic coping and adjustment, psychological effects of tech failures, and gaps in technical familiarity and mastery, which reinforce hesitation rooted in prior difficulties. Additionally, real-world practicum challenges including technological infrastructure and resource limitations, digital literacy and access barriers, and affective and cognitive obstacles further demonstrate the disconnect between institutional expectations and the conditions pre-service teachers face in practice.

Against this backdrop, participants articulated mitigation strategies that directly address these layers of reluctance. Their recommendations include the provision of reliable technology and resources, targeted professional development and sustained familiarity-building with digital tools, and structured support for affective readiness and confidence building, align with the competencies outlined in Technology in Language Education and Technology for Teaching and Learning 1, yet also highlight the persistent gap between aspirational curricular outcomes and practicum realities. The findings underscore the need for teacher education programs to adopt a holistic approach that strengthens internal psychological readiness, ensures stable and equitable technological access, and expands mastery-based experiential learning to rebuild and sustain PBC. Without the

alignment of infrastructure, curriculum, and affective support systems, program expectations will remain ideal rather than attainable, limiting pre-service teachers' authentic and confident integration of technology into language instruction.

REFERENCES

- [1.] Adlina, Z. I. (2023). *A survey of EFL pre-service teachers' perceptions of the technology use for teaching during teacher training* [Doctoral dissertation, Universitas Islam Indonesia].
- [2.] Admiraal, W., van Vugt, F., Kranenburg, F., Koster, B., Smit, B., Weijers, S., & Lockhorst, D. (2021). Preparing pre-service teachers to integrate technology into K–12 instruction: Evaluation of a technology-infused teacher education program. *Technology, Pedagogy and Education*, 30(3), 409-423.
- [3.] Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- [4.] Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32(4), 665-683. <https://doi.org/10.1111/j.1559-1816.2002.tb00236.x>
- [5.] Ajzen, I. (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4), 314-324. <https://doi.org/10.1002/hbe2.195>
- [6.] Backfisch, I., Lachner, A., Stürmer, K., & Scheiter, K. (2021). Variability of teachers' technology integration in the classroom: A matter of utility! *Computers & Education*, 166, 104159. <https://doi.org/10.1016/j.compedu.2021.104159>
- [7.] Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman.
- [8.] Basilotta-Gómez-Pablos, V., Matarranz, M., Casado-Aranda, L. A., & Otto, A. (2022). Teachers' digital competencies in higher education: A systematic literature review. *International Journal of Educational Technology in Higher Education*, 19(1), 8. <https://doi.org/10.1186/s41239-021-00312-8>
- [9.] Belda-Medina, J., & Calvo-Ferrer, J. R. (2022). Preservice teachers' knowledge and attitudes toward digital-game-based language learning. *Education Sciences*, 12(3), 182. <https://doi.org/10.3390/educsci12030182>

-
- [10.] Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., Lambert, S., Al-Freih, M., Pete, J., Olcott, D., Jr., Rodes, V., Aranciaga, I., Bali, M., Alvarez, A. V., Jr., Roberts, J., Pazurek, A., Raffaghelli, J. E., Panagiotou, N., de Coëtlogon, P., ... Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, 15(1), 1-126. <https://doi.org/10.5281/zenodo.3878572>
- [11.] Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to Coronavirus pandemic. *Asian Journal of Distance Education*, 15(1), i-vi. <https://doi.org/10.5281/zenodo.3778083>
- [12.] Buabeng-Andoh, C. (2021). Exploring university students' intention to use mobile learning: A research model approach. *Education and Information Technologies*, 26(1), 241-256. <https://doi.org/10.1007/s10639-020-10267-4>
- [13.] Carrillo, C., & Flores, M. A. (2020). COVID-19 and teacher education: A literature review of online teaching and learning practices. *European Journal of Teacher Education*, 43(4), 466-487. <https://doi.org/10.1080/02619768.2020.1821184>
- [14.] Cheng, S.-L., & Xie, K. (2021). The relations among teacher value beliefs, personal characteristics, and TPACK in intervention and non-intervention settings. *Teaching and Teacher Education*, 99, 103260. <https://doi.org/10.1016/j.tate.2020.103260>
- [15.] Cheng, S.-L., Lu, L., Xie, K., & Vongkulluksn, V. W. (2022). Understanding teacher technology integration from expectancy-value perspectives. *Teaching and Teacher Education*, 91, 103062. <https://doi.org/10.1016/j.tate.2020.103062>
- [16.] Christensen, R., & Knezek, G. (2017). Validating the technology proficiency self-assessment questionnaire for 21st century learning (TPSA C-21). *Journal of Digital Learning in Teacher Education*, 33(1), 20-31. <https://doi.org/10.1080/21532974.2016.1242391>
-

-
- [17.] Collie, R. J., & Martin, A. J. (2021). Teacher wellbeing and professionalism: The role of psychological need satisfaction and perceived autonomy support. *Teaching and Teacher Education*, 99, 103267.
- [18.] Commission on Higher Education. (2004). Revised policies and standards for undergraduate teacher education curriculum (CMO No. 30, s. 2004). <http://ched.gov.ph/wp-content/uploads/2013/07/CMO-No.30-s2004.pdf>
- [19.] Drossel, K., Eickelmann, B., & Vennemann, M. (2020). Schools overcoming the digital divide: In-depth analyses towards organizational resilience in the computer and information literacy domain. *Large-scale Assessments in Education*, 8(1), 9. <https://doi.org/10.1186/s40536-020-00087-w>
- [20.] Eckleberry-Hunt, J., Hunt, T., & Moser, E. (2023). The AI generation gap: Are Gen Z students more interested in generative AI than their teachers? *Smart Learning Environments*, 10(1), 1-15. <https://doi.org/10.1186/s40561-023-00269-3>
- [21.] Falloon, G. (2020). From digital literacy to digital competence: The teacher digital competency (TDC) framework. *Educational Technology Research and Development*, 68(5), 2449-2472. <https://doi.org/10.1007/s11423-020-09767-4>
- [22.] Ghavifekr, S., & Athirah, N. (2022). Factors influencing teachers' beliefs towards ICT integration: A comparative study across different countries. *Education and Information Technologies*, 27(5), 6857-6875.
- [23.] Guillén-Gámez, F. D., & Mayorga-Fernández, M. J. (2020). Identification of variables that predict teachers' attitudes toward ICT in higher education for teaching and research: A study with regression. *Sustainability*, 12(4), 1312. <https://doi.org/10.3390/su12041312>
- [24.] Guillén-Gámez, F. D., Mayorga-Fernández, M. J., Bravo-Agapito, J., & Escribano-Ortiz, D. (2020). Analysis of teachers' pedagogical digital competence: Identification of factors predicting their acquisition. *Technology, Knowledge and Learning*, 26(3), 481-498. <https://doi.org/10.1007/s10758-019-09432-7>
-

-
- [25.] Harris, J., Mishra, P., & Koehler, M. J. (2021). Teachers' perceptions of their readiness to integrate technology into teaching: A multi-national study. *Computers & Education*, 165, 104143.
- [26.] Harris, J. B., & Hofer, M. J. (2020). "Grounded" technology integration: Instructional planning using curriculum-based activity type taxonomies. *Journal of Technology and Teacher Education*, 28(4), 619-650.
- [27.] Hatlevik, O. E., Throndsen, I., Loi, M., & Gudmundsdottir, G. B. (2021). Students' ICT self-efficacy and computer and information literacy: Determinants and relationships. *Computers & Education*, 118, 1-9. <https://doi.org/10.1016/j.compedu.2017.11.011>
- [28.] Hennessy, S., Ruthven, K., & Brindley, S. (2020). The role of ICT in teacher professional development: A systematic review of the literature. *Educational Technology Research and Development*, 68(3), 1327-1356.
- [29.] Howard, S. K., Tondeur, J., Ma, J., & Yang, J. (2021). What to teach? Strategies for developing digital competency in preservice teacher training. *Computers & Education*, 165, 104149. <https://doi.org/10.1016/j.compedu.2021.104149>
- [30.] Hülshoff, A., & Jucks, R. (2024). Pre-service English teachers' approaches to technology-assisted teaching and learning: Associations with study level, self-efficacy and value beliefs. *Computers and Education Open*, 7, 100199.
- [31.] Instefjord, E. J., & Munthe, E. (2020). Educating digitally competent teachers: A study of integration of professional digital competence in teacher education. *Teaching and Teacher Education*, 67, 37-45. <https://doi.org/10.1016/j.tate.2017.05.016>
- [32.] Instefjord, E., & Munthe, E. (2021). Preparing pre-service teachers to integrate technology: An analysis of the emphasis on digital competence in teacher education curricula. *European Journal of Teacher Education*, 40(3), 286-308.
- [33.] Iqbal, S., Niazi, S., & Hafeez, M. (2021). Developments on technology integration in language teaching and learning. *Global Educational Studies Review*, VI(III), 21-28. [https://doi.org/10.31703/gesr.2021\(VI-III\).03](https://doi.org/10.31703/gesr.2021(VI-III).03)
-

- [34.] Jamieson-Proctor, R., Finger, G., & Albion, P. R. (2022). Teacher beliefs about ICT integration: A qualitative study across three countries. *Journal of Computer Assisted Learning*, 38(2), 320-335.
- [35.] Joo, Y. J., Park, S., & Lim, E. (2021). Factors influencing preservice teachers' intention to use technology: TPACK, teacher self-efficacy, and technology acceptance model. *Educational Technology & Society*, 21(3), 48-59.
- [36.] Kearney, M., & Maher, D. (2020). Mobile learning in pre-service teacher education: Examining the use of professional learning networks. *Australasian Journal of Educational Technology*, 35(1), 135-148. <https://doi.org/10.14742/ajet.4073>
- [37.] Kim, N. J., & Kim, M. K. (2022). Teacher's perceptions of using an artificial intelligence-based educational tool for scientific writing. *Frontiers in Education*, 7, 755914. <https://doi.org/10.3389/feduc.2022.755914>
- [38.] Kimmons, R., & Hall, C. (2021). How useful are our models? Pre-service and practicing teacher evaluations of technology integration models. *TechTrends*, 62(1), 29-36. <https://doi.org/10.1007/s11528-017-0227-8>
- [39.] Koehler, M. J., Mishra, P., Kereluik, K., Shin, T. S., & Graham, C. R. (2013). The technological pedagogical content knowledge framework. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), *Handbook of research on educational communications and technology* (pp. 101-111). *Springer*. https://doi.org/10.1007/978-1-4614-3185-5_9
- [40.] König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: Teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education*, 43(4), 608-622. <https://doi.org/10.1080/02619768.2020.1809650>
- [41.] Krutka, D. G., Manca, S., Galvin, S. M., Greenhow, C., Koehler, M. J., & Askari, E. (2019). Teaching "against" social media: Confronting problems of profit in the curriculum. *Teachers College Record*, 121(14), 1-43.
-

-
- [42.] Lawrence, J. E., & Tar, U. A. (2020). Factors that influence teachers' adoption and integration of ICT in teaching/learning process. *Educational Media International*, 55(1), 79-105. <https://doi.org/10.1080/09523987.2018.1439712>
- [43.] Le Fevre, D. M. (2020). Barriers to implementing pedagogical change: The role of teachers' perceptions of risk. *Teaching and Teacher Education*, 38, 56-64. <https://doi.org/10.1016/j.tate.2013.11.007>
- [44.] Lee, J., & Kim, K. J. (2021). Understanding barriers to technology integration in Korean higher education: A qualitative study on faculty perspectives. *Computers & Education*, 164, 104115.
- [45.] Luik, P., Taimalu, M., & Suviste, R. (2021). Perceptions of technological, pedagogical and content knowledge (TPACK) among pre-service teachers in Estonia. *Education and Information Technologies*, 23(2), 741-755. <https://doi.org/10.1007/s10639-017-9633-y>
- [46.] Martin, F., Sun, T., & Westine, C. D. (2020). A systematic review of research on online teaching and learning from 2009 to 2018. *Computers & Education*, 159, 104009. <https://doi.org/10.1016/j.compedu.2020.104009>
- [47.] McGarr, O., & McDonagh, A. (2021). How field experience shapes pre-service primary teachers' technology integration knowledge and practice: A sociocultural perspective. *Journal of Education for Teaching*, 47(3), 303-319.
- [48.] Mee Mee, R. W., Shahdan, T. S. T., Ismail, M. R., Ghani, K. A., Pek, L. S., Von, W. Y., Ibrahim, M. M., & Rao, Y. S. (2020). Role of gamification in classroom teaching: Pre-service teachers' view. *International Journal of Evaluation and Research in Education*, 9(3), 684-690.
- [49.] Merriam, S. B. (1998). *Qualitative research and case study applications in education*. Jossey-Bass.
- [50.] Mishra, P. (2020). Considering contextual knowledge: The TPACK diagram gets an upgrade. *Journal of Digital Learning in Teacher Education*, 35(2), 76-78. <https://doi.org/10.1080/21532974.2019.1588611>
-

-
- [51.] Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017-1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- [52.] Napanoy, J. B., Gayagay, G. C., & Tuazon, J. R. C. (2021). Difficulties encountered by pre-service teachers: Basis of a pre-service training program. *Universal Journal of Educational Research*, 9(2), 342-349. <https://doi.org/10.13189/ujer.2021.090210>
- [53.] Okumuş, A., & Savaş, P. (2022). Designing augmented reality based language learning and teaching materials: From the perspective of prospective EFL teachers. *Journal of Educational Multimedia and Hypermedia*, 31(1), 67-96.
- [54.] Ottenbreit-Leftwich, A. T., Liao, J. Y., Sadik, O., & Ertmer, P. A. (2021). Evolution of teachers' technology integration knowledge, beliefs, and practices: How can we support beginning teachers use of technology? *Journal of Research on Technology in Education*, 50(4), 282-304. <https://doi.org/10.1080/15391523.2018.1487350>
- [55.] Petko, D., Prasse, D., & Cantieni, A. (2020). The interplay of school readiness and teacher readiness for educational technology integration: A structural equation model. *Computers in the Schools*, 35(1), 1-18. <https://doi.org/10.1080/07380569.2018.1428007>
- [56.] Petko, D., Schmid, R., Müller, L., & Hielscher, M. (2021). Metapholio: A mobile app for supporting collaborative note taking and reflection in teacher education. *Technology, Knowledge and Learning*, 24(4), 699-710.
- [57.] Pettersson, F. (2021). Understanding digitalization and educational change in school by means of activity theory and the levels of learning concept. *Education and Information Technologies*, 26(1), 187-204. <https://doi.org/10.1007/s10639-020-10239-8>
- [58.] Philipsen, B., Tondeur, J., Pareja Roblin, N., Vanslambrouck, S., & Zhu, C. (2020). Improving teacher professional development for online and blended learning: A systematic meta-aggregative review. *Educational Technology Research and Development*, 67(5), 1145-1174. <https://doi.org/10.1007/s11423-019-09645-8>
-

-
- [59.] Pozas, M., Letzel, V., & Schneider, C. (2024). Clustering or profiling approaches and associations between approaches to teaching, study level and ICT- and classroom-related value and self-efficacy beliefs. *Computers and Education Open*, 7, 100199.
- [60.] Prestridge, S. (2021). Categorising teachers' use of social media for their professional learning: A self-generating professional learning paradigm. *Computers & Education*, 129, 143-158. <https://doi.org/10.1016/j.compedu.2018.11.003>
- [61.] Prestridge, S., & de Aldama, C. (2021). A classification framework for exploring technology-enabled practice: Framework development from teacher educators. *Journal of Educational Computing Research*, 157, 103970.
- [62.] Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2021). Balancing technology, pedagogy and the new normal: Post-pandemic challenges for higher education. *Postdigital Science and Education*, 3(3), 715-742. <https://doi.org/10.1007/s42438-021-00249-1>
- [63.] Reich, J., & Ito, M. (2020). From good intentions to real outcomes: Equity by design in learning technologies. *Digital Media and Learning Research Hub*.
- [64.] Romero-Ivanova, C., Shaughnessy, M., Otto, L., Taylor, E., & Watson, E. (2020). Digital practices & applications in a COVID-19 culture. *Higher Education Studies*, 10(3), 80-87. <https://doi.org/10.5539/hes.v10n3p80>
- [65.] Scherer, R., Howard, S. K., Tondeur, J., & Siddiq, F. (2021). Profiling teachers' readiness for online teaching and learning in higher education: Who's ready? *Computers in Human Behavior*, 118, 106675. <https://doi.org/10.1016/j.chb.2020.106675>
- [66.] Scherer, R., & Teo, T. (2020). Unpacking teachers' intentions to integrate technology: A meta-analysis. *Educational Research Review*, 27, 90-109. <https://doi.org/10.1016/j.edurev.2019.03.001>
- [67.] Schildkamp, K., Wopereis, I., Kat-De Jong, M., Peet, A., & Hoetjes, I. (2020). Building blocks of instructor professional development for innovative ICT use during a pandemic. *Journal of Professional Capital and Community*, 5(3/4), 281-293. <https://doi.org/10.1108/JPC-06-2020-0034>
-

-
- [68.] Schmid, M., Brianza, E., & Petko, D. (2020). Developing a short assessment instrument for Technological Pedagogical Content Knowledge (TPACK.xs) and comparing the factor structure of an integrative and a transformative model. *Computers & Education*, 157, 103967. <https://doi.org/10.1016/j.compedu.2020.103967>
- [69.] Schmid, M., Brianza, E., & Petko, D. (2021). Self-reported technological pedagogical content knowledge (TPACK) of pre-service teachers in relation to digital technology use in lesson plans. *Computers in Human Behavior*, 115, 106586. <https://doi.org/10.1016/j.chb.2020.106586>
- [70.] Seale, J., Georgeson, J., Mamas, C., & Swain, J. (2021). Not the right kind of 'digital capital'? An examination of the complex relationship between disabled students, their technologies and higher education institutions. *Computers & Education*, 82, 118-128. <https://doi.org/10.1016/j.compedu.2014.11.007>
- [71.] Selwyn, N., Hillman, T., Eynon, R., Ferreira, G., Knox, J., Macgilchrist, F., & Sancho-Gil, J. M. (2020). What's next for Ed-Tech? Critical hopes and concerns for the 2020s. *Learning, Media and Technology*, 45(1), 1-6. <https://doi.org/10.1080/17439884.2020.1694945>
- [72.] Starkey, L. (2020). A review of research exploring teacher preparation for the digital age. *Cambridge Journal of Education*, 50(1), 37-56. <https://doi.org/10.1080/0305764X.2019.1625867>
- [73.] Taimalu, M., & Luik, P. (2021). The impact of beliefs and knowledge on the integration of technology among teacher educators: A path analysis. *Teaching and Teacher Education*, 79, 101-110. <https://doi.org/10.1016/j.tate.2018.12.012>
- [74.] Takaoğlu, Z. B. (2017). Challenges faced by pre-service science teachers during the teaching and learning process in Turkey. *Journal of Education and Training Studies*, 5(2), 100-110. <https://doi.org/10.11114/jets.v5i2.2132>
- [75.] Teacher Education Council, & Research Center for Teacher Quality. (2020). Prototype syllabi for pre-service teacher education. Department of Education. <https://tec.deped.gov.ph/downloadable/prototype-syllabi-for-pre-service-teacher-education/>
-

-
- [76.] Tondeur, J., Aesaert, K., Pynoo, B., van Braak, J., Fraeyman, N., & Erstad, O. (2020). Developing a validated instrument to measure preservice teachers' ICT competencies: Meeting the demands of the 21st century. *British Journal of Educational Technology*, 48(2), 462-472. <https://doi.org/10.1111/bjet.12380>
- [77.] Tondeur, J., Howard, S. K., & Yang, J. (2021). One-size does not fit all: Towards an adaptive model to develop preservice teachers' digital competencies. *Computers in Human Behavior*, 116, 106659. <https://doi.org/10.1016/j.chb.2020.106659>
- [78.] Tondeur, J., Scherer, R., Siddiq, F., & Baran, E. (2017). A comprehensive investigation of TPACK within pre-service teachers' ICT profiles: Mind the gap! *Australasian Journal of Educational Technology*, 33(3), 46-60. <https://doi.org/10.14742/ajet.3504>
- [79.] Tondeur, J., van Braak, J., Sang, G., Voogt, J., Fisser, P., & Ottenbreit-Leftwich, A. (2022). Preparing pre-service teachers to integrate technology in education: A synthesis of qualitative evidence. *Computers & Education*, 59(1), 134-144. <https://doi.org/10.1016/j.compedu.2011.10.009>
- [80.] Trevisan, O., & De Rossi, M. (2023). Preservice teachers' dispositions for technology integration: common profiles in different contexts across Europe. *Technology, Pedagogy and Education*, 32(2), 191–204. <https://doi.org/10.1080/1475939X.2023.2169338>
- [81.] Trust, T., & Maloy, R. W. (2021). Why 3D virtual reality (VR) should be used in K-12 classrooms. *SRATE Journal*, 28(1), 8-16.
- [82.] Trust, T., & Whalen, J. (2020). Should teachers be trained in emergency remote teaching? Lessons learned from the COVID-19 pandemic. *Journal of Technology and Teacher Education*, 28(2), 189-199. <https://www.learntechlib.org/primary/p/215995/>
- [83.] Türel, Y. K., & Johnson, R. (2021). Understanding teachers' perceptions of ICT integration: A case study from Turkey. *Educational Technology Research and Development*, 69(4), 1239-1260.
- [84.] Woods, K. D. (2020). *Teacher technology efficacy: The relationship among generation, gender, and subject area of secondary teachers* [Doctoral dissertation, Lindenwood University]. ProQuest Dissertations Publishing.
-

-
- [85.] Zhang, M., & Liu, Y. (2021). A commentary on emotional design in multimedia learning: Wedded to a positive methodology, theory and research agenda. *Journal of Educational Psychology*, 113(7), 1396-1408.
- [86.] Zhao, Y., & Watterston, J. (2021). The changes we need: Education post COVID-19. *Journal of Educational Change*, 22(1), 3-12. <https://doi.org/10.1007/s10833-021-09417-3>