

Linguistic Competence and Technophobia: Digital Anxiety in the Construction of Teaching Performance

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Abstract

The technophobia experienced by pre-service teachers in terms of digital malaise has increasingly emerged as a serious hindrance to their learning technology-facilitated instruction. This paper investigates the correlations among language proficiency, technophobia and teaching performance in a teacher training environment. Questionnaire responses from undergraduates in education programmed with both STAI-based data and open-ended questionnaire responses were the source of the data analyzed. The results showed that the cause of pre-service teachers' technophobia is primarily based on situational constraints (i.e., poor access to digital infrastructure and insufficient institutional support) (50% of the responses), followed by personal factors in terms of fear of failure, low self-confidence, and unwillingness to use technology (45%). A further minority (5%) indicated that both influences played a role in shaping their opinions. The repercussions of cyberstress are obvious, such as reduced creativity, avoiding the use of technology in teaching practice, and an inclination to stick to traditional ways, leading to stagnation of interactive and innovative pedagogy. On the contrary, the research points to mitigating discourses that rely on accessible digital tools (Canva, Google Classroom, Quizizz), which provide situational affordances for larger participation, a positive self-bias empowering effect and a gradual reduction in anxiety. Through a discourse-based approach, language use is an important resource for pre-service teachers use to frame their digital anxiety experiences and reshape their teaching abilities. The study finds that addressing technophobia depends on institutional support and approaches to empowerment of student agency in the construction of digital pedagogical proficiency.

Keywords: technophobia, digital anxiety, linguistic competence, teacher education, pre-service teachers, teaching performance

1. Introduction

The growing presence of digital technology in the education world has led to many changes, such as how teaching and learning are conducted (Haleem et al., 2022; Resmi et al., 2023; Timotheou et al., 2023; Juanda et al., 2025). Studies have shown that implementing electronic learning (EL) significantly improves the quality of learning management at the vocational school level (Helmi et al., 2022). Similar findings were also observed in digital learning contexts, where the use of MOOCs integrated with Kahoot enhanced student engagement during online learning (Sagala & Rezeki, 2022). These examples highlight that digital integration is not merely necessary but an effective strategy to strengthen the quality of teaching across different educational settings. It has become increasingly evident that the accelerated digital transfiguration of classrooms is not merely about the need for teachers' acquisition of digital literacy but also about their practices being shaped by a range of digital tools (Cahyani et al., 2025). Tools such as Google Classroom, Canva, Zoom and Quizizz are not the add-ons but now they play the pivot role of promoting an interactive, creative and effective learning (Falloon, 2020; Sansone et al., 2019; Herman et al., 2022; Ansari et al., 2023; Hanif et al., 2023). This change means that the preservice teachers,

prospective members of the teaching staff in schools, must be trained to face the challenges of technology-mediated pedagogy (Ancheta, 2025; Jie & Sunze, 2023; Novitskaya et al., 2025). They have succeeded in this as individual practitioner and for the wider project of the quality and equality of education.

While digital pedagogy becomes increasingly important, transitioning to new technologies is difficult (Alam & Mohanty, 2023). Despite digital technology's advantages, a phenomenon constantly demonstrates the obstruction of smooth utilization of ICT, technophobia. Technophobia may be generally described as individuals' fear and hostility towards using technological tools (Brosnan, 2002). Unlike a mere lack of ability, the fear of technology arises from psychological and social issues related to perceived incompetence or not wanting to make mistakes with unfamiliar technologies (Rosen & Weil, 1995; Khasawneh, 2023). This digital anxiety can appear as technology avoidance, resistance to using new applications and the desire for traditional teaching methods that impede attempts to update educational environments.

The literature and the facts that it presents make clear that technophobia is an ambivalent phenomenon, which has a situation component and a personal one. On the one hand, environmental conditions (or context) such as bad infrastructure, restricted digital access, unreliable internet service, and insufficient institutional support are big barriers for technology adoption (Fernández-Batanero et al., 2021; Navarro-Espinosa et al., 2021; Sinaga et al., 2025). Conversely, individual aspects like self-confidence, aversion to error, or technology add further momentum to the struggle (Henderson & Corry, 2021; Rehman et al., 2024). This twofold nature of teacher identity is especially significant for preservice teachers constructing their professional selves. For them, technophobia does not just stand in the way of acquiring digital skills but also influences the building of confidence for teaching performance.

There are multiple facets of how technophobia impacts teaching effectiveness. Teachers with digital anxiety are less likely to integrate technology into their instruction, leading to a monochrome and passive pedagogy (Khasawneh, 2023). Their reluctance to interact with the digital resources precludes any potential for student creativity, cooperation and ingenuity that are crucial components of 21st-century learning. In turn, it is this avoidance behavior which contributes to a cycle where the teacher becomes increasingly behind in digital literacy (and therefore reinforces their initial anxiety). Research in educational psychology indicates that such patterns frequently correlate with low self-efficacy, i.e., the belief in one's capability to perform a particular task (Bandura, 1982). Experientially, when self-efficacy is diminished, the capacity for teachers to establish agency in their professional identity is further constrained.

At the same time, it is crucial to note that technophobia should not merely be seen as an individual psychological problem, but also as a discursive issue. Technophobia is enacted by teachers discussing, describing, and managing their experiences with technology (Vaara, 2014). Expressions of fear, resistance, or irritation, for instance, reflect broader narratives regarding the role of technology in education in addition to personal opinions. These discourses play a role in constructing professional identity, helping to determine who teachers are as subjects who can or cannot use technology competently. That is to say, language proficiency is central in mediating the expression of digital anxiety and the discursive construction of teaching performance.

While there are some studies on technophobia from the perspectives of educational psychology and technology studies (Henderson & Corry, 2021; Rehman et al., 2024; Saddhono et al., 2024), there continues to be a deficiency in studies that connect technophobia with linguistic competency and discourse in teacher education. Research on digital literacy has often focused on acquiring skills and technical training (Falloon, 2020; Mishra & Koehler, 2006). However, it rarely focuses on how preservice teachers use language to form their anxieties about expressing problems or renegotiating agency in a digital context. This gap could be filled by bridging applied linguistics and school leadership, leading to a more holistic view of digital competence development and general teacher performance.

The two perspectives inspire this study. Based on preservice teachers from the Far East in Indonesia, this paper investigates technophobia as an experience and discourse. Indonesia presents a unique context of interest, as it has recently expanded digital learning infrastructure at scale and relative to historical inequalities in digital access and training. The methodology employed mixed-methods and comprised a questionnaire modified from the State-Trait Anxiety Inventory (Spielberger, 1983) supplemented by open-ended reflections. Analysis of the responses indicated that 50% stated situational causes (inadequate infrastructure, lack of institutional support) for anxiety, whereas 45% reported personal factors such as fear of failure and low self-confidence. A small percentage (5%) mentioned that it was both. These results are consistent with previous studies (Fernández-Batanero et al., 2021; Navarro-Espinosa et al., 2021); however, they also reveal how linguistic competence influences PSTs' expressions of the anxieties and coping strategies.

Crucially, the report does not just highlight sources of digital anxiety, but also looks at how to alleviate digital stress. Apps like Canva, Google Classroom, and Quizizz were highlighted as user-friendly inroads that mitigate anxiety while promoting engagement. Their adoption enabled preservice teachers to trial in safe outcomes, developing self-efficacy (self-belief) and turning the conversations of anxiety into conversations of capability (Sansone et al., 2019; Warden et al., 2022; Widodo et al., 2024). These results also indicate that overcoming technophobia will require a two-pronged strategy: breaking down structure-related barriers in training and infrastructure, and supporting individuals to revisit experiences through peer-mentoring, reflective practice, and techniques like Cognitive Behavioural Therapy (CBT).

In positioning technophobia as a psychological and discursive artefact, this work adds to current debates in applied linguistics and educational management. It claims that linguistic competence in the classroom is not just a question of communication but one of the keystones in teachers' construction of their professional selves vis-à-vis technology. Discursive rendering of teaching performance—such as how teachers discuss and work through digital anxiety—is important for teacher education programs. The study points out that curricula must concentrate on acquiring technicalities and a more developed linguistic and reflective side of teachers' capacity in articulating and mastering digital problems.

In summary, this study aims to answer the following question: How does technophobia –as a composite of digital anxiety and discourse- influence the development of teaching performance during preservice teachers' training? It takes the analysis to consider how mitigation options can turn anxiety into competence and address key linguistic, psychological and institutional dimensions of this mediation. In achieving this aim, the study contributes to our understanding of technophobia in teacher education and provides some pragmatic responses (Falloon, 2020).

2. Literature Review

2.1 *Technophobia*

The term *technophobia* refers to the fear, anxiety, or resistance toward the use of technology (Khasawneh, 2023; Sun & Ye, 2024). Early research linked Technophobia is a fear, anxiety or aversion to technology (Brosnan, 2002). Early studies on technophobia found that a lack of exposure to technology would lead design users who were computer and digital device "shy" (Rosen & Weil, 1995). Recent research, however, accentuates that technophobia is more than a mere technical problem and includes rich psychological and sociological aspects. Rehman, et al. (2024) maintain that technophobia is a technology barrier in digital learning, negatively affecting personal acceptance of technological innovation. This is consistent with Henderson & Corry (2021) who emphasize that technophobia often becomes evident in technological changes, including in educational systems undergoing digitalization. For teachers, technophobia may develop into one of the potential obstacles to pedagogical change, affecting both self-confidence and professional competence.

2.2 *Digital Anxiety*

The construct of digital anxiety emerged from the concept of face-to-face panic attack syndrome and is defined as the emotional discomfort and fear caused by dealing with technology (Khasawneh, 2023). Digital anxiety is expressed in three ways: cognitive (fear of failure), affective (stress or worry) and behavioral (avoidance of technology use) (Hoge et al., 2017). Navarro-Espinosa et al., (2021) noticed that fear of the digital increased radically among academics during the COVID-19 pandemic due to increased reliance on online sources. Likewise, Fernández-Batanero et al., (2021) stress that digital anxiety is a direct source of professional stress, reducing job satisfaction and teaching effectiveness. Digital anxiety is not a homogeneous phenomenon; it differs according to the context, generations' training opportunities and individual traits. It is vital for preservice teachers as technology-related anxiety during training could impact their preparedness to use ICT in future classrooms.

2.3 *Linguistic Competence*

In applied linguistics, language proficiency is generally defined as the capacity to use a language accurately and appropriately, depending on the situation (Chomsky, 2014). However, in discourse analysis, competence is more than just grammar; it refers to narrating experiences, negotiating identities and making meaning in social interactions (Sutikno et al., 2025). Regarding the digital pedagogy, language proficiency influences how teachers express their anxieties, verbalize their self-efficacy and re-conceptualize a new identity within the technology-related profession (Herman et al., 2025). For example, how preservice teachers talk about their fear of failing or confidence in using tools such as Google Classroom is a discursive act that shapes their practice. For this reason, linguistic competence is not entirely distinct from language use, but also agency—the power to tell positive or negative stories about the

move of a technology.

2.4 Training and Digital Competence for the Teaching

Methods Teacher education programmed now acknowledge digital competence within their remit of professional development. Mishra & Koehler (2006) are one of the prominent models that TPACK includes, premised on technological knowledge combined with pedagogy and disciplinarity. As argued, digital competence involves technical competencies, attitudes, creative thinking and reflections. For student-teachers, digital capability is essential as it allows them to design learning that engages and draws learners in an interactive format. Nevertheless, in the case of technophobia and digital anxiety, teacher training must overcome the technical-competence-based challenge and a psychological resistance to digitization.

2.5 Pre-Service Teachers

As preservice teachers (i.e., students embarking upon Their Preprofessional Career in education(preservice), they form a key emerging area of interest for studying technophobia and digital anxiety. As opposed to practicing teachers, preservice teachers are in the initial phases of constructing their professional selves. Cohort studies indicate that preservice teachers are more uncertain and stressed when adopting a digital domain, as they have had no experience in teaching methodologies which employ technology, as they defined it, as seen in (Sansone et al., 2019). Warden et al., (2022) show that younger people are often perceived as "digital natives" but have different levels of technology readiness, which is not about age but based on training and support. It is important to study technophobia within that population because of potential long-term problems: fears experienced during education may carry throughout their careers if they are not allayed.

2.6 Teaching Performance

Teaching performance involves content delivery, creativity, and flexibility in pedagogical strategies (Tosunta\cs et al., 2021). Studies have found that digital anxiety directly impacts their teaching performance and restricts the willingness of teachers to adopt interactive and innovative methods (Chomsky, 2014). On the other hand, teachers' competence and discipline have also been found to affect their performance significantly. (Damanik, 2019b) confirmed a positive relationship between teacher competence and teaching performance, while another study revealed that teachers' work discipline directly contributes to performance improvement in the classroom (Damanik, 2019a). This indicates that beyond digital anxiety, teaching performance is also shaped by broader personal and professional factors. Technophobic teachers immediately backslide into lecture mode, limiting students' ability to be actively involved and challenging the development of 21st-century skills. On the other hand, teachers building confidence in digital competence show a high degree of self-efficacy and make more dynamic teaching performances (Bandura, 1982; Navarro-Espinosa et al., 2021). Importantly, teaching performance is also discursively produced: how teachers talk about what they do with technology impacts their self-perception and patterning of practice.

2.7 Synthesis of the Literature

On the whole, the findings of the literature indicate a significant positive correlation between technophobia, digital anxiety, language competence, and teaching effectiveness. However, the majority of available research is centered on the psychological dimension of anxiety (Fernández-Batanero et al., 2021; Henderson & Corry, 2021) or the technical abilities needed to be digitally literate (Mishra & Koehler, 2006; Sansone et al., 2019). Few are the studies which directly correlate these constructs from a discourse-analytic view, showing how linguistic competence influences teachers' articulation, negotiation and mediation of digital anxiety. This gap is addressed by the present study, which conceptualizes technophobia as a psychological phenomenon and a discourse that creates teaching performance in preservice teacher education.

3. Materials and Methods

3.1 Research Design

Methodology In this research, a mixed methods design was used to ensure both quantitative and qualitative perspectives of technophobia and its possible effects for teaching. Using a mixed-methods framework, the numerical data can be combined with textual analysis, resulting in rich and sophisticated findings (Creswell & Clark, 2017). This method has been frequently recommended in studies adopting a mixed-methods approach to identify quantifiable signals of worry and narrative expressions of teachers' experiences (Denzin & Lincoln, 2011; Mishra & Koehler, 2006; Vaara, 2014).

3.2 Participants

The sample of this research was 298 pre-service teachers who were in the odd semester during the academic year 2024/2025, studying at STKIP Budidaya Binjai, Indonesia. This sample is larger than the minimum recommended size for survey instrument-based quantitative research, thus providing reasonable statistical power to conduct descriptive and correlational data analysis (Creswell, 2009). The sample comprised male and female students aged 18-25 years (students from the second to eighth semesters). All students had experienced digital learning platforms before in class and/or during microteaching practice, thus representing relevant informants for studying technophobia and digital anxiety. The sample is not gender balanced, as is common in education programs; there are more females than males. Participation was voluntary and anonymous, adhering to the ethical considerations for educational research (Fernández-Batanero et al., 2021; Spielberger, 1983). The study used two instruments to gather data; quantitative and qualitative methods were utilised to capture the breadth and depth of technophobia among pre-service teachers.

3.2.1 Technophobic and Digital Anxiety Inventory

The first instrument was a survey based on the State-Trait Anxiety Inventory (STAI) (Spielberger, 1983) with an adaptation of technology environments as requested in previous research covered by technophobia (Brosnan, 2002; Rosen & Weil, 1995). The questionnaire had 20 items on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Two dimensions of behaviours were intended to be captured by these items: situational, including lack of infrastructure and limited training opportunities, and personal, characterised by fear of failure, low confidence and possibly unwillingness to interact with digital platforms. These dimensions are consistent with theoretical technophobia and computer anxiety models obtained in earlier literature. The instrument was pre-tested on 30 respondents who were not included in the main sample for completeness and clarity before complete administration. It was found to have a Cronbach's alpha of 0.87, demonstrating strong internal consistency and reliability (Bandura, 1982).

3.2.2 Open-Ended Reflection Prompts

Qualitative data. In order to support the quantitative data, participants were also asked to contribute short written responses – each of approximately 150–200 words. Challenges Questions Seven open-ended reflections asked respondents to consider three guiding questions: >1. What problems do you have using technology for teaching? (2) What influence do you perceive being averse to technology has on your teaching? and (3) What methods work to overcome them? This qualitative tool was developed to draw out discursive constructions of digital anxiety and to illustrate how participants made meanings of fears, means of coping and sense of agency. The reflective narratives also respond to insights from text-based studies, which emphasize the role of language in how we talk about our experiences with technology (Sansone et al., 2019; Vaara, 2014).

3.3 Data Collection Procedures

The data was collected in two phases from May to June 2025. In the first stage, the questionnaire was administered using Google Forms. This procedure is increasingly standard among present practitioners for teacher digital anxiety research because it is highly accessible and efficient in contacting large numbers of respondents (Navarro-Espinosa et al., 2021). It was ensured that the responses were driven by their own understanding without being influenced from outside unknowingly, to make them self-revealing. During the second phase, once participants had filled in the questionnaire, they were asked to contribute their open-ended reflections similarly. This process was a pragmatic one that combined quantitative and qualitative findings so that there would be an overall understanding of both the prevalence and the discursive formation based on fear of technology (Warden et al., 2022). All answers were made anonymous before analysis, and only aggregated data were presented to maintain ethical standards. Confidentiality protocols followed the ethical standards of educational and social science research (Chomsky, 2014; Denzin & Lincoln, 2011).

3.4 Data Analysis

The analysis of data was conducted across two complementary phases. The first involved using descriptive statistics – including frequencies, percentages, and mean values – to assess the prevalence of situational and personal factors associated with technophobic feelings. Specifically, this analytical approach was adopted from similar studies of digital anxiety among students and teachers. Furthermore, we used cross-tabulations to explore potential trends between anxiety levels and background variables, a common practice in TE research. These statistical analyses were performed using IBM SPSS Statistics, version 25, a widely used software package for social-science research. The second phase of the analysis focused on participants' open-ended responses through discourse analysis, namely, how participants linguistically constructed thematically related discourses of fear, ability, and adaptiveness in interacting

with new technologies. Through thematic coding, we identified avoidance, resistance, reaction, and transformation patterns as prevalent in the literature on teacher technology integration. Finally, a triangulation of the findings of the quantitative and qualitative aspects was performed to strengthen validity and reliability, with reference to the methodological literature

3.5 Ethical Considerations

This study was conducted with human participants and in accordance with all ethical standards of educational research. Specifically, it received ethical approval from the Research Ethics Committee of STKIP Budidaya Binjai, Indonesia. Further, the participants provided written informed consent to participate after being informed of the voluntary nature of participation and their ability to withdraw anytime with no consequence.

3.6 Availability of Data and Materials

All data generated or analyzed during the current study are available from the corresponding author on reasonable request. Instruments, including the adapted questionnaire and reflection prompts, are provided in this article as supplementary files. No restrictions apply to data access or methodology.

4. Results

4.1 Quantitative Findings

The descriptive statistics of the two main variables, technophobia and digital anxiety, are presented in Table 1.

Table 1. Descriptive Statistics of Technophobia and Anxiety (N = 298)

Variable	Mean	Median	Std. Deviation	Minimum	Maximum	25 th Percentile	75 th Percentile
Technophobia	2.96	3.00	1.40	1.0	5.0	2.0	4.0
Anxiety	3.05	3.00	1.46	1.0	5.0	2.0	4.0

On average, both technophobia ($M = 2.96$) and digital anxiety ($M = 3.05$) fall in the moderate range on the five-point Likert scale. This suggests that most preservice teachers neither fully embrace nor entirely reject digital technologies. Instead, they report mixed feelings—oscillating between confidence and apprehension.

The somewhat high standard deviations ($SD = 1.40$, $SD = 1.46$ for anxiety) illustrate the sample's heterogeneity. Some subjects repeatedly reported low levels of fear and anxiety (scoring 1 or 2), whereas others recorded consistently high levels (scoring 4 or 5). This diversity is important as it shows that different groups of student teachers are not equally well prepared to integrate technology in an educational context. Indeed, the presence of highly confident and anxious peers within the same cohort may establish peer comparisons that perpetuate discussions of lack of self-worth, as later evidenced in our qualitative results.

This is also reflected in the quartile distribution. The 25th Percentile (the lower quartile) demonstrates that in at least 25% of the vehicles, a score up to or equivalent to 2 is obtained when measuring anxiety-fear. In contrast, the 75th percentile shows that a quarter of them turned out to score four or more points for intense anxiety or avoidance. This spread suggests that training interventions should be diversified. Some students will only need a little positive push to start using digital tools in their teaching, while others would benefit from intense support to overcome psychological and contextual obstacles. Pearson's correlation was applied to explore the possible relationship between the two constructs. The results (Table 2) disclosed no significant relationship between technophobia and digital anxiety.

Table 2. Pearson Correlation Matrix (N = 298)

Variable	1. Technophobia	2. Anxiety
1. Technophobia	1.000	-0.007 ($p = 0.903$)
2. Anxiety	-0.007 ($p = 0.903$)	1.000

The correlation coefficient ($r = -0.007$, $p = 0.903$) is very close to zero, indicating no significant linear relationship between the two variables. So, in other words, a student who reports higher levels of technophobia does not necessarily report higher general anxiety and vice versa.

This result is of interest, as it indicates that technophobia and digital anxiety are statistically independent constructs. Adverse affective reactions towards technology characterise both, although they may result from different mechanisms.

Phenomena, such as reluctance to change or scepticism and suspicion regarding technology, are usually connected with technophobia. At the same time, digital anxiety is more situative (for example, when one has to realise a task like preparing lessons, using educational platforms, or presenting in front of one's peers) in nature.

4.2 Sources of Technophobia

On closer analysis of the items, we classified technophobia into situational and personal factors, but some individuals reported a combination of both. Table 3 presents the distribution.

Table 3. Sources of Technophobia among Pre-Service Teachers (N = 298)

Source of Technophobia	Frequency	Percentage
Situational factors (infrastructure, facilities, internet)	149	50%
Personal factors (fear of failure, low confidence, reluctance)	134	45%
Combination of both	15	5%
Total	298	100%

Situational factors (50%) were identified by half of the respondents as the primary reason for their technophobia. Commonly mentioned issues included unstable internet, a lack of available devices, and inadequate support from institutions. Such a finding reveals that technophobia should not always be considered an individual psychological issue, but more than anything, it indicates structural unequal access to technology. If institutions do not provide the necessary technical infrastructure, fear and avoidance of technology are rational rather than individual failure.

For 45 per cent, personal issues were driving their technophobia. These barriers included a lack of confidence, fear of getting it wrong, and a general unwillingness to play around with digital platforms. Such responses are consistent with psychological theories of self-efficacy, which suggest that low confidence in one's ability to learn a skill may serve to perpetuate avoidance behaviour.

Finally, although a very small group (5%) described it, some participants also referred to situational and personal reasons combined, providing a final example that technophobia may be the result of an interaction between external conditions and inner self-beliefs. For example, when anxiety is already high due to insecurity, students can become more inhibited in an environment fraught with technical difficulties.

4.3 Qualitative Findings

The open-ended responses gave more nuanced answers on how preservice teachers verbally articulate their anxieties and coping strategies. Three prevailing discourses were found: avoidance, inadequacy and transformation.

a. Discourse of Avoidance

Many participants freely confessed that they avoided digital tools wherever they could. For instance, one participant stated, "When I try to use the online platform, I get so nervous I just end up using paper instead," illustrating how digital avoidance is not merely preference but an anxiety-driven defence. This demonstrates the defensive process of shielding oneself or protecting others from humiliation or loss associated with digital exposure. Such discursive constructions position the speaker as someone preserving control or dignity in a threatening digital landscape. This sense of non-use creates a vicious cycle where you become less competent and even more afraid based on your diminished skills.

b. Discourse of Inadequacy

Feeling inferior in comparison to peers was emphasized as another strong aspect. For example, a respondent wrote, "My classmates are all ahead of me; they post lesson plans online, and I don't even know how to upload a file," revealing how technophobia becomes entangled with professional identity. This discussion illustrates the effects of social comparison on professional identity. No peer relationship is perfect, but in teacher education, the technophobia may be even more detrimental than other forms of professional insecurity or self-doubt.

c. Discourse of Transformation and Agency

Encouragingly, some participants described positive experiences of overcoming initial fear through guided practice. One student wrote, "When I tried it, and so now I realize that it's easy than I thought and also making me confidence." Another reflected, "After attending the workshop, I was surprised I could use the app better than my classmates," and another stated, "Before I hated it, but now I feel proud showing my digital lesson plans." Stories such as these suggest that interventions might be developed to channel narratives of avoidance discourse

towards empowerment discourses. They also demonstrate how reflexivity can turn technology from a threat to an opportunity for professional learning.

These excerpts underscore how participants discursively construct their digital identities, often through narratives of inadequacy, defence, or cautious transformation. Such narratives serve to linguistically frame their perceived competence and role within a digitally evolving educational environment.

4.4 Integrated Interpretation

Synthesizing the quantitative and qualitative results yields several findings. First, the low correlation between technophobia and digital anxiety further demonstrates that these constructs are conceptually related and should be considered separate areas in teacher education. Just because a tactic targets one does not mean it necessarily impacts the other, and interventions must be precise. We demonstrate the predictive power of situational and individual factors on STODs, which indicates a multi-level targeted intervention. Schools will need to invest in their digital infrastructure and afford students immediate access to technology, Islands of safety where their learning can flourish, build confidence and take risks without worrying about failing. Thirdly, qualitative data highlight the importance of discourse in shaping technology use. Avoidant and deficient discourses highlight the dangers of unbridled technophobia, while transformative discourses reveal potential for improvement when students are provided with opportunities to learn with scaffolding. If that is the case, then this dynamic suggests that curing technophobia is not simply a matter of training in technical skills but reflective and discursive scaffolding that permits students to make sense of their experiences re-constructively.

Overall, the results provide a complicated picture of technophobia within preservice teacher education. It is not a monolithic but a complex category involving structural, psychological, and discursive dimensions. Tackling it should include a combination of solutions that improve infrastructure, provide psychological support, and change discourses to help preservice teachers acquire digital competence for effective teaching practices.

5. Discussion

The findings of this study offer valuable information about technophobia and digital anxiety among pre-service teachers and their effects on teaching performance. By combining quantitative and qualitative analyses, results show that the constructs are not homogeneous or interchangeable but represent distinct psychological and contextual aspects of digital competence.

5.1 Technophobia and Anxiety as Distinct Constructs

An interesting discovery is that no statistically significant correlation was found between technophobia and digital anxiety. This challenges a common assumption in educational research—namely, that technophobic individuals will also demonstrate high levels of digital anxiety (Brosnan, 2002; Rosen & Weil, 1995). However, the findings suggest that pre-service teachers may experience context-specific anxiety in concrete teaching situations without necessarily harboring a general fear of technology. Conversely, some individuals may be comfortable with digital tools in principle but still experience acute stress when performing digital tasks under pressure.

This distinction is highly relevant for understanding linguistic competence, particularly when framed as a socially and discursively constructed capacity. As Bandura's (1982) theory of self-efficacy implies, a person's belief in their ability to perform a task may not always align with their attitude toward it. For example, a teacher may feel confident discussing the value of educational technology, but lack confidence when required to actually use digital platforms for assessment or lesson delivery. This points to a gap between verbalized competence and practical digital execution—an essential insight when considering how linguistic competence intersects with digital anxiety.

The implication for teacher education is clear: interventions must address both general attitudes toward ICT and specific anxieties related to task performance. Assumptions that these domains overlap may lead to ineffective or misdirected training strategies.

5.2 Structural and Personal Sources of Technophobia

The study's typology of technophobia—differentiating between situational and personal factors—adds depth to this discussion. Half of the surveyed participants cited external, structural issues like poor internet access and insufficient institutional support as primary sources of technophobia. This aligns with recent literature highlighting how infrastructure continues to be a persistent barrier to effective technology integration in education (Henderson & Corry, 2021; Rehman et al., 2024). For these students, avoidance of digital tools is a rational response to systemic failure rather than an individual psychological deficit.

On the other hand, 45% of participants reported internal, personal challenges such as fear of failure and low self-confidence. This finding mirrors Brosnan's (2002) analysis, which identifies pre-performance anxiety and negative self-perception as key drivers of technophobia. Within the TPACK (Technological Pedagogical Content Knowledge) framework (Mishra & Koehler, 2006), these findings underscore the importance of not only teaching technical skills, but also fostering emotional and linguistic confidence in expressing and negotiating digital practices.

5.3 Discursive Constructions of Technophobia

The qualitative findings further illustrate that technophobia is not merely a psychological or structural issue—it is also a discursive phenomenon. Discourses of avoidance and inadequacy show how pre-service teachers linguistically construct themselves as “non-digital” or “behind,” shaping how they perceive and perform their professional identities.

Participant statements such as “I like teaching using traditional methods because I fear making mistakes when teaching online” exemplify this discursive positioning. These language patterns not only reflect but also reinforce avoidance behaviors, ultimately influencing long-term professional development. These insights support research highlighting the performative power of language in shaping agency and teacher identity (Sansone et al., 2019; Vaara, 2014; Khasawneh, 2023).

Here, linguistic competence becomes central—not simply as a technical skill of grammar or vocabulary, but as the ability to navigate, negotiate, and reframe one's professional stance toward technology. When students articulate their anxieties and aspirations through reflective discourse, they are actively shaping their digital identities. For example, when a student says, “I tried it, and now I realize it's easier than I thought,” this shift in discourse reveals a transformation in both confidence and identity.

5.4 Implications for Teacher Education

These results carry several implications for teacher preparation programs. First, institutions must recognize that overcoming technophobia requires multi-level interventions. On one level, situational barriers such as unreliable access to digital tools must be addressed through infrastructural investment. On another, personal and discursive challenges must be met with training programs that build not only technical ability but also emotional resilience and narrative reframing.

Second, digital literacy training should combine technical instruction with discursive and reflective activities. These might include guided peer mentoring, collaborative microteaching with feedback, or digital storytelling projects. Such activities allow pre-service teachers to reconstruct their identities from “non-users” to “capable digital professionals.”

Third, given that technophobia and digital anxiety are independent constructs, tailored interventions are necessary. Some students require structured technical exposure, while others would benefit more from discursive scaffolding and linguistic confidence-building.

5.5 Future Research Directions

While this study offers important contributions, several avenues for further inquiry remain. Longitudinal research could explore how technophobia and digital anxiety evolve over time, especially as students transition into full teaching roles. Such research could trace how discursive shifts—from avoidance to transformation—lead to more robust linguistic and professional digital competence.

Additionally, cross-institutional and cross-cultural studies could illuminate whether structural causes of technophobia are universal or context-specific. Intervention-based research might also investigate the effectiveness of strategies like reflective journaling, peer modeling, or linguistic coaching in mitigating technophobia.

Finally, more detailed discourse analysis of classroom interactions and reflective writing could deepen our understanding of how technophobia is linguistically performed and reshaped in real-time. This would allow for a more integrated view of the psychological, linguistic, and contextual factors that influence digital competence development.

5.6 Research Limitations

While this study provides valuable insights into the relationship between technophobia, digital anxiety, and teaching performance among pre-service teachers, it is not without limitations. First, the study was conducted at a single institution, which may limit the generalizability of the findings to other cultural or institutional contexts. Second, the use of self-reported data in both survey and reflections may introduce biases such as social desirability or recall bias.

Third, although qualitative responses were rich, the reflection prompts were written rather than conducted in interviews, which may have limited depth or spontaneity. Future studies could employ mixed-institutional samples, longitudinal designs, and in-depth interviews to gain a more comprehensive view.

6. Conclusions

This study has revealed that technophobia and digital anxiety are statistically independent constructs, each shaped by distinct situational and psychological factors. While technophobia is often rooted in structural and identity-based discourses, digital anxiety appears more contextually triggered, particularly during performance tasks. The findings highlight the complex, multi-layered nature of digital fear and its implications for teacher preparation. By identifying key discursive patterns—avoidance, inadequacy, and transformation—the study also demonstrates the importance of reflective, narrative-based interventions in reshaping digital competence. The findings reveal these two constructs to be statistically independent, although they are conceptually related, and no significant association is identified between them. This suggests that technophobia is not a synonym of general digital anxiety but should be interpreted as a complex phenomenon, influenced by both situational and personal factors.

The results of our study in terms of quantity emphasise the double-sided nature tentatively at play contributing to technophobia; on the one hand, the aspect of structural constraints (e.g., lack of resources, unreliable web), and secondly, individual predispositions (norms such as fear of failing or conviction not able to do a thing). Analysis also indicated discursive patterns associated with, on the one hand, avoidance of digital tools and feelings of inadequacy around their use among teachers' engagement with language about tools in school settings, and on the other, an opening up of spaces for envisaging using them as part of careers over which is felt to be some new control.

The study theoretically contributes to the digital competence debate by arguing that technophobia should be treated as a separate domain from anxiety, which is, however, intertwined. In that regard, the findings suggest a need for multi-tiered interventions underpinned by (1) infrastructural investment; (2) confidence-building strategies and (3) reflective practices to re-signify discourses of fear into discourses of agency in teacher education. Subsequent studies could be based on a longitudinal design and conducted in different cultural settings, exploring how technophobia develops and how discursive strategies can promote lasting digital competencies within teaching contexts.

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