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COMMUNICATIVE COMPETENCE IN THE DIGITAL ERA: CHALLENGES, TRANSFORMATIONS, AND PEDAGOGICAL RESPONSES AMONG FIRST-YEAR UNIVERSITY STUDENTS

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ABSTRACT

*In the context of digital transformation and competency-based higher education reform, communication competence has become an essential skill for university students, particularly in teacher education programs. This study investigates the current status of communication skills among first-year students at **Dong Thap University**, focusing on presentation, teamwork, listening, and non-verbal communication in both face-to-face and digital learning environments. Using a qualitative interpretive approach, the study integrates document analysis, classroom observations, and reflective learning practices to examine students' communicative behaviors and learning experiences. The findings reveal a noticeable gap between students' theoretical understanding of communication and their practical performance in authentic academic interactions. Many students demonstrated low confidence in oral expression, limited active listening skills, weak collaborative engagement, and ineffective use of non-verbal communication. The study also indicates that excessive reliance on digital communication platforms has reduced opportunities for meaningful interpersonal interaction and contributed to passive communication habits among first-year students. Based on socio-constructivist and experiential learning perspectives, the study proposes four integrated solutions to enhance communication competence in the digital era: (1) interactive pedagogical redesign, (2) digitally supported collaborative learning, (3) experiential listening training, and (4) professionalization of non-verbal communication through reflective and performance-based practices. The study contributes to competency-based education discourse and provides practical implications for improving communication training in Vietnamese higher education institutions.*

KEYWORDS: Communicative Competence; Digital Learning Environments; First-Year University Students; Competency-Based Education; Higher Education Pedagogy; Vietnamese Higher Education.

1. INTRODUCTION

The rapid advancement of digital technologies has profoundly reshaped communication patterns within higher education. While digital platforms have expanded opportunities for information exchange and connectivity, they have also generated a notable paradox: students demonstrate high levels of engagement in virtual environments but often exhibit limited competence in face-to-face communication. This discrepancy is particularly pronounced among first-year university students, who are navigating the transition from highly structured secondary education to more autonomous and self-directed learning contexts.

Communication skills are widely acknowledged as a foundational competency underpinning academic achievement, employability, and social integration. However, empirical observations at Dong Thap University indicate that although first-year students possess a basic awareness of the importance of communication skills, their practical performance remains constrained. Specifically, students encounter difficulties in articulating ideas coherently, regulating emotions in interactive settings, and responding effectively to dynamic communication situations. This gap between conceptual understanding and behavioral execution reflects a broader challenge in competency-based education, where knowledge acquisition does not automatically translate into skill mastery.

At the global level, communication has been consistently identified as a core 21st-century skill. The World Economic Forum (2020) underscores its critical role in enhancing workforce adaptability and collaboration, while UNESCO (2021) warns that excessive reliance on digital-mediated interaction may diminish direct interpersonal engagement and socio-emotional competencies. Within the Vietnamese context, existing studies (e.g., Le Thi Hong Điep, 2018) further highlight systemic limitations, including insufficient opportunities for experiential learning and the persistence of passive instructional approaches, which collectively hinder the development of effective communication skills among university students.

Against this backdrop, there is a clear need for a systematic and empirically grounded investigation into the factors shaping communication competence in the digital era. Accordingly, this study pursues three primary objectives: (1) to examine the current state of communication skills among first-year students at Dong Thap University; (2) to identify key determinants influencing these skills within digitally mediated learning environments; and (3) to propose evidence-based solutions aimed at enhancing communication competencies in alignment with contemporary educational demands.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Communication skills have become increasingly critical in contemporary higher education, particularly within digitally mediated learning environments that require students to navigate multiple forms of interaction simultaneously. In the twenty-first century, university students are expected not only to demonstrate academic knowledge but also to engage effectively in collaborative learning, interpersonal communication, problem-solving discussions, and professional interaction (OECD, 2021; Partnership for 21st Century Skills, 2019). These demands are especially challenging for first-year students who are transitioning from structured secondary education systems into more autonomous and interaction-oriented university environments.

Although communication competence has been widely recognized as an essential graduate attribute, previous research has often examined its determinants in fragmented ways, focusing separately on psychological, pedagogical, or technological factors. Existing studies have identified self-efficacy, experiential learning, and digital learning environments as important contributors to communication development; however, the relationships among these constructs remain theoretically underintegrated (Schunk & DiBenedetto, 2020; Martin et al., 2020). Moreover, prior findings concerning the effects of digital learning environments on communication competence remain inconsistent. While some scholars emphasize the interactive and collaborative affordances of digital technologies (Hrastinski, 2009; Garrison & Vaughan, 2008), others argue that excessive dependence on mediated communication may weaken face-to-face interactional competence and interpersonal sensitivity (Turkle, 2015; Twenge, 2017).

These tensions are particularly relevant in the Vietnamese higher education context. Many Vietnamese students enter university after prolonged exposure to examination-oriented and teacher-centered educational environments in which passive learning, memorization, and limited classroom interaction remain prevalent (Nguyen et al., 2020; Pham & Renshaw, 2015). As a result, first-year students frequently encounter difficulties in

discussion participation, oral presentation, collaborative communication, and spontaneous interaction despite demonstrating adequate academic knowledge. The rapid digital transformation of higher education following the COVID-19 pandemic has further complicated this issue by reshaping how students communicate, participate, and engage in learning activities (UNESCO, 2021; MOET Vietnam, 2022).

Drawing upon communication theory (Berlo, 1960), social cognitive theory proposed by Albert Bandura (1997), and experiential learning theory developed by David Kolb (1984), this study proposes an integrated framework explaining how experiential learning, self-efficacy, and digital learning environments interact to influence communication skills among first-year university students in Vietnam. By integrating psychological, experiential, and contextual dimensions into a unified Structural Equation Modeling (SEM) framework, the study seeks to address theoretical fragmentation in previous research while contributing contextual evidence from an emerging higher education system undergoing rapid digital transformation.

2.1. Communication Skills (CS)

Communication skills are increasingly conceptualized as multidimensional competencies extending beyond the simple transmission of information. Early communication models, particularly the linear communication model proposed by Berlo (1960), emphasized the processes of encoding, transmitting, and decoding messages. However, contemporary perspectives argue that communication competence involves a more complex integration of cognitive, behavioral, emotional, and contextual capacities. Scholars such as Dell Hymes (1972) and Michael Spitzberg and Cupach (1984) contend that effective communication requires individuals to appropriately and adaptively navigate social interaction across varying interpersonal and situational contexts.

Within higher education, communication skills encompass not only verbal expression but also argumentation, active listening, emotional regulation, collaborative interaction, audience awareness, negotiation, and situational adaptability (Morreale et al., 2017). These competencies are particularly important for first-year university students who must rapidly adjust to academic environments characterized by teamwork, presentation-based assessment, project collaboration, and dialogic learning practices. Communication competence therefore represents both a social and academic resource that directly influences learning engagement, peer relationships, academic adjustment, and future employability (Andrews & Higson, 2008).

Importantly, communication competence should not be understood solely as a technical or linguistic ability. Rather, it is a performative and socially situated capability that emerges through continuous interactional practice. Effective communication requires not only knowing what to say but also understanding when, how, and to whom communication should occur (Canale & Swain, 1980). Consequently, communication skills are shaped by psychological confidence, prior interactional experiences, and environmental conditions that either facilitate or constrain participation.

Recent literature has also raised concerns regarding the effects of digitally mediated communication on interpersonal competence. On one hand, digital platforms create flexible opportunities for interaction, collaboration, and self-expression, particularly for students who experience communication anxiety in face-to-face settings (Martin & Bolliger, 2018). On the other hand, scholars such as Sherry Turkle (2015) argue that excessive reliance on mediated communication may reduce emotional attunement, nonverbal sensitivity, and spontaneous conversational responsiveness. Prolonged engagement in text-based or asynchronous communication environments may therefore produce fragmented communication patterns in which students demonstrate fluency in online interaction while struggling with direct interpersonal communication (Twenge, 2017).

This issue is particularly significant in Vietnam, where many first-year students enter university with limited experience in open discussion, critical dialogue, and collaborative communication due to the persistence of teacher-centered instructional traditions in secondary education (Tran, 2013; Nguyen & Hamid, 2020). Although students may possess strong academic knowledge, they often demonstrate low communication confidence, hesitation in expressing opinions, and fear of negative evaluation during classroom interaction. Accordingly, communication skills should be conceptualized as developmental outcomes shaped by the dynamic interaction among psychological dispositions, experiential opportunities, and digital learning contexts.

2.2. Self-Efficacy (SE)

Self-efficacy refers to individuals' beliefs

regarding their capability to organize and execute actions required to achieve desired outcomes under specific conditions (Bandura, 1997). Within social cognitive theory, self-efficacy functions as a central self-regulatory mechanism influencing cognition, motivation, emotional responses, and behavioral persistence (Pajares, 2002). Rather than merely affecting whether individuals attempt particular tasks, self-efficacy shapes how individuals interpret challenges, regulate anxiety, allocate cognitive resources, and sustain effort during difficult situations.

In communication contexts, self-efficacy plays a particularly important role because communication performance is inherently interactional, evaluative, and socially exposed. Students with high communication self-efficacy are more likely to initiate conversations, articulate ideas clearly, adapt messages to audiences, and persist during communicatively demanding situations such as presentations, debates, or group discussions (McCroskey & McCroskey, 1988). They also tend to interpret communicative difficulties as manageable challenges rather than indicators of personal inadequacy.

The mechanism underlying this relationship may be explained through cognitive and emotional regulation processes. Students with stronger communication self-efficacy allocate greater cognitive attention toward message organization, audience adaptation, and interactional responsiveness instead of excessive self-monitoring or fear management (Schunk & Zimmerman, 2007). Consequently, they demonstrate greater communicative flexibility, interactional persistence, and emotional stability during interpersonal exchanges.

Conversely, students with low communication self-efficacy frequently experience communication apprehension, avoidance behaviors, and heightened fear of negative evaluation (Gregersen & Horwitz, 2002). Even when possessing adequate linguistic or academic competence, such students may hesitate to participate in discussions, avoid collaborative interaction, or rely excessively on scripted communication. These tendencies often reduce opportunities for interactional practice, thereby limiting communication skill development over time.

The influence of self-efficacy may be particularly salient in collectivist educational cultures such as Vietnam. Cultural norms emphasizing social harmony, respect for authority, and avoidance of public mistakes may unintentionally discourage spontaneous participation and increase communication anxiety among students (Nguyen, Terlouw, & Pilot, 2006). First-year students transitioning into university environments may therefore experience substantial uncertainty regarding self-expression, classroom participation, and peer interaction. In this context, communication self-efficacy becomes a critical psychological factor supporting active engagement and communication competence development.

Previous empirical studies consistently report positive associations between self-efficacy and communication-related outcomes, including oral presentation performance, classroom participation, interpersonal adaptability, and collaborative engagement (Wood & Bandura, 1989; Schunk, 2012). Accordingly, the following hypothesis is proposed:

H1: Self-efficacy has a positive and significant effect on communication skills.

2.3. Experiential Learning (EL)

Experiential learning theory developed by David Kolb (1984) conceptualizes learning as a cyclical process involving concrete experience, reflective observation, abstract conceptualization, and active experimentation. Building upon the earlier educational philosophy of John Dewey (1938), experiential learning theory argues that meaningful learning emerges through active engagement with authentic experiences followed by reflection and adaptive application. Communication competence, by its nature, is particularly dependent upon experiential processes because effective interaction requires continuous practice, feedback, adjustment, and contextual responsiveness.

In higher education settings, experiential learning is commonly operationalized through presentations, group discussions, role-playing, debates, collaborative projects, simulations, peer interaction, and real-world engagement activities (Yardley et al., 2012). These learning experiences expose students to authentic communication demands in which they must negotiate meaning, respond spontaneously, manage interpersonal dynamics, and adapt communication strategies across different contexts. Through repeated participation, students gradually transform declarative communication knowledge into procedural and interactional competence.

The relationship between experiential learning and communication skills may also be explained through social and reflective mechanisms. Experiential activities create opportunities for immediate feedback, self-reflection, and behavioral adjustment, enabling students to identify communication weaknesses and refine interactional

strategies (Kolb & Kolb, 2005). In addition, active participation in collaborative learning environments may reduce communication anxiety by normalizing interaction and increasing familiarity with interpersonal engagement.

However, previous literature suggests that communication development depends not merely on the presence of experiential activities but also on their quality and pedagogical structure. Superficial participation or poorly designed collaborative activities may fail to generate meaningful reflection or communication improvement (Boud et al., 2013). Some studies further indicate that students accustomed to passive learning traditions may initially resist active participation due to fear of evaluation or uncertainty regarding communicative expectations (Pham & Gillies, 2010).

This issue is particularly relevant in Vietnam, where many students transition from secondary educational environments emphasizing memorization and examination performance into university contexts requiring active engagement and collaborative learning (Le & Barnard, 2009). Consequently, experiential learning may function as an important developmental bridge facilitating students' adaptation to interaction-oriented academic environments while simultaneously strengthening communication confidence and participation.

Empirical research generally supports the positive contribution of experiential learning to communication competence, interpersonal adaptability, and collaborative performance (Kolb & Kolb, 2009; Beard & Wilson, 2013). Therefore, the following hypothesis is proposed:

H2: Experiential learning has a positive and significant effect on communication skills.

2.4. Digital Learning Environment (DLE)

The digital learning environment refers to technology-mediated educational contexts in which digital platforms, communication tools, online systems, and virtual interaction spaces facilitate teaching and learning processes. In contemporary higher education, digital environments are no longer supplementary instructional components but integral infrastructures shaping how students access information, communicate, collaborate, and participate in learning activities (Garrison & Vaughan, 2008).

Existing literature generally emphasizes the pedagogical affordances of digital learning environments. Online discussion forums, collaborative platforms, learning management systems, and social networking tools may increase flexibility, accessibility, participation opportunities, and peer interaction (Hrastinski, 2009). Digital environments may also support students who experience communication anxiety by providing lower-pressure spaces for expression and interaction (Martin & Bolliger, 2018). In this regard, digitally mediated learning environments have been associated with increased engagement, collaborative learning, and communication participation (Means et al., 2014).

Nevertheless, empirical findings regarding the effects of digital learning environments on communication competence remain inconsistent. While some studies report positive effects of digital interaction on communication confidence and participation, critical perspectives suggest that excessive dependence on mediated communication may simultaneously weaken interpersonal competence. Scholars such as Sherry Turkle (2015) argue that prolonged reliance on digital interaction may reduce emotional sensitivity, diminish nonverbal awareness, and weaken face-to-face conversational adaptability. Similarly, Twenge (2017) warns that digitally immersed students may experience reduced social connectedness and increased communication difficulties despite extensive online interaction.

These contradictions became increasingly visible in Vietnamese higher education during and after the COVID-19 pandemic. The rapid transition toward online and blended learning environments significantly expanded students' exposure to digital communication practices (MOET Vietnam, 2022). However, many students simultaneously reported difficulties in oral presentation, collaborative discussion, spontaneous interaction, and direct classroom participation following prolonged virtual learning experiences (Pham & Ho, 2023). Such findings suggest that digital learning environments may simultaneously function as enabling and constraining communication contexts depending on how students engage with digital technologies.

Importantly, the influence of digital learning environments may extend beyond direct communication outcomes through psychological mechanisms such as self-efficacy. Positive experiences involving online collaboration, digital presentations, virtual teamwork, and technology-supported interaction may strengthen students' confidence in expressing ideas and participating in communication activities (Bandura, 1997; Schunk & DiBenedetto, 2020). Conversely, passive or superficial engagement in digital environments may

fail to enhance communication confidence or interactional competence.

Based on these theoretical arguments, the following hypotheses are proposed:

H3: The digital learning environment has a positive and significant effect on communication skills.

H4: The digital learning environment has a positive and significant effect on self-efficacy.

2.5. Proposed Research Model

Grounded in communication theory (Berlo, 1960; Hymes, 1972), social cognitive theory proposed by Albert Bandura (1997), and experiential learning theory developed by David Kolb (1984), this study proposes an integrated experiential–digital framework to explain communication skill development among first-year university students. The model conceptualizes communication competence as a dynamic and context-dependent outcome shaped by the interaction among experiential engagement, psychological self-regulation, and digitally mediated learning conditions.

Within this framework, experiential learning is positioned as a direct mechanism through which communication competence develops via authentic interaction, reflective participation, and collaborative practice (Kolb & Kolb, 2005; Beard & Wilson, 2013). Self-efficacy functions as an internal regulatory resource influencing communication persistence, emotional control, interactional confidence, and audience adaptability (Bandura, 1997; Schunk & DiBenedetto, 2020). Students with stronger communication self-efficacy are therefore more likely to sustain engagement and perform effectively in interpersonal communication contexts.

The digital learning environment is conceptualized as both an enabling context and a developmental constraint. Prior studies suggest that digital platforms may enhance interaction flexibility, collaborative participation, and communication opportunities (Hrastinski, 2009; Martin & Bolliger, 2018). However, critical perspectives argue that excessive dependence on mediated communication may simultaneously weaken interpersonal sensitivity, spontaneous interaction, and face-to-face communicative competence (Turkle, 2015; Twenge, 2017). These contradictory findings indicate that digital learning environments may influence communication skills through both direct and mediated pathways.

This issue is particularly relevant in Vietnamese higher education, where rapid digital transformation coexists with persistent teacher-centered instructional traditions and passive learning tendencies (Nguyen et al., 2020; MOET Vietnam, 2022). As a result, many first-year students continue to experience communication anxiety and limited interactional confidence despite increased exposure to digital learning technologies.

Accordingly, the proposed model specifies four structural relationships: (1) self-efficacy positively influences communication skills; (2) experiential learning positively influences communication skills; (3) the digital learning environment positively influences communication skills; and (4) the digital learning environment positively influences self-efficacy, which subsequently enhances communication competence through an indirect pathway.

By integrating communication theory, social cognitive theory, and experiential learning theory into a unified SEM framework, the proposed experiential–digital model provides a theoretically grounded explanation of communication skill development within the evolving context of Vietnamese higher education.

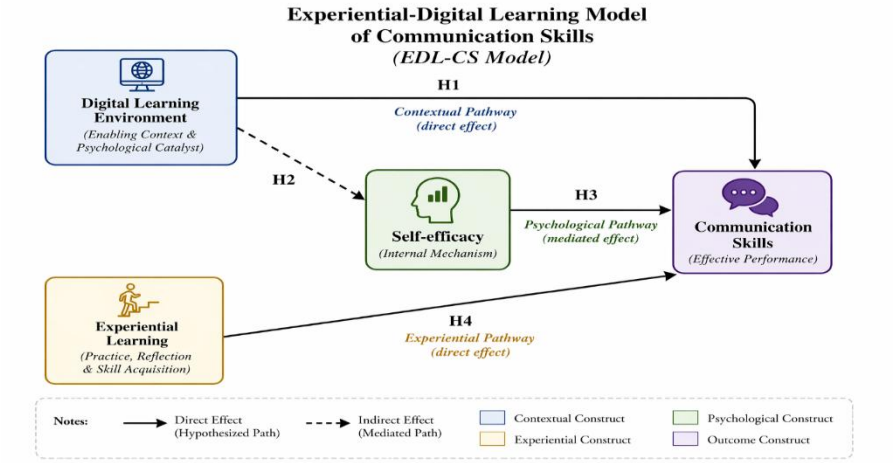


Figure 1. The proposed experiential–digital model of communication skills among first-year university students.

3. METHODOLOGY

To empirically examine the determinants of communication skills among first-year students in the digital era, this study employed a quantitative methodology grounded in a positivist paradigm. The methodological design was structured to ensure statistical rigor, empirical reliability, and analytical suitability for Structural Equation Modeling (SEM). The overall process involved survey design, sampling, instrument validation, and multistage data analysis.

3.1. Research Design

This study employed a quantitative cross-sectional survey design to examine the relationships among communication skills, self-efficacy, experiential learning, and the digital learning environment in higher education. This design is appropriate for testing structural relationships among latent variables at a single point in time using standardized measurement instruments.

The study adopted Structural Equation Modeling (SEM) to test both direct and indirect effects within a hypothesized framework. The model includes four latent constructs: Communication Skills (dependent variable), Self-Efficacy (mediator), Experiential Learning (independent variable), and Digital Learning Environment (independent variable).

The hypothesized relationships are as follows: Digital Learning Environment and Experiential Learning influence Self-Efficacy and Communication Skills, while Self-Efficacy also directly affects Communication Skills. Accordingly, Communication Skills are shaped by both direct effects of learning environment and experiential factors, as well as indirect effects through Self-Efficacy.

Overall, this design ensures methodological suitability for validating a theoretically grounded model and estimating complex interrelationships among psychological and educational variables.

3.2. Sample and Sampling Procedure

The target population of this study consisted of first-year undergraduate students at Dong Thap University, as this group represents learners in the early adaptation phase of higher education, where communication challenges are most evident.

A stratified random sampling technique was employed to improve representativeness across academic disciplines. Students were first grouped by faculty clusters, and participants were then randomly selected from each stratum. This procedure reduced sampling bias and ensured proportional representation.

A total of 450 questionnaires were distributed, of which 428 were returned. After excluding incomplete and invalid responses, 412 valid questionnaires were retained for analysis, yielding a valid response rate of 91.6%. The demographic characteristics of the respondents are summarized below:

Table 1. Demographic Profile of Respondents (N = 412)

Variable	Category	Frequency	Percentage
Gender	Male	165	40.0%
	Female	247	60.0%
Faculty	Education	138	33.5%
	Social Sciences	126	30.6%
	Natural Sciences	148	35.9%
Residence	Urban	172	41.7%
	Rural	240	58.3%
Variable	**Category**	**Frequency**	**Percentage**

The sample size exceeded the minimum threshold recommended for SEM analysis. According to Hair et al. (2019), SEM requires at least **10 observations per indicator variable**. With **16 observed variables**, the minimum sample requirement was **160**, making the sample size of **412** statistically adequate for robust parameter estimation.

3.3. Measurement Instrument and Data Analysis Procedure

Data were collected using a structured questionnaire consisting of 16 observed items, adapted from validated instruments in prior studies and carefully contextualized to the Vietnamese higher education setting. All items were rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

The measurement instrument operationalized four latent constructs consistent with the proposed model. **Communication Skills (CS)** were assessed using four indicators capturing students' abilities in presenting ideas clearly, actively participating in discussions, responding effectively across communication contexts, and appropriately employing non-verbal cues. **Self-Efficacy (SE)** measured students' perceived confidence in their communication competence, including their capacity to manage unexpected situations, improve performance over time, and cope with public speaking anxiety. **Experiential Learning (EL)** reflected the extent of students' engagement in practice-based learning activities, such as participation in group discussions, involvement in real-life communication situations, and the use of feedback for continuous improvement. **Digital Learning Environment (DLE)** captured students' perceptions of how digital platforms and tools

facilitate communication, interaction, and learning processes.

All items were retained following preliminary screening, demonstrating satisfactory conceptual alignment and empirical adequacy. This ensured the robustness of the measurement model and its suitability for subsequent statistical analyses, particularly Structural Equation Modeling (SEM).

3.4. Data Analysis Procedure

The data analysis was conducted using **SPSS 26.0** and **AMOS 24.0** following a rigorous four-stage procedure to ensure the reliability and validity of both the measurement and structural models.

Stage 1: Reliability Analysis

Internal consistency was assessed using Cronbach's Alpha, with a threshold of 0.70 indicating acceptable reliability. This step ensured that all constructs exhibited stable and consistent measurement properties.

Stage 2: Exploratory Factor Analysis (EFA)

EFA was performed to identify the underlying factor structure of the measurement items. Sampling adequacy and suitability for factor analysis were evaluated using the Kaiser–Meyer–Olkin (KMO) measure and Bartlett's Test of Sphericity. Factor loadings of 0.50 or higher were considered acceptable, ensuring meaningful item–construct relationships.

Stage 3: Confirmatory Factor Analysis (CFA)

CFA was employed to validate the measurement model by assessing both convergent and discriminant validity. Convergent validity was established through Composite Reliability (CR ≥ 0.70) and Average Variance Extracted (AVE ≥ 0.50). Model fit was evaluated using multiple indices, including χ^2/df (< 3), CFI and TLI (> 0.90), and RMSEA (< 0.08), following widely accepted SEM standards.

Stage 4: Structural Equation Modeling (SEM)

SEM was conducted to test the hypothesized relationships among latent variables. The analysis focused on estimating standardized path coefficients (β), critical ratios (CR), and p-values to determine the significance and strength of relationships within the proposed model.

The analytical workflow followed a sequential process from data collection to hypothesis testing, ensuring methodological coherence and robustness.

3.5. Ethical Considerations

The study adhered to established ethical standards in social science research. Participation was voluntary, and respondents were fully informed about the purpose of the study prior to data collection. Anonymity and confidentiality were strictly maintained, with no personally identifiable information recorded. All data were used solely for academic purposes.

Overall, the methodological design demonstrates a high level of rigor and alignment with SEM-based research practices, providing a reliable foundation for testing the proposed theoretical model and generating valid empirical insights into communication skill development in the digital era.

4. RESULTS

4.1. Reliability and Scale Adequacy

All constructs exhibited high internal consistency, with Cronbach's Alpha coefficients ranging from 0.854 to 0.889. Corrected item–total correlations exceeded the recommended threshold of 0.50 for all items, indicating satisfactory item reliability. No items were removed at this stage, confirming the stability and adequacy of the measurement scales for subsequent analyses.

4.2. Exploratory Factor Analysis (EFA)

The suitability of the data for factor analysis was supported by a Kaiser–Meyer–Olkin (KMO) value of 0.903 and a statistically significant Bartlett's Test of Sphericity ($p < 0.001$). The EFA results revealed a four-factor solution consistent with the proposed theoretical structure, accounting for 68.42% of the total variance. All factor loadings exceeded 0.70, with no problematic cross-loadings observed, thereby supporting a well-defined and distinct factor structure.

4.3. Measurement Model Validation (CFA)

Confirmatory Factor Analysis demonstrated an excellent fit to the data ($\chi^2/df = 2.08$; CFI = 0.956; TLI = 0.948; RMSEA = 0.051). Convergent validity was established, as all constructs achieved composite reliability (CR) values above 0.70 and average variance extracted (AVE) values exceeding 0.50. Discriminant validity was also confirmed, with all constructs satisfying the Fornell–Larcker criterion. These findings provide strong evidence for the validity and reliability of the measurement model.

4.4. Structural Model and Hypothesis Testing

The structural model exhibited good overall fit ($\chi^2/df = 2.15$; CFI = 0.951; RMSEA = 0.053). All hypothesized paths were statistically significant and in the expected directions. Self-efficacy emerged as the strongest predictor of communication skills (β = 0.44), followed by experiential learning (β = 0.36).

The digital learning environment exerted both a direct effect on communication skills (β = 0.17) and a substantial effect on self-efficacy (β = 0.51), supporting its dual role as both a contextual and psychological enabler.

4.5. Mediation Analysis and Model Explanatory Power

Bootstrapping analysis confirmed that self-efficacy partially mediates the relationship between the digital learning environment and communication skills (indirect effect: β = 0.22, $p < 0.001$). The model accounted for 62% of the variance in communication skills ($R^2 = 0.62$), indicating strong explanatory capacity. Overall, the findings suggest that communication competence is shaped by the integrated influence of psychological (self-efficacy), pedagogical (experiential learning), and technological (digital learning environment) factors.

5. DISCUSSION

The findings of this study provide robust empirical evidence supporting an integrated model of communication skill development among first-year university students in the digital learning context. Overall, the results confirm that communication competence is not determined by a single factor, but rather emerges from the interaction of psychological, pedagogical, and technological dimensions.

First, the strong predictive role of self-efficacy (β = 0.44) highlights its central psychological function in communication development. This finding is consistent with social cognitive theory, which posits that individuals with higher self-efficacy are more likely to engage in challenging communicative tasks, persist in difficult situations, and regulate anxiety during performance. In the present study, self-efficacy not only directly influenced communication skills but also mediated the effects of the digital learning environment, underscoring its role as a key internal mechanism through which external learning conditions are translated into actual performance.

Second, experiential learning (β = 0.36) was identified as a significant determinant of communication skills. This result reinforces the importance of active, practice-based learning in higher education. Students who frequently engaged in collaborative tasks, discussions, and real-life communication experiences demonstrated higher levels of communicative competence. This finding aligns with experiential learning theory, which emphasizes learning through reflection on doing, rather than passive knowledge acquisition. It also suggests that communication skills are more effectively developed through repeated practice and feedback-rich environments.

Third, the digital learning environment demonstrated both direct and indirect effects on communication skills. Its strong influence on self-efficacy (β = 0.51) indicates that well-designed digital learning systems can enhance students' confidence in communication by providing accessible resources, interactive platforms, and opportunities for participation. However, the relatively modest direct effect on communication skills (β = 0.17) suggests that digital environments alone are insufficient to fully develop communicative competence without complementary pedagogical and psychological support. This highlights the importance of designing digital learning environments that are interaction-oriented rather than content-delivery focused.

Fourth, the mediation analysis confirms that self-efficacy partially mediates the relationship between digital learning environment and communication skills. This indicates that digital learning environments influence communication outcomes primarily by shaping students' beliefs in their own capabilities. The significant indirect effect (β = 0.22) underscores the psychological pathway through which technology-enabled learning environments contribute to skill development.

Finally, the model explains a substantial proportion of variance in communication skills ($R^2 = 0.62$), demonstrating strong explanatory power. This suggests that the integration of psychological (self-efficacy), pedagogical (experiential learning), and technological (digital environment) factors provides a comprehensive framework for understanding communication skill development in contemporary higher education.

Overall, the findings extend existing literature by empirically validating a multi-dimensional model of communication competence in the digital era. They also highlight the need for higher education institutions to move beyond isolated interventions and adopt integrated strategies that simultaneously strengthen learning environments, experiential opportunities, and students' psychological readiness.

6. PROPOSED SOLUTIONS

Based on the empirical findings, this study proposes four integrated, evidence-based solutions to enhance communication skills among first-year university students in the digital learning context. These solutions are grounded in the identified key determinants of communication competence, particularly self-efficacy, experiential learning, and

the digital learning environment.

6.1. Competency-Based Teaching Reform

The results indicate that traditional lecture-centered instruction is insufficient for developing communication competence. Accordingly, a shift toward competency-based teaching is essential, emphasizing active learning strategies such as debates, role-play, simulations, and problem-based discussions.

These approaches require students to engage in authentic communicative tasks, thereby transforming learning from passive reception to active skill construction. Embedding communication-oriented tasks into both instruction and assessment not only enhances performance but also strengthens confidence, adaptability, and real-time interaction skills.

6.2. Digital–Physical Hybrid Learning Model

Given the dual role of the digital learning environment, a balanced hybrid model is recommended. This model integrates digital tools (e.g., online collaboration platforms, discussion forums) with structured face-to-face interaction.

While digital environments enhance accessibility and flexibility, in-person communication remains essential for developing interpersonal and non-verbal communication skills. Therefore, digital tools should be designed to support interaction, reflection, and collaborative learning rather than serve solely as content delivery channels. This balance helps reduce overdependence on mediated communication and ensures more comprehensive skill development.

6.3. Experiential Communication Labs

To strengthen experiential learning, universities should establish communication labs as structured, practice-oriented learning spaces. These labs simulate real-life communication contexts such as micro-teaching, group facilitation, presentations, and situational problem-solving.

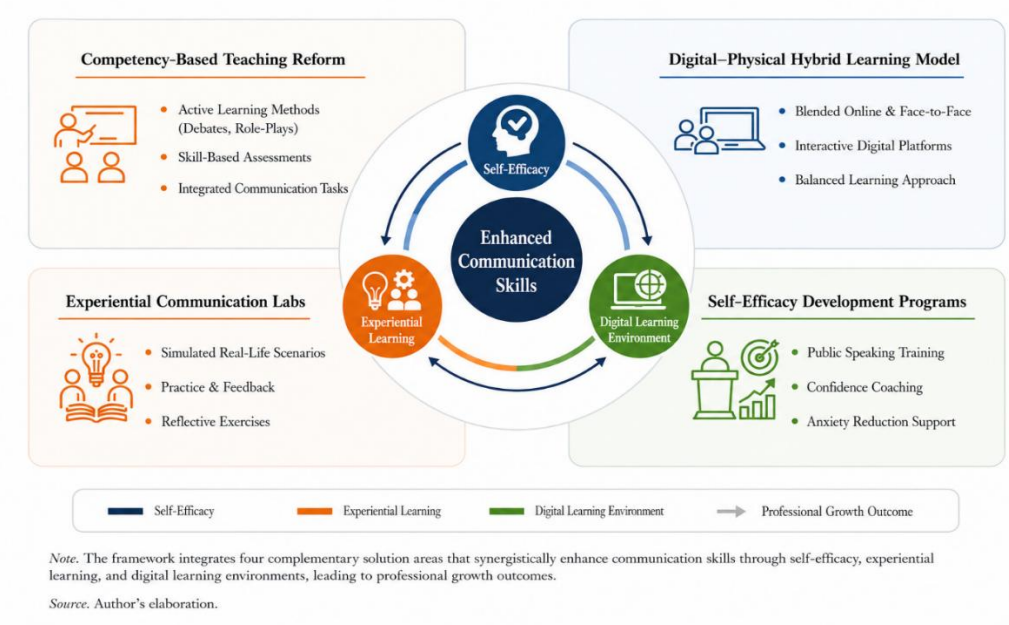
Through iterative practice, guided feedback, and structured reflection, students are able to progressively refine their communication strategies. This approach effectively bridges the gap between theoretical knowledge and practical application, ensuring skill transfer to real-world contexts.

6.4. Self-Efficacy Development Programs

As self-efficacy is the strongest predictor of communication skills, targeted interventions to enhance students' confidence are essential. Universities should implement structured programs including public speaking training, psychological coaching, and systematic feedback mechanisms.

These interventions should focus on reducing communication anxiety, fostering a growth-oriented mindset, and providing incremental mastery experiences. Continuous feedback from instructors and peers plays a critical role in reinforcing positive communication behaviors and sustaining long-term skill development.

Collectively, these four solutions constitute a coherent and actionable framework for enhancing communication skills in higher education. They are illustrated in the model presented in the figure 2 below.



Note. The framework integrates four complementary solution areas that synergistically enhance communication skills through self-efficacy, experiential learning, and digital learning environments, leading to professional growth outcomes.

Source. Author's elaboration.

Figure 2. The model of solutions for enhancing communication skills.

By integrating pedagogical reform, digital–physical learning balance, experiential training environments, and psychological capacity building, the proposed model offers a comprehensive response to the multidimensional challenges of communication development in the digital era.

7. CONCLUSION

This study demonstrates that communication competence among first-year university students is shaped by the interaction of psychological, pedagogical, and digital factors within contemporary higher education contexts. The findings identify self-efficacy as the strongest predictor of communication performance, indicating that students' confidence in their communicative ability substantially influences participation, interaction quality, and academic engagement. Experiential learning also plays a critical role by creating authentic opportunities for discussion, collaboration, and reflective communication practice.

Although digital learning environments support communication development, their effectiveness depends largely on how technology is pedagogically integrated rather than on technological access alone. The findings further suggest that many first-year students possess theoretical knowledge of communication but experience difficulty applying these skills in real academic and social contexts, particularly in increasingly digitalized learning environments.

The study highlights the need for competency-based and practice-oriented communication training in Vietnamese higher education. Universities should prioritize interactive pedagogy, experiential learning, and the balanced integration of digital and face-to-face communication practices to strengthen both communicative competence and student self-efficacy. Despite its contextual limitations, the study contributes empirical insight into communication development in the digital era and reinforces the continuing importance of authentic human interaction in higher education.

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