



Bridging Digital Literacy and Communicative Competence: Evidence from AI-Mediated English Language Learning

Russian Joy M. Bandong¹, Rolly G. Salvaleon, PhD²

North Eastern Mindanao State University, Tandag City, Surigao del Sur, Philippines

*Corresponding Author

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ABSTRACT

This study examined the relationship between digital literacy and communicative competence in English among learners in technology-enhanced and generative AI-mediated learning environments. Using a mixed-methods explanatory design, data were collected from 193 undergraduate English language learners in private colleges in San Francisco, Agusan del Sur, together with qualitative inputs from six English language teachers. Quantitative data were analyzed using descriptive statistics, correlation analysis, and independent-samples t-test and one-way ANOVA, while qualitative responses were examined through thematic analysis. Findings revealed that learners demonstrated high overall digital literacy and high overall communicative competence. Personal security skill and sociolinguistic competence emerged as the strongest dimensions, whereas critical digital literacy, grammatical competence, and discourse competence were relatively weaker. A significant strong positive relationship was found between digital literacy and communicative competence, suggesting that learners with stronger digital competencies tend to demonstrate stronger English communicative performance. Qualitative findings revealed adaptive strategies such as verification of AI-generated content, strategic AI use, reflective revision, selective dependence, and feedback-seeking, alongside challenges involving AI overreliance, limited access, weak evaluation of AI outputs, and blurred authorship. Based on these findings, the study developed the BRIDGE Framework as a teacher-guiding model for integrating digital and AI-mediated literacy practices into English language instruction. The study contributes to the growing discourse on AI literacy, communicative competence, and responsible language learning in higher education.

Keywords: Digital Literacy, Communicative Competence, English Language Learners, Generative Artificial Intelligence, AI-Mediated Learning, BRIDGE Framework

INTRODUCTION

English language learning is increasingly situated in technology-rich and AI-mediated environments where learners routinely engage with online platforms, mobile applications, and intelligent language technologies. Among these innovations, Generative Artificial Intelligence (AI) has emerged as a transformative tool capable of supporting language learning through personalized feedback, interactive communication, vocabulary development, pronunciation modeling, and grammar assistance. AI-powered applications can scaffold learners' communicative competence by providing opportunities for authentic language practice, immediate corrective feedback, and simulated conversational experiences. As these technologies become more integrated into educational settings, digital literacy has become essential for learners to effectively access, evaluate, create, and communicate information in digital environments.

However, the growing reliance on AI in language learning presents important challenges. While students increasingly use AI-powered tools to assist with writing, speaking, and language practice, many may do so without sufficient critical evaluation, ethical awareness, or communicative ownership of the content they produce. The ability to generate grammatically accurate responses does not necessarily translate into meaningful language development if learners become overly dependent on AI-generated outputs. This raises concerns

regarding authentic communication, academic integrity, critical thinking, and equitable participation in technology-enhanced learning environments. Consequently, learners require not only access to AI technologies but also the digital literacy competencies necessary to use these tools critically, responsibly, and strategically for language learning.

Recent studies suggest that digital literacy plays a vital role in supporting language learning and communication in contemporary educational contexts. Researchers have emphasized that digital literacy extends beyond technical skills and encompasses the ability to critically evaluate information, collaborate through digital platforms, and engage in meaningful communication using technology (Ng, 2012; Van Laar et al., 2020). Building on this perspective, emerging research on generative AI demonstrates that AI-supported learning environments can enhance learners' vocabulary development, interactional fluency, learner autonomy, and communication skills when used effectively (Bundgaard & Møller, 2025; Savoldi et al., 2025). In the Philippine SUC context, several local studies suggest that students who demonstrate stronger digital literacy particularly in information searching, evaluation, and responsible use of online tools tend to perform better academically and adapt more effectively to online learning setups. This trend is often observed in blended and fully online classes where digital competence directly supports comprehension, participation, and overall learning outcomes in higher education environments (Esponilla et al., 2025). Collectively, these studies indicate that digital literacy has become a fundamental component of successful language learning in increasingly AI-mediated educational environments.

Despite these developments, important gaps remain in the literature. Existing studies have largely examined technology access, AI adoption, digital literacy, and language proficiency as separate areas of inquiry. While previous research has established the educational benefits of digital technologies and AI, limited empirical evidence explains how specific dimensions of digital literacy contribute to specific components of communicative competence within generative AI-mediated English language learning contexts. Furthermore, studies in the Philippine setting have predominantly focused on technology availability and usage patterns rather than learners' capacity to critically evaluate AI-generated content, ethically engage with AI tools, and strategically employ these technologies to support authentic communication. Limited institutional policies and guidance regarding AI integration in higher education further complicate these challenges. Consequently, there remains a need to investigate how digital literacy competencies shape communicative competence among English language learners operating in AI-supported learning environments.

Addressing this gap, the present study examines the influence of digital literacy on the communicative competence of English language learners in private colleges in San Francisco, Agusan del Sur, within the context of generative AI use. Specifically, the study seeks to generate empirical evidence on how learners' digital literacy competencies contribute to their ability to communicate effectively in English across AI-mediated learning environments. Based on the findings, the study aims to develop an evidence-based framework that explains the relationship between digital literacy and communicative competence. The proposed framework is intended to guide language educators, curriculum developers, and policymakers in designing instructional interventions, digital literacy initiatives, and AI-responsive educational policies that promote authentic, ethical, and effective language learning in an increasingly AI-driven educational landscape.

Research Questions

1. What is the profile of the respondents in terms of age, sex, academic program, year level, number of seminars or training sessions on educational technology and AI-supported language learning, and frequency of use of digital or AI tools for English language learning?
2. What is the respondents' level of digital literacy in technology-enhanced and AI-mediated English language learning environments in terms of technological skill, personal security skill, critical skill, device security skill, and informational skill?

3. What is the respondents' level of communicative competence in English in terms of grammatical competence, discourse competence, sociolinguistic competence, strategic competence, and digital pragmatic competence?
4. Is there a significant relationship between respondents' digital literacy and communicative competence?
5. Is there a significant difference in respondents' digital literacy when grouped according to profile variables?
6. Is there a significant difference in respondents' communicative competence when grouped according to profile variables?
7. What adaptive strategies and coping mechanisms do learners use to support self-regulated learning in AI-mediated English language learning environments?
8. What compounding challenges do learners encounter in digital literacy and communicative practice, and how do barriers in one domain intensify challenges in the other?
9. What evidence-based framework may be developed to guide teachers in using digital and AI-mediated literacy practices to foster learners' communicative competence in English?

METHODS

Research Design

This study employed a mixed-methods explanatory research design consisting of a quantitative cross-sectional correlational component and a qualitative component. The explanatory mixed-methods approach was utilized to provide a comprehensive understanding of the relationship between digital literacy and communicative competence in AI-mediated English language learning. The quantitative findings established the statistical relationships among the variables, while the qualitative findings provided contextual explanations and deeper insights into the observed patterns.

The quantitative phase measured respondents' levels of digital literacy and communicative competence and examined their relationships and group differences using descriptive statistics, Pearson Product-Moment Correlation, independent-samples t-test, and one-way Analysis of Variance (ANOVA) at the 0.05 level of significance. This phase provided an objective basis for determining the strength and direction of the relationships between the variables under investigation.

The qualitative phase involved semi-structured interviews with six English language teachers who served as key informants. The interviews explored teachers' observations and perceptions regarding students' digital literacy practices, communicative competence, learning challenges, and adaptive strategies in AI-mediated English language learning environments. Qualitative data were analyzed through thematic analysis and subsequently integrated with the quantitative findings to provide richer interpretation, explanation, and triangulation of the results.

The integration of quantitative and qualitative findings enabled the study to explain not only whether digital literacy and communicative competence were related but also how these relationships manifested in actual AI-mediated language learning contexts.

Research Locale

The study was conducted at Mt. Carmel College and St. Francis Xavier College in San Francisco, Agusan del Sur, Philippines. The locale was selected due to its transitional educational context where digital tools and AI-supported learning are gradually being integrated into instruction, yet access to advanced digital resources remains uneven.



This setting provides an appropriate environment for examining variability in digital literacy and communicative competence among learners experiencing both opportunities and constraints in AI-mediated English language learning.

Respondents and Sampling Procedure

The respondents were undergraduate students enrolled in English courses during Academic Year 2025–2026. The total population consisted of 349 students, with 144 from Mt. Carmel College and 205 from St. Francis Xavier College.

Stratified random sampling was used, with institution as the primary stratification variable to ensure proportional representation. Within each stratum, respondents were randomly selected using official enrollment lists obtained from the Registrar's Office.

The sample size of 193 was determined using Slovin's Formula with a 5% margin of error:

$$n = N / (1 + Ne^2)$$

Substituting:

$$n = 349 / (1 + 349(0.05)^2)$$

$$n = 349 / 1.8725$$

$$n \approx 186$$

The computed sample size was rounded to 186 respondents. To ensure proportional representation across institutions and accommodate possible non-response, the final sample size was increased to 193 respondents.

Stratified random sampling was employed, with institution serving as the primary stratification variable. This procedure ensured proportional representation of students from both colleges. Using official enrollment lists obtained from the respective Registrars' Offices, respondents were randomly selected within each institutional stratum. The final sample consisted of 80 respondents from Mt. Carmel College and 113 respondents from St. Francis Xavier College.

For the qualitative component, six English language teachers were selected through complete enumeration and served as key informants. These teacher participants were chosen because of their direct involvement in English language instruction and their experience observing students' use of digital and generative AI tools in language learning. Their insights provided contextual explanations and deeper understanding of the quantitative findings regarding digital literacy and communicative competence in AI-mediated English language learning environments.

Research Instruments

The study utilized researcher-made instruments consisting of four parts: (1) Respondent Profile Sheet, (2) Digital Literacy Questionnaire, (3) Communicative Competence Questionnaire, and (4) open-ended qualitative interview questions.

The Respondent Profile Sheet gathered demographic information including age, sex, year level, academic program, exposure to AI-related seminars, and frequency of AI use in English language learning.

The Digital Literacy Questionnaire measured five dimensions of digital literacy: technological skills (*5 items*), personal security skills (*5 items*), device security skills (*5 items*), critical skills (*5 items*), and informational skills (*5 items*). The instrument was developed based on Gilster's Digital Literacy Theory and related contemporary digital literacy frameworks.

The Communicative Competence Questionnaire measured grammatical competence (5 items), discourse competence (5 items), sociolinguistic competence (5 items), strategic competence (5 items), and digital pragmatic competence (5 items). The instrument was anchored on Canale and Swain's Communicative Competence Model and was contextualized for AI-mediated English language learning environments.

Both questionnaires employed a five-point Likert scale. For Digital Literacy, response options ranged from 1 (Very Low) to 5 (Very High). For Communicative Competence, response options ranged from 1 (Not Competent) to 5 (Highly Competent).

Semi-structured interview questions were developed to explore teacher participants' observations regarding learners' digital literacy practices, communicative competence, AI use, learning challenges, and adaptive strategies in AI-mediated English language learning environments.

Instrument Validation and Reliability

Prior to data collection, the research instruments underwent face and content validation by a panel of experts in English language teaching, educational technology, and research methodology. The validators evaluated the instruments in terms of clarity, relevance, appropriateness, and alignment with the research objectives and theoretical framework. Suggestions provided by the validators were incorporated to improve item wording, organization, and content coverage.

A pilot test was subsequently conducted among respondents with characteristics similar to those of the target population but who were not included in the final study sample. The pilot data were used to assess the internal consistency reliability of the instruments through Cronbach's alpha coefficients.

Results indicated excellent reliability for all scales and subscales. The overall Digital Literacy Scale obtained a Cronbach's alpha coefficient of .920, while Technological Skills ($\alpha = .949$), Personal Security Skills ($\alpha = .930$), Critical Skills ($\alpha = .926$), Device Security Skills ($\alpha = .924$), and Informational Skills ($\alpha = .920$) also demonstrated excellent reliability. Likewise, the overall Communicative Competence Scale achieved a Cronbach's alpha coefficient of .913. Its subdimensions likewise exhibited excellent internal consistency: Grammatical Competence ($\alpha = .921$), Discourse Competence ($\alpha = .918$), Sociolinguistic Competence ($\alpha = .918$), Strategic Competence ($\alpha = .919$), and Digital Pragmatic Competence ($\alpha = .917$).

These findings indicate that the instruments consistently measured their intended constructs and were therefore considered valid and reliable for use in the full-scale study.

Table 1. Reliability Estimates of the Research Instruments

Variables	Cronbach's Alpha (α)	Interpretation
Digital Literacy (Overall)	.920	Excellent
Technological Skills	.949	Excellent
Personal Security Skills	.930	Excellent
Critical Skills	.926	Excellent
Device Security Skills	.924	Excellent
Informational Skills	.920	Excellent
Communicative Competence (Overall)	.913	Excellent
Grammatical Competence	.921	Excellent
Discourse Competence	.918	Excellent
Sociolinguistic Competence	.918	Excellent
Strategic Competence	.919	Excellent
Digital Pragmatic Competence	.917	Excellent



Note: Reliability interpretations were based on commonly accepted Cronbach's alpha benchmarks, where $\alpha \geq .90$ indicates excellent internal consistency.

Qualitative Data Collection and Analysis

Qualitative data were obtained through semi-structured interviews with six English language teachers who served as key informants. All interviews were audio-recorded with participant consent and transcribed verbatim for analysis.

The study employed Braun and Clarke's (2006) thematic analysis framework. The analytical process involved six phases: (1) familiarization with the data through repeated reading of transcripts, (2) generation of initial codes, (3) searching for patterns among codes, (4) reviewing and refining candidate themes, (5) defining and naming themes, Instrument Validation and Reliability

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Coding was conducted manually using Microsoft Excel. Meaningful statements were identified and assigned descriptive codes related to digital literacy practices, AI use, communicative competence, learning challenges, and adaptive learning strategies. Similar codes were grouped into categories and subsequently organized into broader themes. To enhance trustworthiness, themes were continuously compared with the original transcripts to ensure consistency, credibility, and alignment with the research questions.

The resulting themes were integrated with the quantitative findings during interpretation to provide a deeper understanding of the relationship between digital literacy and communicative competence in AI-mediated English language learning.

To illustrate the coding process, a sample of the qualitative data analysis is presented below:

Sample Coding Table

Raw Statement	Initial Code	Category	Theme
"I often use ChatGPT to check my grammar, but I still try to understand the corrections it gives."	AI-assisted grammar checking	Strategic AI use	Responsible AI-mediated learning



“Sometimes I just copy answers from AI because I don’t know how to start my essay.”	Overdependence on AI	Learning dependency	Reduced communicative autonomy
“My teacher reminds us to verify AI outputs before submitting our work.”	Teacher-guided verification	Instructional scaffolding	Guided digital literacy development
“I feel more confident speaking English when I practice with AI chat tools.”	AI-supported speaking practice	Interaction enhancement	Improved communicative confidence

The final themes were integrated with quantitative findings to provide a more comprehensive interpretation of how digital literacy influences communicative competence in AI-mediated English language learning environments. This integration allowed the study to explain not only the statistical relationships between variables but also the lived experiences and learning behaviors underlying these patterns.

Data Gathering Procedure

Prior to data collection, permission was secured from the participating institutions. Enrollment lists were obtained from the Registrar’s Offices and served as the sampling frame. After stratified random sampling was conducted, selected respondents were invited to participate voluntarily. Informed consent was obtained, and participants were assured of confidentiality and their right to withdraw at any time without penalty. Validated instruments were then administered. Completed questionnaires were checked, encoded, and analyzed. Qualitative responses were processed alongside quantitative data for integrated interpretation. All data were used solely for research purposes and contributed to the development of an evidence-based framework on digital literacy and communicative competence in AI-mediated English language learning environments.

THEORETICAL FRAMEWORK

This study is anchored on the premise that digital literacy serves as a critical enabling factor in the development of communicative competence among English language learners in AI-mediated learning environments. Digital literacy equips learners with the ability to access, evaluate, create, and strategically use digital information and generative AI tools to support meaningful communication. While generative AI can facilitate language learning through pronunciation modeling, sentence construction assistance, vocabulary and grammar support, feedback provision, and simulated communicative practice, the effectiveness of these technologies depends largely on learners’ capacity to use them critically, ethically, and purposefully. Furthermore, teacher mediation plays a vital role in guiding learners toward responsible AI use and ensuring that technology-enhanced learning experiences contribute to authentic language development.

To explain these relationships, the study is grounded in four complementary theories: Gilster’s Digital Literacy Theory as the primary theoretical anchor, supported by Canale and Swain’s Communicative Competence Theory, Zimmerman’s Self-Regulated Learning Theory, and Vygotsky’s Sociocultural Theory. Together, these theories provide a comprehensive explanation of how digital literacy, AI-mediated learning practices, learner regulation, and social interaction contribute to communicative competence.

Gilster’s Digital Literacy Theory (1997) serves as the primary theoretical foundation of this study. Gilster conceptualized digital literacy as the ability to understand, evaluate, integrate, and communicate information using digital technologies rather than merely possessing technical skills. In AI-mediated learning environments, digitally literate learners are better equipped to critically evaluate AI-generated outputs, verify information accuracy, identify biases, and make informed decisions regarding language use. The theory directly aligns with the study’s independent variable, digital literacy, by explaining how learners’ digital competencies influence their ability to utilize AI tools effectively for language learning and communication.

Canale and Swain's Communicative Competence Theory (1980), later expanded by Canale (1983), provides the conceptual foundation for the study's dependent variable, communicative competence. The theory identifies four interrelated dimensions: grammatical competence, discourse competence, sociolinguistic competence, and strategic competence. In contemporary AI-supported language learning environments, these competencies are developed not only through human interaction but also through engagement with digital platforms and generative AI applications that provide language modeling, feedback, and communicative practice opportunities. The theory explains the specific communicative outcomes that may be influenced by learners' digital literacy and AI-assisted learning experiences.

Zimmerman's Self-Regulated Learning (SRL) Theory (2000) serves as an important supporting framework for understanding learners' strategic engagement with AI tools. Self-regulated learners actively plan, monitor, evaluate, and adjust their learning processes to achieve academic goals. Within AI-mediated environments, learners must decide when and how to use AI assistance, assess the quality of AI-generated responses, and determine whether such outputs support their language learning objectives. This theory explains why learners with similar access to AI technologies may experience different communicative outcomes depending on their capacity for self-monitoring, critical reflection, and strategic decision-making.

Vygotsky's Sociocultural Theory (1978) provides an additional explanatory lens by emphasizing that learning occurs through social interaction, mediation, and scaffolding. From this perspective, digital technologies and generative AI function as mediational tools that support language development by providing feedback, modeling linguistic structures, and facilitating interaction. Teachers, peers, and AI systems collectively contribute to scaffolding learners' communicative development within their Zone of Proximal Development (ZPD). This theory highlights the importance of guided interaction and contextual support in transforming AI-assisted experiences into meaningful language learning opportunities.

The integration of these theories provides the intellectual foundation for the proposed BRIDGE Framework. Gilster's Digital Literacy Theory explains learners' capacity to engage critically with digital and AI technologies. Canale and Swain's Communicative Competence Theory identifies the language outcomes that emerge from such engagement. Self-Regulated Learning Theory explains the adaptive and strategic processes through which learners manage AI-supported learning activities, while Sociocultural Theory highlights the role of mediation, scaffolding, interaction, and teacher guidance in supporting language development.

Together, these theories suggest that communicative competence in AI-mediated learning environments is not determined solely by access to technology. Rather, it emerges from the interaction of digital literacy competencies, self-regulated learning behaviors, socially mediated learning experiences, and purposeful engagement with AI tools. Guided by these theoretical foundations and informed by empirical findings, the BRIDGE Framework seeks to explain how digital literacy contributes to communicative competence while promoting ethical, responsible, and effective use of generative AI in English language learning.

Ethical Consideration

Prior to data collection, permission to conduct the study was secured from the participating higher education institutions. Although formal institutional ethics review was not required for this study, the researchers adhered to established ethical principles governing educational research, including voluntary participation, informed consent, confidentiality, and responsible data management.

All participants were fully informed about the purpose, procedures, potential benefits, and minimal risks associated with the study. Participation was entirely voluntary, and respondents were informed of their right to decline participation or withdraw from the study at any stage without penalty or adverse consequences. Written informed consent was obtained from all participants prior to data collection.

To protect participant privacy, confidentiality and anonymity were strictly maintained throughout the research process. Identification codes were used in place of participant names in all questionnaires, interview transcripts, field notes, and research records. Audio recordings, transcripts, and electronic datasets were stored in password-



protected digital files accessible only to the researchers. Any information that could directly identify participants or their institutions was removed from the research records and reporting of findings.

The researchers ensured that all data were collected, processed, analyzed, and reported with integrity and in accordance with applicable ethical standards. The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to ethical, institutional, and privacy considerations intended to protect participant confidentiality.

The authors declare that there are no financial, professional, institutional, or personal conflicts of interest that could have influenced the design, conduct, analysis, interpretation, or publication of this research.

Regarding the use of artificial intelligence (AI), generative AI tools were not used to generate research data, conduct statistical analyses, interpret findings, or formulate conclusions. Any AI-assisted support utilized during manuscript preparation was limited to language refinement, grammar checking, formatting assistance, and editorial support. All research decisions, data analyses, interpretations, and scholarly conclusions remain the sole responsibility of the researchers.

The study was conducted in accordance with the ethical principles of academic research and the standards for responsible scholarship in educational and social science research.

RESULTS AND DISCUSSION

Table 2. Profile of the Respondents

Profile Variable	Category	Frequency	Percentage
Age Category	Early Young Adults	110	57%
	Middle Young Adults	65	34%
	Late Young Adults	18	9%
	Total	193	100%
Sex	Male	54	28%
	Female	139	72%
	Total	193	100%
Academic Program	BSEd English	93	48%
	BEEd	80	42%
	BSIT	20	10%
	Total	193	100%
Year Level	First Year	108	56%
	Second Year	18	9%
	Third Year	45	23%
	Fourth Year	22	12%
	Total	193	100%
Number of Seminars/Training Sessions on Educational Technology and AI-Supported Language Learning	None	56	29%
	1 to 2 trainings	93	48%
	3 to 4 trainings	30	16%
	5 or more trainings	14	7%
	Total	193	100%
Frequency of Use of Digital or AI Tools to Enhance English Language Learning	Never	7	4
	Rarely	16	8
	Sometimes	67	35
	Often	45	23
	Very Often	58	30
	Total	193	100%



The findings reveal that the highest proportion of respondents falls into the early young adult age category, identifies as female, is enrolled in the Bachelor of Secondary Education major in English program, and is currently in their first year of study. Additionally, the highest results within the technology profile show that nearly half of the respondents have attended one to two seminars, while the plurality sometimes utilizes digital or AI tools for English language acquisition. These results signify a baseline descriptive profile of a student body that is generally familiar with digital environments. The implication of this dominant profile is that their inherent familiarity with technology acts as a catalyst for digital engagement, making them highly receptive to AI-supported language environments. Academically, because these respondents are future educators, this early and frequent exposure provides a critical foundation for developing necessary modern communication competencies, seamless information access habits, and future technology integration skills in their own classrooms.

Conversely, the lowest results indicate that the absolute minority of the respondents belong to the late young adult age category, are enrolled in the BSIT program, and have attended five or more specialized training sessions. Furthermore, the lowest proportion of the sample reports never utilizing digital or AI tools for language learning purposes. This very small percentage of non-users, contrasted with the equally low percentage of highly trained individuals, reveals a critical gap: while digital avoidance is virtually non-existent, extensive formal training is severely lacking. The implication is that the respondents' current digital and AI engagement is driven heavily by informal, self-directed exploration rather than structured pedagogical training. Consequently, this reliance on personal trial-and-error raises concerns regarding potential deficiencies in their ability to critically evaluate algorithmic biases, maintain data privacy, and responsibly deploy AI for complex academic tasks.

Overall, the comprehensive profile reflects a student population that is generally immersed in digital environments and increasingly exposed to AI-supported learning practices. This overarching baseline indicates a state of moderate engagement paired with high accessibility yet constrained by institutionalized instruction. The structural implication is that simple exposure does not equate to digital mastery; while students frequently interact with AI tools, their lack of advanced training limits their capacity to maximize these tools safely and productively. For the broader research problem, this underscores an urgent institutional need to transition from providing mere technological access to embedding systematic digital literacy, ethical AI protocols, and critical evaluation metrics directly into the teacher education curriculum.

The findings support the perspective of Miao and Holmes (2023) learners require structured guidance to understand the ethical, critical, and responsible dimensions of artificial intelligence in educational contexts. These perspectives affirm the present findings by suggesting that while respondents are actively exposed to digital and AI technologies, the development of responsible and effective technology use requires continuous training, institutional support, and opportunities for guided learning experiences.

Level of Digital Literacy in Technology-Enhanced and AI-Mediated English Language Learning Environments

Table 3. Level of Digital Literacy of the Respondents

Digital Literacy Dimension	Mean	Standard Deviation	Descriptive Level
Technological Skill	4.12	0.65	High
Personal Security Skill	4.27	0.72	Very High
Critical Skill	4.06	0.74	High
Device Security Skill	4.24	0.65	Very High
Informational Skill	4.11	0.73	High

Commented [M1]: There are formatting issues, repeated sections, and internal labels such as "Revised Table 2." The number of items per dimension is still unclear.

The results indicate that the respondents demonstrate a high overall level of digital literacy, suggesting strong capability in navigating and using digital tools within technology-enhanced and AI-mediated English language learning environments.



Among the dimensions, personal security skill obtained the highest mean ($M = 4.27$, Very High), indicating that respondents are highly competent in protecting personal information, managing privacy settings, and maintaining safe online practices. This suggests strong awareness of digital safety, particularly relevant in environments where learners interact with AI tools, online platforms, and digital learning systems.

In contrast, critical skill recorded the lowest mean ($M = 4.06$, High). Although still interpreted as high, this indicates a relative difficulty in evaluating the credibility, accuracy, and reliability of digital and AI-generated information. This suggests that learners may require further support in verifying content, detecting bias, and critically assessing AI outputs before use.

Overall, the findings imply that while learners are highly competent in operational and security-related digital skills, higher-order critical evaluation skills remain an area for further development. Strengthening critical digital literacy is essential to ensure responsible, ethical, and reflective use of AI-generated content in English language learning.

The findings are supported by previous studies and theoretical perspectives discussed in the review of related literature. The strong performance in personal security skill aligns with the study of Rahman et al. (2024), which emphasized the importance of cybersecurity awareness and privacy protection among students who frequently engage in digital environments. Likewise, Georgopoulou et al. (2025) reported that although students often demonstrate confidence in accessing digital information, they still require further development in evaluating information credibility and reliability, supporting the relatively lower rating in critical skill. Furthermore, the findings are consistent with Guan and Li's (2024) meta-analysis, which concluded that the educational benefits of Generative AI largely depend on learners' ability to regulate, evaluate, and responsibly utilize digital resources. Collectively, these studies affirm that effective participation in AI-mediated learning requires not only technical competence and online safety awareness but also strong critical digital literacy skills that enable learners to assess and use information judiciously.

Level of Communicative Competence in English

Table 4. Level of Communicative Competence of the Respondents

Communicative Dimension	Competence	Weighted Mean	Standard Deviation	Descriptive Level
Grammatical Competence		3.99	0.73	High
Discourse Competence		3.97	0.69	High
Sociolinguistic Competence		4.28	0.90	Very High
Strategic Competence		4.27	0.71	Very High
Digital Pragmatic Competence		4.23	0.69	Very High
Overall Mean		4.15	0.64	High

Among the dimensions of communicative competence, sociolinguistic competence emerged as the strongest area, attaining a Very High descriptive level. This finding indicates that the respondents are highly capable of adjusting their language according to the social context, audience, purpose, and communicative situation. Such competence is manifested in their ability to choose appropriate expressions, observe politeness conventions, recognize social expectations in communication, and modify language depending on whether they are interacting with teachers, classmates, peers, or digital audiences. In AI-mediated English language learning environments, students with strong sociolinguistic competence can communicate respectfully and appropriately across various digital platforms, including discussion forums, collaborative workspaces, video conferences, chat applications, and AI-assisted communication tools. This suggests that the respondents possess an awareness of how language functions beyond grammar, enabling them to establish effective interpersonal relationships and participate meaningfully in diverse communicative settings. Their ability to adapt language according to context reflects



not only linguistic knowledge but also cultural sensitivity and communicative awareness, which are essential competencies in contemporary digital learning environments.

In contrast, discourse competence obtained the lowest descriptive rating, although it remained within the High level. This finding suggests that while respondents can generally communicate effectively in English, they may encounter greater challenges when organizing ideas into coherent and cohesive spoken or written texts. Discourse competence extends beyond producing grammatically correct sentences; it involves connecting ideas logically, maintaining topic development, establishing clear transitions, and ensuring unity throughout a communication task. Students with relatively less developed discourse competence may be able to express individual thoughts accurately but may experience difficulty sustaining longer discussions, constructing well-developed essays, organizing arguments systematically, or producing coherent academic texts. In AI-mediated learning contexts, this finding is particularly significant because AI tools can assist with grammar correction and vocabulary enhancement but cannot fully replace the cognitive processes involved in structuring ideas, maintaining logical flow, and developing meaningful arguments. Consequently, the result highlights the need for instructional practices that emphasize paragraph development, text organization, cohesion, coherence, and genre-based writing skills to strengthen students' ability to communicate extended messages effectively.

Overall, the respondents demonstrated a High level of communicative competence, indicating that they generally possess the language abilities necessary to communicate effectively in academic, social, and technology-enhanced environments. This suggests that the respondents can utilize English for various communicative purposes, including information sharing, collaboration, problem-solving, and participation in digital learning activities. Their strong performance across the dimensions reflects their ability to integrate linguistic knowledge with communicative strategies and contextual awareness. However, the variation among the dimensions also indicates that communicative competence is multifaceted, requiring learners not only to use language appropriately but also to organize ideas clearly and meaningfully. The findings therefore imply that while the respondents are well-positioned to engage in AI-mediated English language learning, continued support in developing higher-level discourse skills remains essential for effective academic communication and language proficiency development.

The findings are supported by existing literature on communicative competence and technology-enhanced language learning. The respondents' strong sociolinguistic competence aligns with the study of Rafiq et al. (2024), which demonstrated that technology-supported pragmatic instruction can significantly enhance learners' ability to use language appropriately in different social and cultural contexts. Likewise, the relatively lower performance in discourse competence is consistent with the findings of Wei et al. (2023), who reported that although automated writing evaluation tools can improve aspects of writing performance, learners still require guidance in developing coherence, cohesion, and overall text organization. Furthermore, Du and Daniel (2024) found that AI-powered language-learning tools can enhance communication confidence, engagement, and language performance, but emphasized that meaningful learning outcomes depend on structured instructional support and purposeful learning design. These studies collectively support the present findings by emphasizing that effective communicative competence involves not only linguistic accuracy and contextual appropriateness but also the ability to construct coherent and meaningful discourse across various communication settings.

Relationship Between Digital Literacy and Communicative Competence

Table 5. Correlation Between Digital Literacy and Communicative Competence

Variables Correlated	r-value	r ²	p-value	Decision on Ho	Interpretation
Digital Literacy and Communicative Competence	0.699	0.489	< .001	Reject Ho	Significant Strong Positive Relationship

This presents the relationship between digital literacy and communicative competence among the respondents. The analysis revealed a significant strong positive relationship between the two variables, leading to the rejection

of the null hypothesis. This finding indicates that respondents who demonstrate higher levels of digital literacy also tend to exhibit stronger communicative competence in English. The strength of the relationship suggests that the association is substantial rather than incidental, highlighting the interconnected nature of digital and communicative skills in contemporary learning environments.

The finding implies that digital literacy extends beyond the ability to operate technological devices and access online resources. Rather, it encompasses competencies that directly support communication processes, such as locating information, evaluating sources, participating in online interactions, using digital platforms effectively, and engaging responsibly with technology-mediated content. Students with stronger digital literacy are more likely to communicate effectively in digital learning spaces because they can navigate communication tools, participate in collaborative tasks, utilize AI-assisted learning applications, and interact confidently across multiple modes of communication. In AI-mediated English language learning environments, these skills enable learners to access authentic language input, engage in meaningful exchanges, seek feedback, and refine their communication through digital platforms. As a result, digital literacy appears to function as an important foundation that supports the development and expression of communicative competence.

The significant relationship may also be explained by the increasing integration of technology into language learning. Students who possess advanced digital literacy skills are often more capable of maximizing the educational opportunities offered by online platforms, virtual learning environments, collaborative applications, and generative AI tools. These learners can critically evaluate information, manage digital interactions effectively, and use technological resources strategically to support language practice. Such capabilities facilitate participation in communication-rich learning experiences, including online discussions, collaborative writing activities, multimedia presentations, virtual exchanges, and AI-assisted language tasks. Consequently, digitally literate learners are more likely to encounter diverse opportunities for language use, which may contribute to stronger communicative competence.

The finding further suggests that communicative competence in contemporary educational contexts is no longer limited to traditional speaking and writing abilities. Instead, effective communication increasingly requires learners to interact appropriately and efficiently through digital channels. Students must not only understand language structures and social conventions but also know how to communicate across digital platforms, interpret multimodal messages, evaluate online information, and engage ethically in virtual environments. The strong association observed between digital literacy and communicative competence therefore reflects the reality that language use and digital engagement have become closely interconnected within technology-enhanced and AI-supported learning settings.

The result is supported by existing literature on digital learning and language development. The finding aligns with Zhang (2025), who reported that digital literacy was significantly associated with English language proficiency, emphasizing the role of technological self-efficacy and learning motivation in facilitating language development. Similarly, a study published in *Behavioral Sciences* found that AI literacy positively influenced English as a Foreign Language (EFL) learners' willingness to communicate, with self-efficacy and reduced communication anxiety contributing to this relationship. Furthermore, Du and Daniel (2024) concluded in their systematic review that AI-powered language-learning tools enhanced learners' communication performance, engagement, confidence, and motivation when used effectively. Collectively, these studies support the present finding by demonstrating that learners who possess stronger digital competencies are better positioned to utilize digital and AI technologies as meaningful tools for communication, language practice, and academic interaction. While the significant relationship does not establish causation, it provides evidence that digital literacy and communicative competence are closely linked and mutually relevant in technology-enhanced English language learning environments.

Difference in the Level of Digital Literacy When Grouped According to Profile Variables

Table 6. Summary of Test of Difference in Digital Literacy When Grouped According to Profile Variables

Profile Variable	Overall Test Result	p-value	Decision on Ho	Interpretation
Age Category	F = 0.129	.879	Accept Ho	Not Significant
Sex	t = -0.502	.604	Accept Ho	Not Significant
Academic Program	F = 0.738	.480	Accept Ho	Not Significant
Year Level	F = 3.170	.026	Reject Ho	Significant
Number of Seminars/Training Sessions	F = 2.279	.062	Accept Ho	Not Significant
Frequency of Use of Digital or AI Tools	F = 0.307	0.873	Accept Ho	Not Significant

Among the profile variables examined, year level emerged as the only variable that demonstrated a statistically significant difference in the respondents' overall digital literacy. This finding indicates that digital literacy develops progressively as students advance through their academic journey. Students in higher year levels are likely exposed to more complex learning experiences that require extensive use of digital technologies for research, information management, academic writing, collaboration, and problem-solving. As learners progress through their programs, they encounter increasing demands for independent learning, critical evaluation of sources, online communication, and responsible use of digital platforms. These cumulative academic experiences may contribute to the gradual enhancement of their digital competencies. The significant differences observed in personal security skill, device security skill, and informational skill further suggest that advanced students become more aware of digital risks, information verification practices, and responsible technology use as a result of prolonged engagement with academic and digital environments. This finding highlights the developmental nature of digital literacy and suggests that it is strengthened through sustained exposure to authentic digital tasks rather than acquired instantly through basic technology use.

In contrast, age, sex, and academic program did not produce statistically significant differences in the respondents' overall digital literacy. This finding suggests that digital literacy functions as a relatively universal competence among contemporary college students regardless of demographic characteristics or field of specialization. The absence of significant differences implies that access to digital technologies and opportunities for technology use may already be sufficiently widespread across groups, reducing traditional disparities that were once associated with age, gender, or academic discipline. This result challenges the assumption that younger students, males, or learners enrolled in technology-related programs automatically possess stronger digital competencies than their counterparts. Instead, it indicates that digital literacy extends beyond mere exposure to technology and reflects a broader set of skills involving information evaluation, digital safety, critical thinking, and responsible participation in online environments. The finding further suggests that digital literacy is increasingly becoming an essential competency shared across disciplines rather than a specialized skill confined to particular groups of learners.

Another noteworthy finding pertains to the frequency of digital tool use, which did not significantly influence the respondents' overall digital literacy. This result indicates that frequent use of technology does not necessarily translate into higher levels of digital literacy. Students may engage with digital tools daily for communication, entertainment, information retrieval, or academic tasks without developing deeper competencies related to critical evaluation, information verification, cybersecurity awareness, and responsible digital engagement. In other words, repeated exposure to technology may improve familiarity and convenience but does not automatically cultivate higher-order digital skills. This distinction is particularly important in AI-mediated learning environments where students may regularly interact with digital platforms and generative AI tools but still require guidance in assessing the accuracy, reliability, and ethical implications of digital content. The finding therefore reinforces the view that meaningful digital literacy involves strategic, reflective, and critical engagement with technology rather than routine usage alone.

The findings regarding seminars and training programs provide additional insight into the development of digital literacy. While the number of seminars attended did not significantly affect overall digital literacy, significant differences were observed in specific dimensions, particularly critical skill and informational skill. This suggests that training initiatives may contribute to the enhancement of specialized competencies rather than producing immediate improvements across all areas of digital literacy. Learners who participate in seminars may gain greater awareness of evaluating information sources, identifying misinformation, conducting digital research, and applying critical judgment when engaging with online content. However, isolated training experiences may not be sufficient to influence broader aspects of digital literacy unless they are reinforced through sustained practice and curriculum integration. The result therefore highlights the importance of continuous and context-based learning experiences rather than one-time interventions. Overall, the findings indicate that digital literacy is not primarily determined by demographic characteristics, frequency of technology use, or limited training exposure. Instead, it appears to be more strongly associated with cumulative academic experience and meaningful engagement in technology-supported learning activities. The significant differences across year levels suggest that digital literacy develops over time as students encounter increasingly complex academic and digital tasks. These results imply that educational institutions should not assume that students automatically acquire digital literacy through routine technology use. Rather, deliberate instructional support remains necessary to strengthen critical evaluation, information management, digital safety, and responsible AI utilization.

The present findings are supported by previous studies and theoretical perspectives discussed in the literature. Georgopoulou et al. (2025) argued that digital literacy extends beyond technological familiarity and encompasses critical evaluation, responsible participation, and effective use of digital resources, supporting the absence of significant differences across demographic categories. Similarly, Ramdana et al. (2026) reported that digital literacy is strengthened more effectively through pedagogical innovations and sustained educational practices than through limited exposure to technology or isolated training opportunities. Collectively, these perspectives support the present findings by emphasizing that digital literacy develops through purposeful engagement, academic experience, and structured educational interventions rather than demographic characteristics or technology exposure alone.

Table 6 presents the test of difference in the respondents' level of communicative competence when grouped according to age, sex, academic program, year level, number of seminars or training attended, and frequency of digital tool use for English language learning. The overall pattern of results indicates that communicative competence in English is generally comparable across most demographic and academic categories. This suggests that learners' communicative competence is not strongly differentiated by age, sex, academic program, seminar exposure, or frequency of digital and AI tool use. Instead, communicative competence appears to be a relatively shared capability among the respondents, likely shaped by common instructional experiences and similar exposure to English language learning environments.

Table 7. Summary of Test of Difference in Communicative Competence When Grouped According to Profile Variables

Profile Variable	Overall Test Result	p-value	Decision on Ho	Interpretation
Age Category	F = 2.068	.129	Accept Ho	Not Significant
Sex	t = -0.869	.386	Accept Ho	Not Significant
Academic Program	F = 0.032	.968	Accept Ho	Not Significant
Year Level	F = 2.262	.083	Accept Ho	Not Significant
Number of Seminars/Training Sessions	F = 1.293	.274	Accept Ho	Not Significant
Frequency of Use of Digital or AI Tools	F = 0.211	0.932	Accept Ho	Not Significant

Across age categories, sex, academic program, seminar participation, and frequency of digital tool use, no statistically significant differences were observed in the overall communicative competence of the respondents. This indicates that the highest levels of communicative competence were not concentrated in any particular demographic group, nor were lower levels consistently associated with any specific category. The implication of this pattern is that communicative competence may have become a generalized educational outcome among learners who are exposed to similar language instruction, regardless of personal background. This suggests that students, regardless of their profile characteristics, are developing comparable levels of grammatical control, discourse awareness, sociolinguistic adaptability, strategic communication, and digital pragmatic use. In practical terms, this means that communicative competence is being shaped less by who the learners are and more by what they collectively experience in terms of language instruction, classroom interaction, and technology-supported communication opportunities.

A particularly notable result is the absence of significant differences according to frequency of digital or AI tool use. This finding suggests that regular exposure to digital technologies does not automatically translate into higher communicative competence. Students may frequently use AI tools for translation, grammar correction, or content generation without necessarily engaging in deeper communicative processes such as idea negotiation, extended discourse production, or reflective language use. In other words, tool usage alone does not guarantee communicative development. This reinforces the idea that communicative competence depends not merely on access to technology but on how meaningfully learners use it within structured communicative tasks. Similar patterns have been observed in AI-mediated language learning literature, where gains in communication skills are linked more strongly to interaction quality and task design than to frequency of tool usage.

Although overall communicative competence did not significantly differ across year level, more nuanced patterns emerged when specific dimensions were examined. Significant differences were observed in grammatical competence and sociolinguistic competence across year levels, suggesting that certain aspects of communicative development may progress unevenly throughout academic advancement. This implies that while students may maintain relatively stable overall communication performance, specific subskills such as grammatical accuracy and context-appropriate language use may improve as learners progress through higher academic levels. This developmental pattern may be attributed to increased exposure to academic reading, writing tasks, classroom discussions, and performance-based assessments that gradually refine students' linguistic accuracy and sociocultural awareness.

The non-significant differences across most profile variables further imply that communicative competence is not primarily determined by demographic or structural characteristics, but rather by the quality of language-learning experiences. Learners are likely developing communicative competence through shared classroom instruction, peer interaction, and exposure to English in both academic and digital environments. This supports the view that communicative competence is a dynamic skill shaped by continuous practice and interaction rather than static learner attributes. In this sense, communicative competence reflects an accumulated learning outcome influenced by pedagogical design, engagement opportunities, and communicative exposure rather than inherent or group-based differences.

The findings are supported by existing literature emphasizing the role of instructional context and interaction quality in language development. Du and Daniel (2024) highlight that AI-supported communication tools enhance English learning outcomes when embedded in meaningful and guided interaction, rather than through exposure alone. Similarly, Koç and Savaş (2024) emphasize that the effectiveness of AI chatbots in language learning depends on instructional integration and pedagogical design rather than mere access or usage frequency. Furthermore, Zhang et al. (2025) explain that learners' communicative engagement in English is influenced more by self-efficacy and reduced anxiety than by demographic variables, reinforcing the idea that communicative competence is shaped by psychological and experiential factors rather than profile characteristics. Collectively, these studies confirm that communicative competence is best understood as a product of sustained, meaningful, and well-supported language learning experiences rather than demographic or usage-based differences alone.



Adaptive Strategies and Coping Mechanisms as Pathways to Self-Regulated Learning in AI-Mediated English Language Learning

The qualitative findings were derived from semi-structured interviews with teacher participants involved in AI-mediated English language learning environments. The analysis revealed that teachers perceive AI as both a valuable instructional resource and a tool that presents new pedagogical challenges in language education. Through their experiences, teachers observed that students employ various strategies when using AI, including verifying information, revising AI-generated outputs, utilizing AI strategically for academic tasks, and seeking additional support when needed. These observations suggest that AI use may contribute to the development of self-regulated learning practices in digital learning environments. Presented thematically, the findings highlight teachers' perspectives on how students interact with AI tools and how these interactions influence language learning processes. To ensure the trustworthiness of the findings, member checking was conducted by allowing participants to review and validate the accuracy of the interview transcripts and interpretations. An audit trail was maintained to document data collection procedures, coding decisions, and theme development throughout the study. Peer debriefing was also employed through consultation with a qualitative research expert who reviewed the coding framework and thematic interpretations. In addition, bracketing was undertaken to minimize researcher bias and enhance the credibility of the analysis. Following the qualitative presentation style adopted in this study, themes and subthemes are first summarized in a table and then discussed through interpretive narratives to demonstrate the relationships among the identified themes and their implications for AI-mediated English language learning.

Table 8. Summary of Themes and Subthemes on Adaptive Strategies and Coping Mechanisms as Pathways to Self-Regulated Learning in AI-Mediated English Language Learning

Category	Themes	Subthemes
Adaptive Strategies	Reflective Verification of AI-Generated Content	Cross-checking AI responses; comparing outputs with credible sources; validating grammar, meaning, and relevance
	Strategic Use of AI for Language Support	Grammar checking; idea generation; vocabulary clarification; organizing written responses
	Monitoring and Revision of Learning Outputs	Self-checking progress; revising AI-assisted outputs; tracking understanding before submission
Coping Mechanism	Selective and Responsible Dependence on AI	Using AI as support rather than replacement; setting limits on AI use; maintaining learner authorship
	Feedback-Seeking and Collaborative Adjustment	Consulting peers or teachers; discussing AI-generated outputs; refining responses through external feedback

The first theme is reflective verification of AI-generated content. The baseline qualitative findings indicate that teacher participants observed learners verifying AI-generated information, monitoring their progress, and reflecting on their learning experiences. According to the teacher participants, learners do not treat AI output as automatically reliable. Instead, they compare AI responses with class materials, online sources, and their own understanding before using them in academic work. The teacher participants' responses suggest that learners do not treat AI output as automatically reliable. Instead, they compare AI responses with class materials, online sources, and their own understanding before using them in academic work. This means that verification functions as a coping mechanism against misinformation, irrelevant responses, and linguistically polished but conceptually weak output. In this sense, the challenge of AI uncertainty is directly connected to the self-regulatory response of cross-checking and validation.

"What I do to cross-check or double-check the answers given to me by AI is I use other sources. I go to Google.com and look for more credible information on the web. T1, Teacher Participants"

"When I double-checked the answers given to me by ChatGPT, we arrived at different results, and in the end, I was the one who was correct. In that instance, the AI failed to provide the answer I expected it to give." T2, Teacher Participants

"I always verify AI outputs using tools like Grammarly, Perplexity, and online sources, after discovering that some AI-generated references were inaccurate or did not exist. So, it's very important to cross-check and always verify." T3, Teacher Participants

This finding suggests that teacher participants perceive learners as engaging in important metacognitive processes. They are not only receiving information from AI but also judging whether it is accurate, useful, and aligned with the task. As Anders and Dux Speltz (2025) argue, generative AI literacies are strengthened when learners engage in self-regulated cycles of planning, iterating, and evaluating AI-supported work rather than passively accepting machine output. Similarly, Saleh and ElSayary (2025) found that students often used GenAI tools frequently for self-learning even when their formal familiarity with them remained only low to moderate, which makes reflective verification an essential strategy for preventing shallow dependence and weak understanding. These studies support the present finding that verification is not simply a checking habit but a pathway to self-regulated learning in AI-mediated language tasks.

The second theme is strategic use of AI for language support. The baseline findings show that teacher participants observed learners using AI technologies to improve grammar, writing organization, and language clarity. According to the teacher participants, learners use AI not only to generate content but also to support specific language difficulties. In this way, AI becomes a strategic scaffold rather than a full substitute for communication. The strategy is adaptive because it allows students to manage language demands that might otherwise interrupt or delay their academic performance in English.

"I set small goals, like review 10 vocabulary words or check five essays. I also make a schedule and use reminders." T3, Teacher Participants

"Well now that I am an English language educator, I use digital tools or AI tools to confirm the accuracy and correctness of my vocabulary usage and sentence structure." T4, Teacher Participants

"I used ChatGPT because of its user-friendly interface and quality responses but does not immediately accept its outputs, choosing instead to verify them when needed due to possible AI hallucinations and errors in ideas, grammar, or vocabulary." T6, Teacher Participants

This theme functions as a pathway to self-regulated learning because students appear to use AI for targeted support while still attempting to improve their own outputs. Recent research supports this interpretation. Du and Daniel (2024), in their systematic review of AI-powered chatbots for EFL speaking practice, found that AI-supported interaction can enhance speaking performance, engagement, and learning motivation when the technology is integrated into purposeful language tasks. Likewise, Fathi et al. (2024) reported that AI-mediated speaking interactions improved EFL learners' speaking skills and willingness to communicate, suggesting that AI can serve as a productive support mechanism when it is used strategically and with clear learning intent. These findings reinforce the present interpretation that, according to teacher participants, learners' use of AI for grammar, vocabulary, and organization can become an adaptive and self-regulated language support strategy.

The third theme is monitoring and revision of learning outputs. Another pattern emerging from the baseline findings is that teacher participants observed learners monitoring their learning progress and reflecting on their performance. In the context of AI-mediated English learning, this suggests that learners review AI-assisted drafts, revise their work before submission, and assess whether the final output reflects their intended meaning. This coping mechanism is important because AI may accelerate task completion, but without learner monitoring, the final product may be grammatically improved yet poorly understood, weakly owned, or misaligned with the

assignment. Thus, the challenge of AI-assisted convenience is directly connected to the self-regulatory response of monitoring and revision.

"I keep track of repeated mistakes, vocabulary I've learned, and feedback I get from AI or colleagues. Reflecting on these helps me see improvement. Writing down recurring grammar mistakes and checking them later helps me notice progress over time." T4, Teacher Participants

"I notice my progress when I use AI tools to support my reading and vocabulary learning, especially when I can understand classic novels more easily without searching for every word." T3, Teacher Participants

"I keep a list of new words I learn and compare them with AI-generated explanations to check if my understanding is correct. Reflecting on how much easier reading becomes, especially with AI support, helps me monitor my improvement and revise my learning strategies." T2, Teacher Participants

This finding indicates that teacher participants perceive learners as engaging in performance regulation. Monitoring and revision suggest that learners check the quality of their work and do not fully surrender the task to the tool, based on the observations of the teacher participants. Saleh and ElSayary (2025) similarly reported that students perceived GenAI as helpful for communication skills and efficiency, yet the educational value of these tools depended on how actively students remained engaged in understanding and refining their own outputs. In that sense, revision is the point where AI-assisted work becomes learning rather than simple completion.

The fourth theme is selective and responsible dependence on AI. The baseline findings indicate that teacher participants perceive learners as viewing AI positively while also recognizing the importance of responsible usage. At the same time, overreliance on AI appears elsewhere in the findings as a challenge. Taken together, the responses of the teacher participants suggest that some learners cope by deliberately limiting their dependence on AI. They may use it for brainstorming, clarifying language, or polishing output, while still preserving their own interpretation, organization, and decision-making. This suggests that learners are not simply deciding whether to use AI or not use it.

"As much as possible, I do not always immediately resort to the internet. I always try to think and use my schema and prior knowledge to solve my problem. And if I cannot find a solution within myself, then I go to the internet." T1, Teacher Participants

"If they cannot find any solutions within their background knowledge, then I think that is the time that they should look for answers online." T6, Teacher Respondents Participants

"I first attempt to resolve the issue myself by searching reliable sources or consulting references. And if I'm still unsure, I reach out to my colleagues or use AI tools for support. Well, I chose this approach because it encourages independent problem solving while ensuring accuracy before presenting anything to students." T3, Teacher Participants

This theme reflects learner agency and self-control. According to the perceptions of the teacher participants, learners who regulate their AI use are more likely to protect originality, understanding, and responsibility for their work. Tian and Zhang (2025) found that stronger AI dependence was associated with lower critical thinking, while information literacy helped buffer this relationship. Their findings suggest that responsible limitation is not merely an ethical preference but also a cognitive safeguard. The present data similarly indicate that selective dependence allows students to benefit from AI without letting it displace their own thinking and language production.

The fifth theme is feedback-seeking and collaborative adjustment. Although not elaborated extensively in the baseline findings, the patterns of monitoring, reflection, and responsible use suggest that, according to the teacher participants, learners do not rely on AI alone. Teacher participants reported that learners refine AI-assisted outputs through peer discussion, teacher consultation, or comparison with class expectations. This suggests that

self-regulated learning in AI-mediated environments is not always solitary; it may also involve social regulation through feedback and collaborative adjustment.

"I always ask my teacher first for clarity on what to do with the task then ask AI tools I have to simplify and give me just ample time to do the task efficiently in a small amount of time." T6, Teacher Participants

I believe working at my own pace and understanding lessons on my own with the help of AI tools available today can save me much time. I am in full control of my time, I can hop in one task to another simultaneously." T5, Teacher Participants

"I usually try to solve the problem myself first. If I can't figure it out, I look online or ask a colleague. I only use AI if I need a quick check or suggestion. Probe: I choose this because I want to be independent and also model good problem-solving for students." T4, Teacher Participants

This finding implies that learners use external feedback to confirm whether AI-assisted responses are accurate, appropriate, and aligned with academic standards, as reported by the teacher participants. In AI-mediated English learning, this matters because communication quality depends not only on grammatical correctness but also on discourse appropriateness, task relevance, and audience awareness. The role of AI literacy in communication is also supported by Zhang et al. (2025), who found that AI literacy positively influenced EFL learners' willingness to communicate through stronger AI learning self-efficacy and lower classroom anxiety. This suggests that students who better understand AI are more likely to use it confidently and communicatively, while still relying on external feedback to refine their performance.

Overall, the findings show that, according to the teacher participants, learners' adaptive strategies in AI-mediated English language learning are not random survival tactics but meaningful forms of self-regulation. Teacher participants consistently reported that learners maintain control over their academic work through verification, strategic tool use, revision, selective dependence, and feedback-seeking while using AI as a support tool. These coping mechanisms suggest that AI-mediated learning becomes more educationally valuable when students remain reflective, intentional, and accountable in how they use the tool. This implies that English language instruction should not only teach students how to access AI tools but also how to regulate, evaluate, and use them as part of purposeful language learning.

Compounding Challenges in Digital Literacy and Communicative Practice in AI-Mediated English Language Learning

The qualitative findings also revealed that, according to the teacher participants, the challenges learners encounter in AI-mediated English learning are not isolated problems. Rather, barriers in digital literacy and communicative practice often reinforce one another. When students rely too heavily on AI, lack access to technology, or struggle to evaluate AI-generated content, their communication practices may also weaken. In the same way, weaknesses in communication may push them toward greater dependence on AI. Following the presentation style of the sample qualitative chapter, these findings are presented thematically to show how the challenges are interconnected and how difficulty in one domain may exacerbate difficulty in another.

Table 9. Summary of Themes and Subthemes on Compounding Challenges in Digital Literacy and Communicative Practice in AI-Mediated English Language Learning

Category	Themes	Subthemes
Compounding Challenges on Digital Literacy	Overreliance on AI and Weakening of Independent Language Production	Passive acceptance of AI outputs; reduced original composition; dependence on instant answers
	Limited Access and Uneven Digital Readiness	Inadequate devices; unstable connectivity; unequal AI exposure; interrupted practice
	Weak Critical Evaluation of AI-Generated Content	Difficulty checking accuracy; inability to detect bias or misinformation; surface-level validation



Communicative Practice	Blurred Authorship and Academic Integrity Tensions	Unclear boundaries between assistance and substitution; plagiarism risk; uncertainty about responsible use
	Reciprocal Gaps Between Digital Literacy and Communicative Practice	Weak digital judgment affecting language quality; weak language skills increasing AI dependence

The first theme is overreliance on AI and the weakening of independent language production. The baseline findings explicitly identify overdependence on AI tools as one of the central challenges encountered by the respondents. This challenge becomes compounding because it affects not only digital behavior but also language performance. When learners depend too heavily on AI for drafting, correcting, organizing, or even thinking through ideas, they may engage less in the cognitive and linguistic effort required for independent English production. As a result, what begins as a digital convenience can gradually weaken communicative confidence, originality, and ownership of language use.

"I am sometimes scared of over-reliance on AI tools because I feel I may no longer critically use the knowledge I have gained over the years." T5, Teacher Participants

"I am also concerned about data privacy and how my personal information is stored and shared. For me, the main issue is academic integrity in the use of AI whether using it affects integrity or refusing it means falling behind. I believe AI should be used, but with proper guidance and responsible use." T6, Teacher Participants

"I think it is the overreliance and academic integrity. We cannot guarantee authentic outputs by just submitting what was required but I will bet that these responses do not come from AI." T2, Teacher Participants

This finding suggests that, according to the teacher participants, overreliance on AI is not simply a matter of excessive tool use but a compounding educational problem. Teacher participants observed that excessive dependence on AI may reduce learners' engagement in critical evaluation, independent thinking, and active language production. Tian and Zhang (2025) found that greater AI dependence was associated with lower critical thinking, with cognitive fatigue partly explaining this relationship. Their findings imply that when learners offload too much thinking to AI, their capacity for reflective judgment may weaken. In the context of language learning, this is particularly significant because critical thinking and independent expression are closely linked to meaningful communication. Consistent with the perceptions of the teacher participants, the present findings suggest that overreliance on AI may contribute to communicative weaknesses by reducing learners' opportunities to formulate, organize, and defend their own ideas in English.

The second theme is limited access and uneven digital readiness. The baseline findings also identify limited access to technology as a major challenge. In AI-mediated English learning, limited access may include unstable internet connectivity, inadequate devices, inconsistent exposure to AI tools, and insufficient familiarity with how such tools are used for academic language tasks. This challenge compounds because weak digital access reduces students' opportunities to practice writing, revise outputs, receive automated feedback, and engage in interactive digital communication. In short, uneven access to technology also means uneven access to communicative development.

"Sometimes AI suggestions are not fully accurate or contextually appropriate. Technical issues like slow internet, platform errors, or limited access can also pose challenges. And honestly, the most frequent challenge is ensuring that AI output aligns with the learning objectives and the students' comprehension levels." T4, Teacher Participants

"I do not experience major challenges because I consider myself tech-savvy and able to navigate emerging technologies. However, I identified paywalls and subscription fees in AI tools (e.g., ChatGPT Plus) as a limitation that restrict access and engagement." T1, Teacher Participants

This finding suggests that barriers in digital literacy can directly intensify barriers in communication. Saleh and ElSayary (2025) reported that students often used GenAI frequently despite only low to moderate familiarity with the tools, indicating that high exposure does not always mean strong understanding. This pattern is educationally risky because students may participate in AI-mediated learning without sufficient readiness to use the tools critically or purposefully. In such cases, limited digital readiness can result in superficial language practice, dependency on trial-and-error use, and reduced ability to benefit from AI-supported communication tasks.

The third theme is weak critical evaluation of AI-generated content. The baseline findings note that students verify AI-generated information and reflect on their learning, which implies that AI outputs cannot be assumed to be automatically reliable. The challenge arises when learners lack sufficient critical digital literacy to determine whether AI-generated content is accurate, contextually appropriate, logically sound, or linguistically suitable for academic English tasks. This becomes a compounding difficulty because weak digital judgment can directly lead to weak communicative output, including inaccurate claims, vague explanations, and poorly understood written or spoken responses.

"Perhaps my issue is data privacy. Of course, ChatGPT is very useful, so it is inevitable for us to use ChatGPT. And my concern is that whatever information I give to ChatGPT will be part of its data warehousing. It will be stored in their system, and that is a piece of my information. I am not comfortable that the information I give them will be processed in other ways and other means." T3, Teacher Participants

I think that's my biggest challenge or issue. I'm not completely aware of how my data is processed. But because of ChatGPT's influence, I don't care anymore how my data will be used and processed by OpenAI. So, I think that's my crossroad now in terms of using AI." T2, Teacher Participants

There was a time I cannot cross-check my work because AI tools cannot function without internet connection. I passed my output without the full confidence that would get good marks. I just the teacher checks my actual output I have made myself with AI assisting me. Thankfully, I passed. T3, Teacher Participants

This theme suggests that, according to the teacher participants, the problem is not only technological but also communicative. Teacher participants observed that when learners struggle to evaluate digital content critically, the quality of their language use may suffer even when AI-generated text appears polished on the surface. Tian and Zhang (2025) likewise found that information literacy helped buffer the negative effects of AI dependence, reinforcing the idea that critical digital judgment is necessary to protect both thinking quality and communication quality. Consistent with the perceptions of the teacher participants, the present findings indicate that weak evaluation skills may contribute to communicative errors, distort understanding, and hinder authentic language development.

The fourth theme is blurred authorship and academic integrity tensions. The baseline findings indicate that teacher participants perceive AI as a helpful educational tool while emphasizing the importance of its responsible use. Their responses suggest that learners may be uncertain about where acceptable assistance ends and inappropriate substitution begins. According to the teacher participants, AI-mediated English tasks may create confusion regarding how much of a response can still be considered the learners' own work, when revision becomes excessive dependence, or when AI support crosses into plagiarism. Such uncertainty represents a compounding challenge because it affects both digital ethics and communicative authenticity.

"I worry that students may rely too much on AI, get wrong information, or lose confidence in their own skills. Privacy and academic honesty are also concerns. Because of this, I always remind students to check AI suggestions carefully and not just copy them." T4, Teacher Participants

"Well, my concerns about AI tools are, you know, over-reliance, inaccurate suggestions, privacy issues, and the temptation to depend on AI instead of teaching critical thinking. Well, these concerns made me carefully review output before using them in class and emphasize ethical and responsible use to students." T6, Teacher Participants

This finding indicates that, according to the teacher participants, ethical uncertainty can weaken genuine communication by encouraging learners to submit polished language that they may not fully understand or claim as their own. Bittle and El-Gayar (2025), in their systematic review of GenAI and academic integrity in higher education, concluded that while GenAI can improve efficiency and engagement, it also introduces serious risks related to originality, ethical student behavior, and academic dishonesty. Their review supports the present finding that learners need clearer guidance on responsible AI use so that technological assistance supports rather than undermines authentic language learning and academic integrity.

The fifth theme is reciprocal gaps between digital literacy and communicative practice. The baseline qualitative findings and the broader mixed-methods results suggest that, according to the teacher participants, digital literacy and communicative competence are closely interconnected in AI-mediated learning. This relationship also implies that weaknesses in one area may intensify challenges in the other. Teacher participants observed that learners with limited digital judgment may use AI-generated material inappropriately, thereby reducing the quality and authenticity of their communication. Conversely, learners with limited communicative confidence or weaker language proficiency may become increasingly dependent on AI to speak, write, or organize ideas, which may heighten the risk of passive dependence and reduced engagement in the language-learning process.

"Limited digital skills can make it harder to fully utilize AI for teaching while difficulties in English comprehension may lead to misusing AI outputs. So let's say, for example, misunderstanding AI feedback may lead to incorrect exercises for students, creating a chain reaction of confusion and extra workload." T1, Teacher Participants

"I think when we are overly exposed to technology, our brains become less actively engaged because we are constantly stimulated and driven by digital pleasure. As a result, when we are required to use our macro skills like listening, speaking, reading, and writing independently without AI tools, we experience a delay in thinking and information processing." T5, Teacher Participants

This theme captures the compounding nature of the challenge more fully. According to the teacher participants, the issue is not simply that learners face separate digital and communication difficulties, but that these challenges may reinforce one another. Feng et al. (2025), in their systematic review of AI in second language writing, concluded that AI introduces both opportunities and challenges, particularly in relation to AI literacy, ethics, and the quality of writing development. Likewise, Zhang et al. (2025) found that AI literacy influences learners' willingness to communicate by improving self-efficacy and reducing anxiety. Together, these studies reinforce the present finding that, as perceived by the teacher participants, digital and communicative challenges in AI-mediated English learning are reciprocal rather than isolated.

The findings show that, according to the teacher participants, the challenges learners encounter in AI-mediated English language learning are layered and mutually reinforcing. Teacher participants observed that overreliance on AI, limited digital readiness, weak evaluation of AI-generated content, and blurred authorship extend beyond digital tool use and influence how learners think, write, speak, and communicate in English. These findings suggest that instructional interventions should not treat digital literacy and communicative competence as separate domains. Instead, English language teaching in AI-mediated contexts should deliberately integrate AI literacy, critical digital evaluation, academic integrity, and communicative practice so that learners can become both responsible users of AI and competent users of English.

The quantitative findings revealed that respondents demonstrated a high overall level of digital literacy, with personal security skills emerging as the strongest dimension and critical skills receiving the lowest mean among the digital literacy components. Although the overall results indicate that learners possess substantial digital competencies, the qualitative findings provide important context for understanding the relatively weaker performance in critical digital literacy. Teacher participants consistently observed that learners sometimes struggle to evaluate the accuracy, credibility, and appropriateness of AI-generated content. Themes such as weak evaluation of AI outputs, blurred authorship, and overreliance on AI suggest that learners may possess the technical ability to use digital tools while still requiring stronger critical judgment skills. These qualitative



insights reinforce the quantitative finding that critical digital literacy remains a developmental area despite generally high levels of digital competence.

Similarly, the quantitative results showed that respondents exhibited high overall communicative competence, although grammatical competence and discourse competence obtained relatively lower mean scores compared with the other dimensions. The qualitative findings help explain these results by revealing that teacher participants frequently observed learners relying on AI tools for grammar correction, idea generation, and organization of written outputs. While AI-assisted support may enhance language production and confidence, excessive dependence may limit opportunities for learners to independently construct, organize, and refine their own language. The themes of strategic AI use and selective dependence on AI therefore suggest that AI can serve as a valuable learning aid when used responsibly but may also contribute to weaker development of grammatical accuracy and discourse organization when learners become overly reliant on generated outputs.

The significant positive relationship between digital literacy and communicative competence is further supported by the qualitative findings. Teacher participants observed that learners who demonstrated stronger digital judgment, responsible AI use, and reflective verification practices were also more capable of engaging meaningfully in English communication tasks. Conversely, challenges related to AI overreliance, weak evaluation skills, limited digital readiness, and blurred authorship appeared to affect both digital literacy and communicative performance simultaneously. These convergent findings indicate that digital literacy and communicative competence are not independent constructs in AI-mediated learning environments. Rather, they function as interconnected competencies that mutually influence learners' ability to engage critically, ethically, and effectively in English language learning.

Evidence-Based Framework Developed from the Findings on Digital Literacy, AI-Mediated Literacy Practices, and Communicative Competence in English

BRIDGE Framework: A Teacher-Guiding Framework for Using Digital and AI-Mediated Literacy Practices to Foster Learners' Communicative Competence in English

Rationale

Based on the findings of the study, an evidence-based framework was developed to guide teachers in using digital and AI-mediated literacy practices to foster learners' communicative competence in English. The need for this framework emerged from the convergence of both quantitative and qualitative findings. Quantitatively, the respondents demonstrated a high level of digital literacy and a high level of communicative competence, and the two variables showed a significant strong positive relationship. This means that learners who possess stronger digital literacy also tend to demonstrate stronger communicative competence in English. At the same time, the findings revealed that critical digital literacy was the weakest area within digital literacy, while grammatical competence and discourse competence were the relatively weaker dimensions within communicative competence.

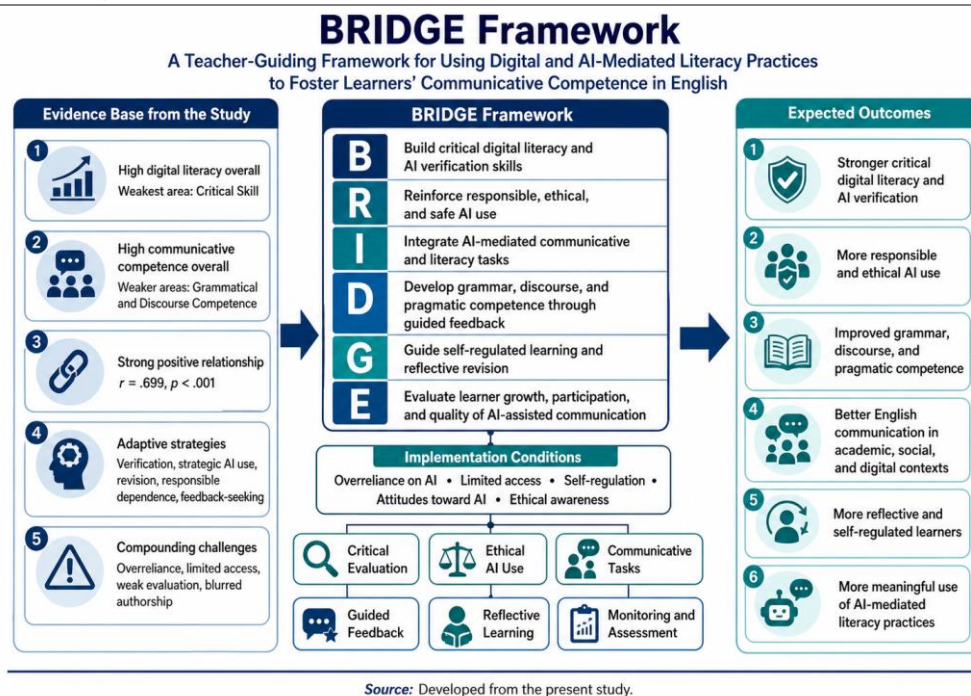


Figure 3. BRIDGE Framework

In addition, year level showed a significant difference in overall digital literacy, while seminars or trainings appeared to matter more in specific areas such as critical and informational skill than in overall digital literacy. These results suggest that while students are generally capable users of digital and AI-supported tools, they still need more structured support in critical evaluation, responsible use of AI, grammar improvement, and discourse organization.

The qualitative findings further strengthened this need. Students reported adaptive strategies such as reflective verification of AI-generated content, strategic use of AI for grammar and language support, monitoring and revision of outputs, selective and responsible dependence on AI, and feedback-seeking through peer or teacher support. At the same time, they also experienced compounding challenges such as overreliance on AI, limited access to technology, weak evaluation of AI-generated content, blurred authorship, and reciprocal gaps between digital literacy and communicative practice. The qualitative findings also explicitly suggested that AI should be integrated through structured programs and training, not through unregulated or casual use. Taken together, these findings indicate that teachers need a clear framework that moves classroom AI use from scattered experimentation to guided, reflective, ethical, and communicatively purposeful practice.

The proposed framework is therefore designed as a practical guide for English language teachers in higher education, particularly in AI-mediated learning environments. Its purpose is to help teachers connect digital literacy instruction with communicative competence development through structured classroom practices, ethical safeguards, reflective learning routines, and systematic monitoring. Instead of treating digital literacy and communicative competence as separate domains, the framework positions them as interdependent competencies that must be developed together if learners are to communicate meaningfully and responsibly in English in the age of Generative AI. This responds directly to Research Question 9 of the study.

Major Components of the BRIDGE Framework

Build Critical Digital Literacy and AI Verification Skills

The first component focuses on strengthening learners' critical digital literacy, particularly their ability to evaluate digital information and verify AI-generated outputs. This component is necessary because critical skill emerged as the lowest area in digital literacy even though the overall level remained high. The findings suggest that students are generally capable of operating digital tools, but still need stronger guidance in questioning, comparing, and validating information. Qualitative findings also showed that learners already use reflective verification as a coping mechanism, which means this practice can be intentionally developed into a formal instructional routine.

Under this component, teachers should design activities that require students to compare AI-generated responses with class materials, scholarly sources, and their own interpretations. This may include source-validation tasks, AI-output checking exercises, prompt-comparison tasks, and credibility analysis activities. The goal is not to discourage AI use, but to prevent students from accepting machine-generated content uncritically.

Reinforce Responsible, Ethical, and Safe AI Use

The second component responds to the qualitative findings on overreliance, blurred authorship, and the need for responsible use, as well as the quantitative finding that respondents are strong in personal and device security but still need structured ethical guidance. The current output already includes responsible AI use training and cyber safety awareness, but these need to be elevated from stand-alone seminars into a framework component that teachers apply continuously in classroom practice.

This component requires teachers to establish clear norms for AI use in English tasks, including when AI may be used, how AI-assisted work should be revised, how authorship is preserved, and how ethical boundaries are maintained. Lessons should explicitly address privacy, plagiarism, prompt responsibility, acceptable assistance, and the distinction between using AI as a support tool and using it as a substitute for learning. This component is necessary because the study's qualitative findings show that AI can support learning, but only when students remain aware of the risks of dependence, academic dishonesty, and weak authorship.

Integrate AI-Mediated Communicative and Literacy Tasks

The third component emphasizes the purposeful integration of AI-mediated activities into communication-oriented English instruction. The strong positive relationship between digital literacy and communicative competence means that digital skill and communication performance should not be taught separately. Instead, AI-supported activities should be embedded in meaningful English tasks such as discussion preparation, vocabulary rehearsal, idea generation, drafting, summarizing, role-play, speaking simulation, and digital collaboration.

This component is also supported by qualitative findings, which show that students already use AI for grammar checking, idea generation, and language support. Teachers can build on these existing practices by designing tasks that require learners to communicate meaningfully through AI-supported but teacher-guided activities. This ensures that AI use remains communicative, purposeful, and aligned with learning outcomes rather than becoming a shortcut for task completion.

Develop Grammar, Discourse, and Pragmatic Competence Through Guided Feedback

The fourth component addresses the weaker areas identified in the communicative competence results, particularly grammatical competence and discourse competence. Although respondents showed high overall communicative competence, they were relatively weaker in organizing extended communication and in grammatical accuracy than in sociolinguistic or strategic competence. This means that teachers should use AI



not only for general support but specifically for strengthening grammar-in-context, coherence, cohesion, paragraph development, discourse flow, and audience-appropriate communication.

Under this component, teachers may use AI-assisted writing revision, guided paragraph clinics, discourse mapping, feedback cycles, chatbot dialogue reflection, and pragmatic response analysis. However, the teacher remains central. AI may provide suggestions, but the teacher must still guide students in deciding which revisions improve meaning, coherence, and appropriateness. This component ensures that technology supports language development without replacing core instruction in how to construct and communicate ideas effectively.

Guide Self-Regulated Learning and Reflective Revision

The fifth component is grounded in the qualitative themes on monitoring and revision, selective and responsible dependence, and feedback-seeking and collaborative adjustment. These findings show that some students already display self-regulatory behaviors in AI-mediated learning. The framework therefore formalizes these strategies into a teacher-guided system of reflection, revision, and controlled AI use.

Teachers should require learners to reflect on how AI was used, what parts of the output were revised, what information was verified, and what decisions were made independently. Reflection logs, AI-use journals, revision checklists, and guided peer feedback may be used under this component. This is especially important because the qualitative findings suggest that AI becomes educationally valuable only when students remain reflective, intentional, and accountable in their use of the tool.

Evaluate Learner Growth, Participation, and Quality of AI-Assisted Communication

The sixth component focuses on monitoring outcomes. Like the sample framework's emphasis on evaluation and tracking, the BRIDGE Framework requires teachers to assess not only final language products but also the quality of students' AI-mediated learning processes. Since the study found that year level significantly affected digital literacy, and that specific training exposure mattered for critical and informational skills, teachers need assessment systems that can identify where learners are improving and where they still need support. This component proposes the use of rubrics for grammar, discourse, pragmatics, and digital responsibility; reflective checklists on AI use; performance tasks; digital portfolios; revision histories; and teacher observation of learner participation in AI-mediated communication activities. The goal is to ensure that growth is tracked not only in terms of output quality, but also in critical judgment, ethical use, and communicative ownership.

The proposed BRIDGE Framework may serve as the evidence-based output of the study because it is directly anchored in the quantitative and qualitative findings on digital literacy, communicative competence, and AI-mediated learning. It does not treat AI as a novelty or as a simple productivity tool. Instead, it translates the study's findings into a practical framework that teachers can use to guide learners toward critical digital judgment, ethical AI use, stronger grammar and discourse performance, self-regulated learning, and more meaningful communicative participation in English. In this sense, the framework offers a realistic and defensible guide for English teachers who seek to use digital and AI-mediated literacy practices not merely to accelerate classroom tasks, but to foster learners who are both responsible users of AI and competent communicators in English.

Table 10. BRIDGE Framework for Using Digital and AI-Mediated Literacy Practices to Foster Learners' Communicative Competence in English

Key Finding Identified	Related Qualitative/Quantitative Basis	Framework Component	Strategic Teacher Action	Expected Learner Outcome
Critical skill was the weakest area in digital literacy	High overall digital literacy, but critical skill was lowest; students reported reflective verification of AI-generated content	Build Critical Digital Literacy and AI Verification Skills	Conduct AI-output validation tasks, source-comparison exercises, credibility checks, and misinformation detection activities	Learners become more critical, discerning, and responsible in evaluating digital and AI-generated content
Overreliance, blurred authorship, and ethical uncertainty emerged as major challenges	Qualitative themes on overreliance, responsible dependence, and academic integrity tension; current output includes responsible AI and cyber safety programs	Reinforce Responsible, Ethical, and Safe AI Use	Establish clear classroom policies on AI use, teach privacy and academic integrity, require attribution/reflection on AI-assisted work	Learners use AI more ethically, safely, and with clearer ownership of their outputs
Digital literacy and communicative competence showed a strong positive relationship	$r = 0.699, p < .001$; digital literacy and communicative competence are strongly associated	Integrate AI-Mediated Communicative and Literacy Tasks	Embed AI in speaking, writing, discussion, vocabulary, summarizing, and collaborative literacy tasks	Learners use digital and AI tools to support meaningful English communication rather than task shortcutting
Grammatical competence and discourse competence were relatively weaker	High overall communicative competence, but grammar and discourse were lowest components	Develop Grammar, Discourse, and Pragmatic Competence Through Guided Feedback	Use AI-assisted revision, discourse mapping, paragraph clinics, grammar-in-context feedback, and pragmatic communication tasks	Learners improve coherence, cohesion, grammatical accuracy, and appropriateness in English communication
Students used monitoring, revision, selective dependence, and feedback-seeking as coping strategies	Qualitative themes on self-regulated learning and strategic AI use	Guide Self-Regulated Learning and Reflective Revision	Require revision logs, AI-use journals, peer review, reflection prompts, and guided self-checking routines	Learners become more reflective, self-regulated, and accountable in AI-mediated learning
Year level significantly affected digital literacy; training mattered for critical and informational skills	Significant overall digital literacy difference by year level; specific training effects on critical and informational skill	Evaluate Learner Growth, Participation, and Quality of AI-Assisted Communication	Use developmental rubrics, digital portfolios, AI-use checklists, and differentiated monitoring by learner readiness	Teachers generate clearer evidence of learner growth and can better target support based on readiness and need

The proposed BRIDGE Framework may serve as the evidence-based output of the study because it is directly anchored in the quantitative and qualitative findings on digital literacy, communicative competence, and AI-mediated learning. It does not treat AI as a novelty or as a simple productivity tool. Instead, it translates the study's findings into a practical framework that teachers can use to guide learners toward critical digital

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The Policy–Instruction–Practice Model serves as the operational structure of the BRIDGE Framework by linking institutional policies, instructional processes, and learner practices into a unified system for AI-mediated English language learning. The model recognizes that the successful integration of artificial intelligence in education requires more than access to technology; it requires coordinated support from school leadership, teachers, and learners.

At the policy level, the institution establishes the foundation for responsible and effective AI integration. School administrators provide direction through AI governance policies, faculty development programs, resource allocation, and ethical guidelines. The adoption of the BRIDGE Framework as part of the school's AI policy ensures that the use of artificial intelligence remains aligned with educational goals, academic integrity, digital literacy development, and communicative competence enhancement. Policies create the standards and expectations that guide all AI-related practices within the institution.

At the instructional level, teachers translate policy into classroom action. Using the BRIDGE Framework, educators design learning experiences that progressively develop digital literacy, reflective learning, AI integration, discourse development, guided critical evaluation, and ethical AI use. Through carefully structured activities, students are taught not only how to use AI tools but also how to evaluate information critically, communicate effectively, and engage responsibly with technology. Instruction therefore functions as the bridge between institutional expectations and learner outcomes.

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At the practice level, students demonstrate the competencies promoted by the framework through their actual learning behaviors. Learners apply digital literacy skills, engage in reflective learning, use AI tools purposefully, develop coherent discourse, verify information critically, and uphold ethical standards in academic work. These practices transform theoretical knowledge into observable behaviors and measurable learning outcomes. Through repeated engagement, students develop habits of responsible AI use, self-regulation, critical thinking, and effective communication.

The interaction among policy, instruction, and practice creates a continuous cycle of improvement. Institutional policies support teachers, teachers implement BRIDGE-based instruction, and students apply the framework in authentic learning situations. Feedback from classroom implementation may then inform future instructional improvements and policy refinements. This cyclical process ensures that AI integration remains responsive, ethical, and educationally meaningful.

Ultimately, the Policy–Instruction–Practice Model operationalizes the BRIDGE Framework by ensuring that AI-mediated English language learning is not limited to technology use alone. Instead, it promotes a coordinated approach in which institutional support, pedagogical guidance, and learner engagement collectively contribute to the development of digitally literate, communicatively competent, critically reflective, and ethically responsible learners.

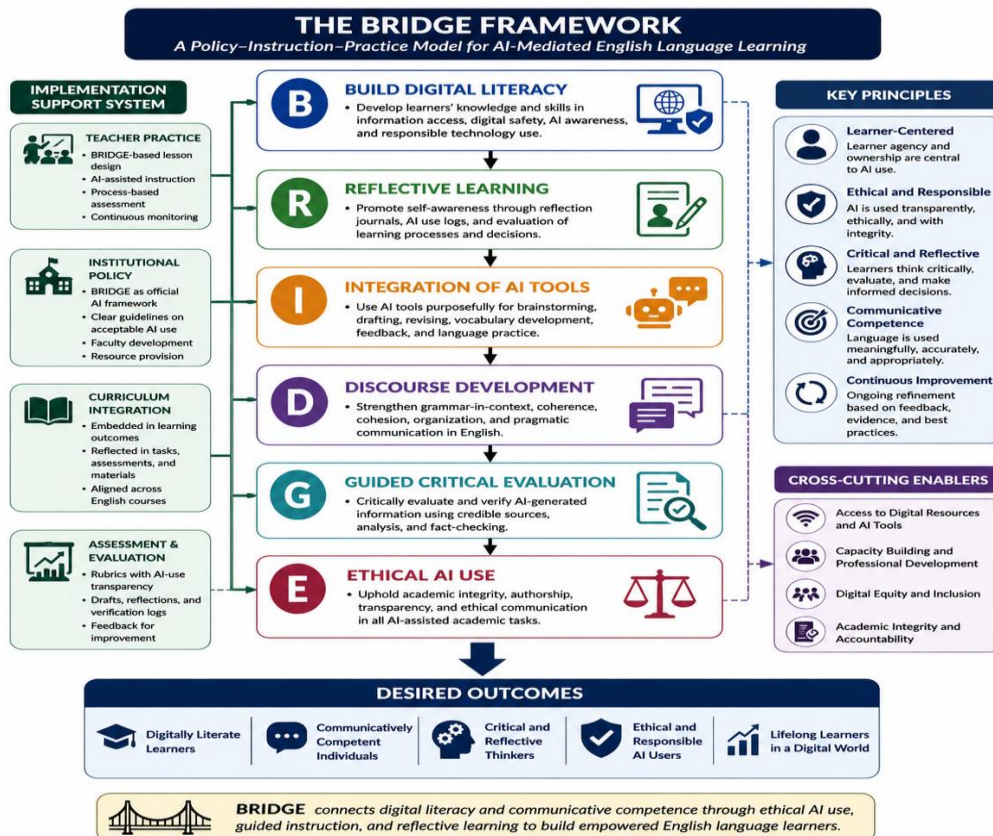


Figure 4. Policy Instruction Practice Model

CONCLUSION

Based on the findings of the study, it is concluded that English language learners are generally digitally literate and communicatively competent, yet these competencies are developed unevenly across different dimensions. While learners demonstrate strong capabilities in areas such as personal and device security, informational access, and basic communicative functions, their critical digital literacy, grammatical accuracy, and discourse-level competence remain comparatively weaker. This imbalance suggests that although students are active users of digital and AI-supported tools, their ability to critically evaluate information and produce sustained, well-structured academic communication still requires further development.

The study further concludes that digital literacy and communicative competence are closely and meaningfully interconnected in AI-mediated English language learning environments. The significant positive relationship between the two variables indicates that learners who possess higher levels of digital literacy are also more likely to demonstrate stronger communicative competence in English. However, this relationship should not be interpreted as a direct cause-and-effect mechanism; rather, it reflects the complementary nature of both constructs in contemporary learning contexts where communication increasingly occurs through digital platforms and AI-assisted tools.

In addition, the study concludes that profile variables contribute only limited explanatory power in determining learners' overall digital literacy and communicative competence. Most demographic and academic characteristics do not significantly differentiate these competencies at the general level. However, certain variations across academic progression suggest that exposure to higher-level academic demands and continued engagement with digital tasks may gradually enhance specific skills. This indicates that the development of digital literacy and communicative competence in AI-mediated environments is progressive, context-dependent, and shaped more by learning experiences than by fixed personal characteristics.

Furthermore, the qualitative findings lead to the conclusion that learners are active and adaptive users of AI technologies rather than passive recipients of automated outputs. They employ strategies such as verification, revision, selective dependence, and feedback-seeking to manage their learning processes. Despite these adaptive behaviors, challenges such as overreliance on AI, limited critical evaluation, inconsistent digital readiness, and blurred authorship persist. This suggests that while AI tools can enhance efficiency and provide academic support, they also carry the risk of weakening independent thinking, critical judgment, and authentic language production when not properly guided.

The study also concludes that critical digital literacy, grammar, and discourse competence represent priority areas for instructional intervention. Learners appear more confident in accessing and using digital tools than in critically evaluating AI-generated content or constructing extended and coherent English discourse. This highlights the need for instructional approaches that go beyond tool usage and instead emphasize critical thinking, linguistic accuracy, textual organization, authorship awareness, and reflective engagement with AI-generated outputs.

Finally, the study concludes that the BRIDGE Framework is a relevant and empirically grounded instructional model derived from the integration of quantitative and qualitative findings. The framework provides a structured approach for aligning digital literacy, communicative competence, ethical AI use, grammar development, discourse construction, and self-regulated learning. More importantly, it supports a shift in AI-mediated English language learning from uncritical tool dependence toward intentional, reflective, and communicatively meaningful practice. In essence, the framework positions AI not as a substitute for learning, but as a guided support system that enhances meaningful language development, critical engagement, and responsible communication.

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