



The Role of Digital Literacy in Reducing Students’
English-Speaking Anxiety among Indonesia
EFL Learners: A Systematic Literature Review

Ervin Okta Viani¹, Mai Zuniati², Umar Al faruq A. Hasyim³
^{1,2,3}University of Ma'arif Lampung, Metro

Article Info	Abstract
Received: 2026-04-18 Revised: 2026-06-27 Accepted: 2026-06-30 Keywords: digital literacy, English speaking anxiety, EFL learners, systematic literature review DOI: 10.24256/ideas.v14i1.10200 Corresponding Author: Ervin Okta Viani Erfinoktaaja10@gmail.com University of Ma'arif Lampung, Metro	English speaking anxiety remains a major affective barrier among Indonesian EFL learners, compounded by sociocultural norms of face-saving and limited authentic speaking practice in traditional classroom settings. Despite growing interest in technology-enhanced language learning, prior research has largely examined digital tools in isolation rather than as an integrated competency framework, leaving a gap in understanding how digital literacy functions holistically as an affective support system. This study examined the role of digital literacy in reducing English speaking anxiety, identified the most effective digital literacy components, and synthesized key findings from prior research. A Systematic Literature Review (SLR) following the PRISMA 2020 protocol was conducted across Google Scholar and ERIC databases. From 1,490 initially retrieved records, 20 empirical articles published between 2020 and 2025 were systematically selected and analyzed. A key novelty of this study lies in its application of Indonesia’s National Digital Literacy Framework (Kominfo) as the sole analytical lens—a methodological choice grounded in national educational policy rather than generic Western-derived models. This framework conceptualizes digital literacy through four pillars: Digital Skills, Digital Ethics, Digital Safety, and Digital Culture. Findings demonstrate that digital literacy reduces speaking anxiety through three interrelated mechanisms: alleviating performance pressure via asynchronous platforms; creating psychologically safe practice environments through AI-based tools; and fostering

confidence through repetitive digital practice. These findings confirm that digital literacy functions not merely as a technical competency but as a holistic affective support system for EFL learners. For EFL educators, these findings suggest that instructional designs integrating asynchronous speaking tasks, AI-based feedback tools, and culturally sensitive digital scaffolding can meaningfully lower the affective filter and promote communicative confidence among Indonesian learners.

1. Introduction

In today's era of globalization, mastery of English speaking skills has become a crucial competency, especially for English as a Foreign Language (EFL) learners in Indonesia (Hening & Arsari, 2022). Compared to other aspects of language, speaking is considered the most complex challenge because it requires cognitive abilities to process vocabulary, grammar, and articulation simultaneously in real-time communication (Abdullah et al., 2022).

However, the main obstacle often encountered in the field is not merely linguistic limitations, but rather the phenomenon of speaking anxiety (Horwitz et al., 2019). This psychological condition involves emotional pressure, information processing disorders, and physical manifestations such as excessive nervousness (Juwaidah et al., 2025). This problem is exacerbated by local cultural values that uphold the concept of "face-saving," where the fear of negative judgment or embarrassment when making mistakes in public often inhibits students' courage to communicate actively (Meliyani & Utomo, 2022).

This situation is further intensified by a range of structural factors within the educational system, such as teaching methods that are still teacher-centered, limited space for authentic communication practice, and too many students in one class, which turns speaking activities into high-pressure situations (Fauzi & Asi, 2023). Such conditions create an unfavorable learning environment that may increase students' anxiety and discourage them from actively participating in speaking activities, ultimately hindering the development of speaking fluency. (Pahamzah & Baihaqi, 2021).

In response to these challenges, digital literacy has emerged as a transformative competency that can reshape language learning experiences by providing access to interactive platforms and online communication spaces where students can practice speaking in a more flexible and psychologically safe environment (Nadianti, 2024).

Digital literacy generally refers to the knowledge, skills, and attitudes required to effectively utilize digital technologies for accessing, evaluating, and creating information (Falloon, 2020). Beyond technical proficiency, scholars increasingly recognize digital literacy as encompassing affective and social dimensions that are particularly relevant in language learning contexts (Hening & Arsari, 2022).

In the Indonesian context, this concept is reinforced by the National Digital Literacy Framework developed by the Ministry of Communication and Information Technology (Kominfo), which consists of four main pillars: Digital Skills, Digital Ethics, Digital Safety, and Digital Culture. Digital Skills refers to technical proficiency in operating digital devices and platforms; Digital Safety encompasses psychological security and data protection in digital environments; Digital Ethics addresses responsible and respectful online conduct; and Digital Culture relates to positive participation in digital society aligned with national cultural values.

This multi-dimensional framework positions digital literacy not as a singular technical skill but as a comprehensive competency that mediates learners' affective responses, including anxiety, in technology-enhanced learning environments. These components are increasingly recognized as important factors that may help reduce psychological barriers in language learning, particularly speaking anxiety among EFL students. This study seeks to answer three research questions: (1) How does digital literacy contribute to reducing English-speaking anxiety among Indonesian students? (2) Which components of digital literacy are most effective in alleviating speaking anxiety in English language learning contexts? (3) What key findings have been reported in previous studies regarding the relationship between digital literacy and speaking anxiety?

Previous studies have highlighted various factors contributing to speaking anxiety among EFL learners. Khafidhoh et al. (2023) found that anxiety is mainly caused by nervousness, lack of confidence, and fear of making mistakes, while preparation can help reduce it. Similarly, Gunawan (2026) identified fear of negative evaluation and unsupportive learning environments as major contributors to speaking anxiety. Internationally, MacIntyre and Gardner (1994) established that language anxiety operates as a distinct psychological construct directly inhibiting communicative performance, a finding echoed across diverse EFL contexts (Horwitz et al., 2019).

Research on computer-mediated communication (CMC) has further demonstrated that digital interaction reduces social presence and evaluative threat compared to face-to-face settings (Walther, 2015), suggesting a theoretical pathway through which digital literacy may mitigate anxiety. Studies on AI-assisted language learning similarly indicate that non-judgmental feedback environments promote risk-taking in oral production (Panggua et al., 2025; Khalik, 2025).

However, existing studies are insufficient for three key reasons: first, most examine specific tools or media rather than digital literacy as a unified, multi-dimensional competency; second, many focus on classroom practice without theorizing the deeper affective mechanisms at work; and third, no prior systematic literature review has synthesized this relationship using Indonesia's National Digital Literacy Framework (Kominfo), leaving an important contextual and theoretical gap. The absence of such a framework-grounded synthesis means that findings from individual studies cannot be meaningfully compared or integrated into coherent pedagogical guidance for Indonesian EFL educators.

In contrast, this study looks at digital literacy in a more complete way by using four main components: Digital Skills, Digital Safety, Digital Ethics, and Digital Culture, based on the Kominfo framework. This study also uses a Systematic Literature Review (SLR) to combine and analyze findings from many studies. The main contribution of this research is that it explains how digital literacy works as a complete system in reducing speaking anxiety, not just as a tool. It also identifies the most important components, especially Digital Skills and Digital Safety, in creating a safer and more comfortable learning environment. Therefore, this study provides a clearer and more comprehensive understanding of how digital literacy can reduce English speaking anxiety in the Indonesian EFL context.

The novelty of this study can be examined through three main aspects. First, this study views digital literacy as a single entity consisting of various interrelated aspects, rather than merely a collection of technical tools, by analyzing its contributions through the four pillars of the National Digital Literacy Framework formulated by the Ministry of Communication and Information Technology. Second, this study is the first Systematic Literature Review (SLR) that specifically uses the Ministry of Communication and Information Technology's framework as the sole basis for analyzing the correlation between digital literacy and speaking anxiety. a methodological choice that is both novel and significant, as it grounds the analysis within an officially endorsed national policy framework rather than generic or Western-derived models.

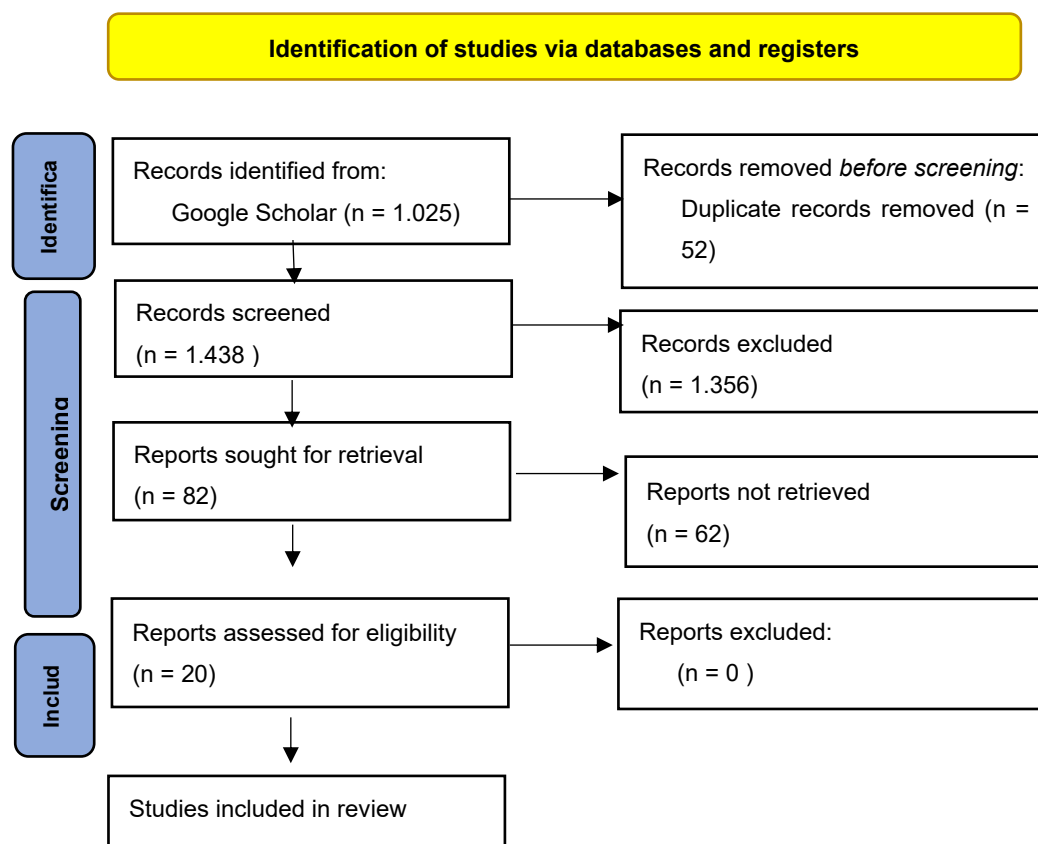
This approach allows for interpretations that are more relevant to the socio-cultural context in Indonesia, especially regarding the values of face-saving and collectivism, which have been the main triggers of anxiety in the classroom. Third, this study successfully identified several overlooked gaps in the literature, such as the lack of research at the high school/vocational school level, limited discussion of the dimension of digital ethics, and the absence of longitudinal studies.

2. Method

This study employed a Systematic Literature Review (SLR) design following the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. This approach enables a structured, transparent, and reproducible synthesis of existing empirical studies, minimizing selection bias and

maximising the relevance of included evidence (Pardede, 2025). Given the diversity of research designs, sample characteristics, and digital tools documented in prior studies, a qualitative narrative synthesis was adopted rather than a statistical meta-analysis.

In this study, a systematic review of the literature was conducted by searching for articles from two leading database, namely Google Scholar and Educational Resources Information Center (ERIC). The literature search was conducted using a combination of keywords and Boolean operators, including: (“digital literacy” OR “digital competence”) AND (“speaking anxiety” OR “foreign language anxiety”) AND (“EFL learners” OR “English learning”) AND Indonesia.



Picture 1. Prisma Flow Diagram

Analysis was guided exclusively by Indonesia's National Digital Literacy Framework published by Kominfo, which conceptualises digital literacy through four pillars: Digital Skills (technical proficiency with digital devices and platforms), Digital Safety (protection of personal data and psychological security in digital environments), Digital Ethics (responsible and respectful online conduct), and Digital Culture (positive engagement in digital society aligned with cultural values). This framework was selected to ensure contextual grounding in Indonesian educational policy and to enable culturally sensitive interpretation of findings.

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion Criteria	Exclusion Criteria
Research Focus	Studies examining digital literacy, digital competence, or technology-related skills in educational settings and/or English-speaking anxiety	Studies not related to digital literacy, technology in education, or speaking anxiety
Research Context	Conducted in Indonesian educational institutions or involving Indonesian EFL learners	Studies conducted outside Indonesian educational contexts
Research Design	Empirical studies using quantitative, qualitative, or mixed-method approaches	Non-empirical studies, such as conceptual papers, theoretical discussions, or opinion articles
Publication Type	Articles published in peer-reviewed academic journals	Publications in non-refereed sources, blogs, reports, or conference abstracts without peer review
Publication Year	Studies published between 2020 and 2025	Studies published before 2020
Accessibility	Articles available in full text in English or Indonesian	Articles not accessible in full text

Quality appraisal was conducted to assess the methodological rigor of the selected studies. The appraisal process was adapted from the Joanna Briggs Institute (JBI) Critical Appraisal Framework and focused on four criteria: (1) clarity of research objectives, (2) appropriateness of research design, (3) transparency of data collection procedures, and (4) consistency between findings and conclusions. Each study was reviewed against these criteria before being included in the final synthesis. Studies presenting substantial methodological weaknesses or insufficient reporting were excluded from the review. Following quality appraisal, a systematic coding procedure was applied to map included studies onto Kominfo's four pillars of digital literacy.

Each study was coded by identifying the primary digital literacy dimensions operationalized in the intervention or tool examined. For example, studies examining asynchronous recording platforms were coded as reflecting Digital Safety (psychological safety) and Digital Skills, while studies on social media speaking tasks were additionally coded as Digital Culture. Coding decisions were documented and reviewed iteratively to ensure consistency across the 20 included

studies. Regarding risk of bias, the review acknowledges several potential sources of systematic error.

First, limiting searches to two databases (Google Scholar and ERIC) may have introduced selection bias by excluding studies indexed only in Scopus, Web of Science, Dimensions, or ProQuest—a limitation that is discussed further in the conclusion.

Second, the inclusion of only Indonesian-context studies, while theoretically motivated, may limit generalisability and exclude relevant international findings. Third, publication bias is possible, as studies with positive outcomes are more likely to be published and indexed. These limitations were carefully considered during synthesis, and claims about the effectiveness of digital literacy interventions are qualified accordingly.

3. Result and Discussion

The study selection process followed the PRISMA 2020 framework across four stages: identification, screening, eligibility assessment, and inclusion. Searches in Google Scholar and ERIC yielded an initial pool of 1,490 records. After removing 52 duplicates, 1,438 records remained for title and abstract screening. Of these, 1,356 were excluded as they did not address digital literacy, speaking anxiety, or Indonesian EFL contexts. Full texts were sought for the remaining 82 articles; 62 were inaccessible, leaving 20 articles for eligibility assessment. All 20 met inclusion criteria and were retained for analysis.

Table 2. Summary of Included Studies

No	Author(s) & Year	Educational Level	Research Design	Digital Platform	Main Findings
1	Syamsudin & Budianto (2025)	University	Quantitative	Digital media	Digital media significantly reduced speaking anxiety and improved fluency and motivation among EFL students.
2	Meyer & Patty (2024)	University	Mixed-method	Vlog	Vlog creation reduced performance pressure through rehearsal and self-

No	Author(s) & Year	Educational Level	Research Design	Digital Platform	Main Findings
					monitoring, leading to increased confidence over time.
3	Surani et al. (2025)	Senior High School	Experimental	E-learning module	Structured e-learning modules improved speaking competence and reduced anxiety through repeated independent practice.
4	Khalik (2025)	University	Qualitative	Chatbot	Chatbots provided instant, non-judgmental feedback, increasing students' readiness and reducing anxiety in formal presentations.
5	Hanafiah et al. (2022)	University	Quantitative	CALL	CALL enhanced vocabulary mastery and speaking performance while significantly reducing foreign language anxiety.
6	Muslimin et al. (2022)	University	Mixed-method	Flipgrid	Flipgrid encouraged active participation; anxiety decreased due to re-recording

No	Author(s) & Year	Educational Level	Research Design	Digital Platform	Main Findings
					opportunities before submission.
7	Brilianti & Fauzi (2020)	University	Qualitative	Vlog	Vlog creation minimized public speaking anxiety by allowing preparation time and creative control.
8	Syahrizal & Pamungkas (2021)	University	Quantitative	Flipgrid	Students reported higher engagement and measurable reductions in nervousness.
9	Subekti & Damaryanan (2023)	University	Qualitative	Instagram	Speaking practice via Instagram enabled informal communication, reducing anxiety and increasing willingness to communicate.
10	Mahmud et al. (2025)	Vocational High School	Quantitative	Digital literacy tools	Higher digital literacy levels negatively correlated with speaking anxiety levels.
11	Panggua et al. (2025)	University	Mixed-method	AI-enhanced tools	AI tools improved academic speaking skills through structured feedback and simulated interaction.

No	Author(s) & Year	Educational Level	Research Design	Digital Platform	Main Findings
12	Bashori et al. (2021)	University	Experimental	ASR websites	ASR tools improved vocabulary and pronunciation while increasing enjoyment and reducing speaking anxiety.
13	Fauzi (2025)	University	Qualitative	TikTok Duet	TikTok Duet promoted interactive speaking practice and enhanced confidence in informal formats.
14	Wahyuni (2023)	Senior High School	Mixed-method	ICT tools	ICT integration reduced fear of making mistakes and created a more relaxed speaking environment.
15	Hapsari et al. (2022)	University	Quantitative	Voice Note	Asynchronous voice note tasks lowered anxiety by eliminating direct peer evaluation pressure.
16	Saptiany et al. (2025)	University	Qualitative	ChatGPT Voice Mode	AI voice interaction simulated real conversations in low-pressure settings, reducing speaking anxiety.
17	Kusuma et al. (2022)	University	Mixed-method	E-portfolio	E-portfolios fostered reflection and gradual

No	Author(s) & Year	Educational Level	Research Design	Digital Platform	Main Findings
					development, progressively reducing foreign language anxiety.
18	Widiastuti & Citta (2025)	University	Quantitative	Podcast	Podcast-based learning improved fluency and confidence through repeated exposure and practice.
19	Wahyuddin et al. (2022)	University	Quantitative	E-learning platform	Platform design influenced anxiety; interactive features reduced anxiety, while poor design increased it.
20	Bashori et al. (2022)	University	Experimental	Web-based tools	Flexible web-based learning environments reduced speaking anxiety and improved oral performance.

A. *The Role of Digital Literacy in Reducing English-Speaking Anxiety*

Based on Table 2, the analysis of the 20 reviewed studies indicates that there are three primary mechanisms in digital literacy that play a role in reducing anxiety about speaking English among EFL students in Indonesia. These three mechanisms are also implemented through various types of digital platforms used in the learning process, so that students can feel more comfortable practicing speaking.

The first and most observed mechanism is the reduction of performance pressure through the use of asynchronous digital features. Of the 20 studies analyzed, all reported a decrease in anxiety as either the primary or secondary outcome of digital technology use. In these studies, the absence of the need to speak directly and in real time proved to be a key factor in reducing students' anxiety.

Platforms such as Flipgrid, voice messaging apps, vlogs, e-learning modules, and various web-based platforms allow students to practice, revise, and resubmit their spoken recordings without having to face immediate evaluation from classmates.

This can be clearly seen in how digital media is used to facilitate students' speaking practice in a more flexible way. The use of digital media that allows students to record and review their spoken work has proven to provide students with the opportunity to prepare their communication skills more thoroughly before sharing them online (Muslimin et al., 2022). Several studies have also shown that the use of voice-messaging apps and digital recording tools helps students overcome their fear of speaking, as they can practice on their own before sending their recordings to teachers or classmates (Hapsari & Inayati, 2022).

Using vlogs as a learning tool gives students the opportunity to express their speaking skills in a more relaxed manner, as the recording process can be repeated until they are satisfied with the results (Meyer & Patty, 2024). The use of web-based learning platforms also allows students to access speaking materials and assignments flexibly, thereby minimizing performance pressure in the classroom (Surani, 2025). Additionally, the use of digital media in speaking instruction provides students with the opportunity to correct their mistakes before sharing their work, thereby reducing anxiety about making mistakes (Bashori et al., 2022).

This pattern aligns with Computer-Mediated Communication Theory, which posits that digital interaction reduces social pressure by lowering the level of social presence compared to face-to-face communication (Walther, 2015). directly addressing the communicative anxiety and fear of negative evaluation dimensions of foreign language anxiety.

The second mechanism involves the creation of a psychologically safer learning environment through the use of artificial intelligence-based technology. Several studies examining the use of chatbots, ChatGPT Voice Mode, and AI-based conversational platforms indicate that these technologies can provide immediate feedback without human social judgment. Research on the use of chatbots in language learning shows that interactions with digital agents allow students to practice speaking without fear of being judged by others (Khalik, 2025).

Another study on the use of ChatGPT Voice Mode also found that students felt more comfortable practicing speaking because the feedback provided was objective and did not involve social evaluation, as is often the case in interactions with humans (Saptiany & Hartono, 2025). Research on AI-based speaking platforms also indicates that this technology can boost students' confidence to try speaking because the risk of making mistakes does not result in embarrassing social consequences (Panggua et al., 2025).

This phenomenon is highly relevant in the context of Indonesia's socio-cultural landscape, which tends to be collectivist, where maintaining one's self-image in the presence of a group is of utmost importance and making mistakes in

public is often associated with feelings of shame(Meliyani & Utomo, 2022). By eliminating social risks in the speaking process, AI-based technology can serve as a form of affective support that helps lower the affective filter—a psychological barrier that can interfere with language comprehension and production when anxiety levels are high(Krashen, n.d.).

The third mechanism relates to the enhancement of students' self-confidence through repeated digital practice. Various studies utilizing technologies such as CALL, Automatic Speech Recognition (ASR), e-portfolios, and podcasts reveal a similar pattern: that repeated digital practice gradually improves students' linguistic readiness. The use of Computer-Assisted Language Learning (CALL) technology provides students with the opportunity to practice speaking independently under relatively low pressure, allowing their communication skills to develop gradually (Hanafiah et al., 2022).

The use of Automatic Speech Recognition (ASR) technology also allows students to receive immediate feedback on their pronunciation, enabling them to correct mistakes on their own and boost their confidence in speaking(Bashori et al., 2021). Additionally, the use of e-portfolios provides students with a space to document the development of their speaking skills over time, allowing them to see tangible improvements in their abilities(Indra & Corresponding, 2022). Recording podcasts as a speaking assignment has also been shown to help students improve their communication readiness, as they can practice repeatedly before publishing the recordings (Widiastuti & Citta, 2025).

B. Effective Components of Digital Literacy in Alleviating Speaking Anxiety

Findings from the 20 studies were systematically mapped onto Indonesia's National Digital Literacy Framework as formulated by Kominfo, which organises digital literacy competencies into four pillars: Digital Skills, Digital Safety, Digital Ethics, and Digital Culture. Table 3 presents the frequency distribution of studies associated with each pillar.

Table 3. Frequency Distribution of Digital Literacy Pillars Based on Kominfo Framework

No.	Digital Literacy Pillar (Kominfo)	Number of Studies	Percentage
1	Digital Safety	18	90%
2	Digital Skills	20	100%
3	Digital Culture	7	35%
4	Digital Ethics	4	20%

The findings of the analysis of the 20 reviewed studies indicate that the components of digital literacy play distinct yet complementary roles in reducing anxiety about speaking English among EFL learners in Indonesia. Thus, the results of this synthesis directly address Research Question 2, which concerns which components of digital literacy are most effective in reducing speaking anxiety in the context of English language learning.

The most dominant component is Digital Skills, which appeared in all of the studies analyzed (100%). This component refers to students' technical ability to operate digital devices and navigate various online learning platforms. The presence of this component indicates that digital competence is a key prerequisite before the affective benefits of technology can be realized. Several studies indicate that limited digital skills can increase students' cognitive load as they must focus on using unfamiliar technology (Mahmud & Weda, 2025). Difficulties in using digital platforms can also disrupt the process of oral language production and exacerbate speaking anxiety. Conversely, when students' digital skills are adequate, they can focus their attention on language communication, resulting in smoother speech and reduced anxiety levels.

The second most influential component in reducing anxiety is Digital Safety, which was identified in 18 studies (90%). Within the Ministry of Communication and Information Technology's framework of digital literacy, this concept encompasses a sense of psychological safety in the digital environment, where students feel free to practice, make mistakes, and improve their performance without fear of social judgment. This safe learning environment is evident in the use of various asynchronous platforms such as vlogs and voice recordings, AI-based technologies that provide feedback without social evaluation, as well as e-learning platforms that allow for self-directed practice before performing in front of others.

The next component is Digital Culture, which was identified in seven studies (35%). This component relates to positive participation in digital culture and the use of social media as a space for self-expression. The use of platforms such as Instagram, TikTok, and vlogs allows students to view speaking tasks as creative activities rather than as a form of formal assessment. This shift in perspective helps reduce communication anxiety because students position themselves as digital content creators, not as language test takers.

The final component is Digital Ethics, which appeared in only four studies (20%). This component relates to the development of polite and mutually respectful communication behaviours in online interactions. Although its contribution to reducing anxiety is not as significant as that of other components, several studies suggest that positive digital interaction norms can create a more supportive and psychologically safe learning environment.

The limited representation of Digital Ethics in the literature warrants critical examination. One explanation is that most reviewed studies focused on individual speaking tasks and solo digital practice, which do not inherently foreground ethical dimensions of online interaction.

Additionally, the absence of longitudinal studies in the corpus means that longer-term consequences of digital ethics—such as the development of respectful online communication habits and their downstream effects on anxiety—have not been captured. This represents a significant gap: as EFL learners increasingly participate in public digital spaces (TikTok, Instagram, podcasting platforms), the ethical dimensions of online self-presentation and peer interaction may become increasingly relevant to speaking anxiety. Future research should specifically investigate how ethical digital communication norms mediate confidence and anxiety in participatory digital contexts.

Overall, these findings indicate that Digital Skills and Digital Safety are the most effective components of digital literacy in reducing speaking anxiety, while Digital Culture and Digital Ethics serve as supporting factors that reinforce a safe and expressive digital learning environment. However, this distribution also reflects the current state of the literature rather than necessarily the true importance of each pillar. The dominance of Digital Skills and Digital Safety may partly reflect the operational focus of most studies on specific technical tools, rather than the full spectrum of digital literacy competencies.

Comparing findings across educational levels also reveals an important imbalance: 16 of the 20 reviewed studies involved university students, with only two studies at the senior high school level and one at vocational high school. This university-dominated evidence base limits the generalisability of findings to secondary education contexts, where speaking anxiety may manifest differently due to age, institutional culture, and differential access to digital infrastructure. These contextual differences should be explicitly accounted for in future research designs.

C. Key Findings on the Relationship Between Digital Literacy and Speaking Anxiety

Based on the data in Table 2, this provides a comprehensive overview of how digital literacy is implemented across various educational levels and devices. By mapping out the research designs and digital tools used, a clear pattern emerges regarding the relationship between digital literacy and reduced anxiety among EFL students when speaking English. Among the many studies reviewed, there are at least four key finding that demonstrate how digital skills consistently help students become more confident and less anxious.

First, asynchronous platforms reduce performance pressure. Vlogs, Flipgrid, and voice notes allow students to record and refine their output before submission, shifting speaking from a public, evaluative act into a controlled private practice.

Second, AI-based tools create judgment-free practice environments. Chatbots and conversational platforms let students practice speaking without social evaluation, reducing anxiety and simultaneously improving spoken performance.

Third, repeated digital practice builds self-confidence. CALL, ASR, and e-portfolio tools enable sustained practice with visible progress, helping students monitor skill development and gradually reduce anxiety.

Fourth, social media platforms offer authentic, low-pressure communication contexts. Instagram, TikTok, and vlogs reframe speaking tasks as creative expression rather than formal assessment, encouraging students to see themselves as content creators rather than language test-takers.

Recent findings emphasize the importance of a supportive learning environment in determining the effectiveness of digital technology use. Research shows that poor platform design, complicated navigation, or a lack of teacher guidance can actually increase student anxiety (Korompot & Baa, 2022). Conversely, when digital technology is integrated into well-designed learning and supported by teachers' pedagogical competencies, its affective benefits are maximized (Syamsudin et al., 2025). It is important to note, however, that not all findings in this corpus pointed unequivocally toward positive outcomes.

Wahyuddin et al. (2022) found that poorly designed e-learning platforms could increase anxiety rather than reduce it, highlighting that the anxiety-reducing potential of digital literacy is not inherent to technology per se but is contingent on pedagogical design, teacher mediation, and learner digital readiness. Furthermore, the reviewed studies were largely silent on potential risks associated with heavy digital technology use, including digital dependence, privacy concerns in public digital spaces, unequal access to devices and internet connectivity among learners from lower socioeconomic backgrounds, and technological fatigue from sustained exposure to screen-based learning.

These limitations suggest that the affective benefits documented in this review should be understood as context-dependent rather than universal, and that implementation of digital literacy-based interventions requires careful attention to equity and infrastructure. Compared with international SLR findings on technology and language anxiety—which similarly identify asynchronous formats and AI feedback as anxiety-reducing (e.g., Dehghani & Davoudi, 2021; Tsai, 2022)—this study's findings are broadly consistent, while adding the important dimension of a culturally-grounded national framework as an interpretive lens.

Collectively, these findings underscore that digital literacy reduces speaking anxiety not through any single mechanism, but through the interplay of asynchronous affordances, AI-mediated safety, progressive skill-building, and culturally familiar digital contexts. From a theoretical standpoint, this study advances the existing literature in two key ways. First, it extends Computer-Mediated Communication Theory (Walther, 2015) by demonstrating that its anxiety-reducing mechanisms operate not only in peer communication contexts

but also in individual, AI-mediated speaking practice environments. Second, it deepens the application of Krashen's Affective Filter Hypothesis by showing that digital literacy, operationalised through the Kominfo framework, functions as a multi-dimensional filter-lowering mechanism rather than a single technological intervention.

The application of Kominfo's nationally-endorsed framework as the analytical lens—rather than a generic Western-derived digital literacy model—represents a methodologically novel contribution, enabling interpretations that are grounded in Indonesian socio-cultural and policy contexts and thus more directly actionable for Indonesian EFL educators and curriculum designers.

5. Conclusion

This study examined the role of digital literacy in reducing English-speaking anxiety among Indonesian EFL learners based on 20 reviewed studies. The findings show that digital literacy reduces anxiety through three main mechanisms: lowering performance pressure via asynchronous platforms, providing psychologically safe environments through AI-based tools, and building confidence through repeated digital practice.

In terms of digital literacy components, Digital Skills and Digital Safety are the most influential, while Digital Culture and Digital Ethics serve as supporting factors in creating a positive learning environment. Additionally, four key findings were identified across previous studies: the effectiveness of asynchronous platforms, AI-based tools, repeated practice, and social media in reducing speaking anxiety.

Overall, digital literacy functions not only as a technical skill but also as an important support system in helping students feel more confident and comfortable in speaking English. This study has several limitations that should be acknowledged.

First, it drew from only two databases (Google Scholar and ERIC); future reviews should extend coverage to Scopus, Web of Science, ProQuest, and Dimensions to reduce selection bias.

Second, the exclusive focus on Indonesian EFL contexts, while theoretically motivated, limits generalizability to other cultural settings.

Third, the university-dominated sample of reviewed studies means that findings may not fully represent the experiences of secondary and vocational school learners.

Fourth, the underrepresentation of Digital Ethics studies signals a gap requiring dedicated research attention, particularly as learners engage in increasingly public digital communication. Fifth, the absence of longitudinal studies in the corpus means the sustained effects of digital literacy-based interventions on anxiety reduction remain unknown.

Future research should: extend to secondary and vocational education levels; explore the underexamined role of Digital Ethics in online speaking contexts; adopt longitudinal designs to assess sustained effects; investigate potential risks including digital dependence and access inequity; and conduct international comparative SLRs to contextualise Indonesian findings within a broader global landscape. It is also recommended that future studies present findings and discussion as separate sections to enhance analytical clarity and the visibility of theoretical contributions.

5. Acknowledgement

The author would like to express gratitude to the advisors Mrs. Mai Zuniati, S.S, M.Pd and Mr Umar Alfaruq A.Hasyim, S.S, M.Pd who took the time to provide guidance and constructive criticism until this research was completed. Their support was instrumental in enhancing the quality of this academic work. The author also thanks the Faculty of Tarbiyah at Ma'arif University of Lampung for its institutional support. Furthermore, appreciation is extended to the researchers whose works have served as important references in establishing the theoretical foundation and analysis in this literature review.

6. References

- Abdullah, F., Hidayati, A. N., Andriani, A., Rosmala, D., & Nurvianti, N. (2022). English speaking anxiety among Indonesian junior high school learners: In search of causes and solutions. *Getsempena English Education Journal*, 9(1), 53–63.
- Bashori, M., Hout, R. Van, & Strik, H. (2021). Effects of ASR-based websites on EFL learners' vocabulary, speaking anxiety, and language enjoyment. *System*, 99, 102496. <https://doi.org/10.1016/j.system.2021.102496>
- Bashori, M., Hout, R. Van, Strik, H., & Cucchiarini, C. (2022). Web-based language learning and speaking anxiety. *Computer Assisted Language Learning*, 35(5–6), 1058–1089. <https://doi.org/10.1080/09588221.2020.1770293>
- Falloon, G. (2020). From digital literacy to digital competence: the teacher digital competency (TDC) framework. *Educational Technology Research and Development*, 68(5), 2449–2472. <https://doi.org/10.1007/s11423-020-09767-4>
- Fauzi, I., & Asi, N. (2023). *Examining Speaking Anxiety of Indonesian Learners of English: A Case of University Students*. 7(2), 263–275.
- Gunawan, D. (2026). *Speaking anxiety in EFL learners: A systematic review of its causes, coping strategies, and pedagogical interventions*. 11(1), 127–145.
- Hanafiah, W., Aswad, M., Sahib, H., Yassi, A. H., & Mousavi, M. S. (2022). *The Impact of CALL on Vocabulary Learning, Speaking Skill, and Foreign Language Speaking Anxiety: The Case Study of Indonesian EFL Learners*. 2022. <https://doi.org/10.1155/2022/5500077>
- Hapsari, A. A., & Inayati, D. (2022). *EFL Students' Perception on the Use of Voice Note*

- to Reduce Their Speaking Anxiety. 8(1), 119–130.
- Hening, M., & Arsari, A. Y. U. (2022). *The Importance of Digital Literacy to Enhance Student 's Ability in English Language*. 3(April), 12–18.
- Horwitz, E. K., Horwitz, M. B., Cope, J., Horwitz, E. K., Horwitz, M. B., & Cope, J. (2019). *Foreign Language Classroom Anxiety*. 70(2), 125–132.
- Indra, I. P., & Corresponding, K. (2022). *Can E-portfolios Reduce Foreign Language Anxiety in Online Speaking Courses during the COVID-19 Pandemic ?* 23(2), 38–55.
- Juwaidah, A., Rahmat, H., Lailatul, N., Hizam, I., Tadris, P., Ingggris, B., Islam, U., & Mataram, N. (2025). *ANALYZING SYMPTOMS AND CAUSING FACTORS OF SPEAKING ANXIETY IN ENGLISH PRESENTATIONS AMONG UNIVERSITY*. 8(1), 1–16.
- Khafidhoh, K., Wijayati, R. D., & Risa, S. H. (2023). Investigating anxiety in speaking among EFL students: A qualitative study. *Ahmad Dahlan Journal of English Studies*, 10(1).
- Khalik, M. F. R. (2025). REDUCING ENGLISH SPEAKING ANXIETY IN CLASSROOM PRESENTATIONS: THE ROLE OF CHATBOT-ASSISTED PREPARATION. *ELP (Journal of English Language Pedagogy)*.
<http://www.ojs.fkipummy.ac.id/index.php/elp/article/view/1067>
- Korompot, C. A., & Baa, S. (2022). *UNDERGRADUATE ELT STUDENTS ' SPEAKING ANXIETY IN THE USE OF E-LEARNING IN INDONESIA*. 4(2), 387–401.
- Krashen, S. D. (n.d.). *Principles and Practice in Second Language Acquisition*.
- Mahmud, M., & Weda, S. (2025). *Digital Literacy Meets English Pedagogy : An Ethnographic Inquiry into Engagement Practices among Indonesian High School EFL Students*. 07(12), 49–70.
- Meliyani, Y., & Utomo, D. W. (2022). *AN EXPLORATION OF INDONESIAN EFL LEARNERS ' SPEAKING ANXIETY*. 2069(8), 1–14.
<https://doi.org/10.29300/ling.v8i1.5070>
- Meyer, H., & Patty, J. (2024). Reducing EFL students' speaking anxiety through vlog in English education study program at Pattimura University. *Huele: Journal of Applied Linguistics, Literature and Culture*, 4(2), 107–118.
- Muslimin, A. I., Wulandari, I., & Widiati, U. (2022). *Flipgrid for Speaking Success : Unearthing EFL Students ' Attitudes and Anxiety Level in Distance Learning*. 145(1), 42–61.
- Nadianti, L. I. (2024). *Integrating Digital Storytelling through Online Learning to Reduce Students ' Speaking Anxiety*. 38(2014), 90–102.
- Pahamzah, J., & Baihaqi, A. (2021). *EFL Students ' Awar eness on Digital Literacy*. 4(2), 67–77.
- Panggua, S., Pongsapan, N. P., Ismail, H., & ... (2025). AI-Enhanced Academic Speaking Skills: A Qualitative Investigation of Digital Tool Integration in Indonesian EFL University Context. In *Forum for Linguistic*
[repo.ukitoraja.ac.id. https://repo.ukitoraja.ac.id/id/eprint/964/1/FLS-](https://repo.ukitoraja.ac.id/id/eprint/964/1/FLS-repo.ukitoraja.ac.id)

10763-V7I8-451-465 %282%29.pdf

- Pardede, P. (2025). *Recent Research on Creative Writing Learning in Indonesian EFL Settings : A Systematic Literature Review*. 11(2), 150–167.
- Saptiany, S. G., & Hartono, R. (2025). *Exploring the Role of ChatGPT Voice Mode in Reducing Foreign Language Speaking Anxiety Among Indonesian ESP Students*. 19.
- Surani, D. (2025). *Enhancing Speaking Skills and Overcoming Anxiety Using Technology : An E-Learning Module for EFL Learners* Januarius Mudjiyanto Rudi Hartono Zulfa Sakhiyya. 12(May), 196–216.
- Syamsudin, S., Budianto, L., & ... (2025). Digital media's role in overcoming anxiety, enhancing linguistic elements and fostering motivation for developing speaking skills. In ... *of Evaluation and repository.uin-malang.ac.id*. <http://repository.uin-malang.ac.id/23356/2/23356.pdf>
- Widiastuti, W., & Citta, A. B. (2025). Digital Literacy Meets Language Pedagogy: Podcast-Driven Innovation for Developing Speaking and Listening Proficiency. ...: *Journal of Research and Innovation in* <http://journal.unilak.ac.id/index.php/REILA/article/view/29527>