
FROM TOOL ADOPTION TO PEDAGOGICAL PURPOSE: A PEDAGOGICALLY GUIDED FRAMEWORK FOR RETHINKING TECHNOLOGY USE IN EFL**Israa Ismael^{1*}, Xin Luo² and Sen Li¹**¹Department of Curriculum and Instruction, Faculty of Education, Shaanxi Normal University, Xi'an, China²Department of Early Childhood Education, Faculty of Education, Shaanxi Normal University, Xi'an, China<https://doi.org/10.59009/ijllc.2025.0223>*Received Date:26 June 2026/Published Date:30 Sept 2026*

ABSTRACT

The rapid expansion of digital technologies in English as a Foreign Language (EFL) education has increased the range of tools available to teachers, yet greater technology use does not necessarily result in more meaningful learning. A persistent concern in literature is the tendency to evaluate technology integration in terms of adoption, frequency, or technological capability rather than its contribution to specific pedagogical purposes. This conceptual article, based on a critical synthesis of research on technology integration, technology-enhanced language learning, task design, accessibility, and artificial intelligence (AI), proposes a seven-step pedagogically guided framework that treats integration as a decision-making process. Unlike models that describe teacher knowledge (e.g., TPACK) or levels of technology use (e.g., SAMR), the framework specifies a sequenced pathway in which learning need, objective, and activity precede technology selection, followed by task design, accessibility and cognitive-demand checks, and ongoing evaluation. The article organizes technologies by pedagogical function rather than platform, illustrates the framework through a worked example, and examines technical, cognitive, pedagogical, participation, digital literacy, and AI-related risks. It concludes that technology should be used when, and only when, it contributes meaningfully to the intended learning process.

Keywords: Technology Integration; Technology-enhanced Language Learning; Efl; Pedagogical Purpose; Pedagogical Alignment; Instructional Design; Educational Technology; Artificial Intelligence.

1. INTRODUCTION

In education, the central question is no longer simply whether technology should be used, but under what conditions its use contributes meaningfully to learning. Digital technologies have become increasingly embedded in educational practice, expanding opportunities for access, communication, feedback, content delivery, and interaction across physical and virtual learning environments. In English as a Foreign Language (EFL) education, this expansion has been particularly visible through the growing availability of digital platforms, mobile applications, online communication environments, and artificial intelligence (AI)-supported tools that can extend opportunities for language practice beyond the conventional classroom. Technology-enhanced language learning (TELL) has consequently become a substantial and rapidly developing area of research, encompassing approaches such as mobile-assisted language learning, digital game-based learning, flipped learning, and multimodal learning environments (Chen et al., 2024). Yet, the growing availability of educational technologies does not, in itself,

establish their educational value. The more important question is how teachers can determine whether a particular technology is appropriate for a particular learning purpose.

This question matters because the presence or frequency of technology use does not necessarily indicate the quality of its integration. The 2023 UNESCO Global Education Monitoring Report cautions against treating technology as an educational solution in itself and emphasizes that its value depends on factors such as relevance, equity, evidence, and contextual appropriateness (UNESCO, 2023). Empirical research has similarly shown that the quality of technology integration can matter more than the amount of technology used. For example, Consoli et al. (2024), using data from 2,281 students across 29 upper-secondary schools, found that perceived quality of technology integration explained substantially more variance than frequency of use in students' behavioral engagement and digital competencies. Thus, the relevant issue is not how much technology enters a learning environment, but what the technology enables learners to do and how that use contributes to the quality of instruction.

This distinction exposes an important problem in the way technology integration is often conceptualized. Adopting a technology is not the same as integrating it pedagogically. Adoption may occur when a teacher introduces a platform because it is available, familiar, innovative, or widely used. Integration, in contrast, requires technology to be connected to instructional purposes and learning activities. This concern is not new. Belland (2009) showed that increased access to technology does not automatically result in meaningful integration, while more recent reviews continue to report conceptual difficulties in defining and evaluating the quality of technology integration (Consoli et al., 2023; Schmid et al., 2024). In particular, Consoli et al. (2023) found substantial variation in how technology integration is operationalized and emphasized the importance of examining whether technology supports pedagogical goals rather than merely measuring its presence or use.

The issue becomes more specific in language education. A scoping review of 51 empirical studies on technology-enhanced language education found that research has focused extensively on teachers' perceptions, technology use, and technological pedagogical content knowledge, while comparatively less attention has been given to teachers' pedagogical design processes (Liu et al., 2023). This is important because language learning technologies do not have a fixed pedagogical value. The same tool may support different forms of learning depending on how it is embedded in a task. A discussion board, for example, may simply collect students' answers, or it may be used to prepare learners for collaborative inquiry, compare perspectives, and formulate arguments before oral interaction. Likewise, an AI-supported speaking application may provide useful rehearsal and feedback in one task but encourage superficial interaction in another. Recent work in ESL education similarly argues for understanding technologies in relation to their pedagogical purposes and affordances rather than treating technological tools as isolated entities (Shiu, 2025).

Existing models such as TPACK and SAMR help teachers understand the knowledge required for integration and the extent to which technology transforms a task (Shiu, 2025), but they do not specify a sequenced pathway for moving from a learning need to a technology choice. What remains underdeveloped, therefore, is an EFL-specific, function-based decision pathway that treats accessibility and cognitive demands as part of technology selection rather than as later implementation concerns.

This task-level perspective also becomes increasingly important with the emergence of generative AI. AI has expanded the range of possible instructional activities by providing conversational practice, automated feedback, content generation, and personalized support. At the same time, its rapid uptake has raised questions about pedagogical integrity, teacher agency, equity, bias, and the role of human interaction in language education (Kohnke & Zou, 2025).

The issue, therefore, is not whether a technology is innovative or capable of performing sophisticated functions. Rather, teachers need to determine which learning activity is required, what support learners need, and whether the technological affordances actually serve that activity (Canals & Mor, 2022). This concern is consistent with recent calls to protect teacher agency by grounding technology decisions in educational purposes rather than allowing technological possibilities to determine instructional choices (Smits et al., 2026).

Accordingly, this article views meaningful technology integration in EFL as a pedagogical decision-making process rather than simply a process of selecting and adopting tools. Technology use should begin with an identified learning need and instructional objective, followed by consideration of the learning activity and interaction required. Teachers can then consider which technological affordances best support the task and whether the technology is accessible, feasible, and appropriate to the learning context. Based on this perspective, the article proposes a seven-step pedagogically guided framework that addresses this gap by sequencing pedagogical decisions before technology selection, organizing technologies by pedagogical function rather than platform, and building accessibility and cognitive demands into the selection decision. The framework complements, rather than replaces, models such as TPACK and SAMR.

2. RETHINKING TECHNOLOGY-ENHANCED LEARNING

2.1 From Technology Adoption to Technology Integration

Although the terms are often used interchangeably, adoption and integration describe different points in how technology enters teaching. In the technology acceptance and diffusion literature, adoption refers to a broad process that includes acceptance, intention, and actual use of an innovation (Davis, 1989; Rogers, 2003; Venkatesh et al., 2003). In this article, "tool adoption" is used in a narrower, deliberately contrasting sense: introducing a technology because it is available, familiar, novel, or popular, with its use treated as the outcome. Integration, by contrast, concerns whether and how technology is incorporated into teaching and learning to serve specific instructional purposes (Garba & Byabazaire, 2026; Smits et al., 2026).

Belland (2009) highlighted this distinction by arguing that access to and use of technology do not necessarily result in changes in teaching that support meaningful learning. Technology integration therefore cannot be reduced to the presence of a digital tool in a classroom; it concerns the way technology becomes part of instructional practice and contributes to the learning process (Hew & Brush, 2007). This distinction remains important because technology integration has not developed around a single, consistently defined concept. A systematic review by Consoli et al. (2023) found substantial variation in how technology integration is conceptualized and measured, with some approaches focusing mainly on teachers' technology use and others examining the pedagogical quality of that use. The review particularly emphasized the importance of examining whether technology supports pedagogical goals, rather than treating technology use itself as evidence of integration.

Recent research shows that teachers' technology integration is shaped by multiple interacting factors, including teachers' pedagogical beliefs and technological competence, as well as the instructional and institutional contexts in which technology is used (Almerich et al., 2024; Cattaneo et al., 2025). Professional development and institutional support can further influence teachers' capacity to integrate technology into instructional practice (Yang et al., 2024; Amemasor et al., 2025).

The issue becomes more specific when integration is considered at the level of learning activities and instructional design. Research has increasingly moved toward examining how teachers incorporate technology into lesson plans and learning activities rather than simply whether they use it. For example, König et al. (2024) describe technology integration in lesson planning as a situation-specific professional skill through which teachers connect technological possibilities with particular instructional situations. Similarly, Antonietti et al. (2023) developed a measure that assesses how technology is integrated into learning activities, reflecting a shift from measuring technology use to examining what learners actually do with technology.

In language education, this task-level perspective is particularly relevant. Technology does not have a single pedagogical function independent of its use. Canals and Mor (2022), for instance, identified pedagogical principles for technology-enhanced task-based language teaching that connect technology with meaningful language use, interaction, collaboration, learner autonomy, and task design. Their work illustrates that the educational value of technology emerges through the relationship between the technology, the learning task, and the language-learning process rather than from the technological tool alone.

Several established frameworks already address the relationship between pedagogy and technology, and the present framework builds on them. TPACK (Mishra & Koehler, 2006) specifies the interacting forms of teacher knowledge required for integration but does not prescribe a sequence of decisions. SAMR (Puentedura, 2006) describes how far technology transforms a task and is therefore most useful for describing or evaluating tasks once technology has been chosen. Backward design (Wiggins & McTighe, 2005) and Laurillard's (2012) conversational framework place learning outcomes and learning types before design decisions, and Harris and Hofer's (2009) learning activity types connect technology selection to curriculum-based activity choices. In language education, Chapelle's (2001) criteria for CALL task appropriateness, which include learner fit and practicality, and Hubbard's (2011) methodological framework guide the evaluation and development of CALL materials, while the ICAP framework (Chi & Wylie, 2014) explains why the same technology can produce different learning effects depending on the level of cognitive engagement it elicits.

Together, these models establish that pedagogy should precede technology; this article does not claim that principle as new. What remains underdeveloped is an EFL-specific, function-based decision pathway that (a) translates this principle into a sequence of decisions teachers can follow, (b) links commonly used technologies to language-learning functions so that technology selection can actually be carried out, and (c) makes accessibility, cognitive demands, and AI-related risks explicit checkpoints within that sequence. The framework proposed here therefore integrates and operationalizes existing principles for EFL teachers rather than replacing them. Table 1 summarizes how each of these models relates to the framework proposed in this article.

Table 1. Established Models Linking Pedagogy and Technology and Their Relationship to the Pedagogically Guided Framework

Model	Main focus	Relation to the present framework
TPACK	Teacher knowledge	Explains what teachers need to know, not the order of decisions
SAMR	Level of task transformation	Evaluates a task after technology is chosen
Backward design	Outcomes → evidence → activities	Basis for Steps 1–3
Harris & Hofer activity types	Activities linked to technology choice	Closest precursor to Steps 3–4; not EFL-specific
Chapelle / Hubbard	CALL evaluation and development	Include learner fit and practicality; not a teacher-facing decision sequence
ICAP	Engagement level and learning	Supports Steps 5 and 7 and Section 6.3

2.2 What Makes Technology “Meaningful”?

Meaningful technology integration cannot be determined by the characteristics of a digital tool alone (Raave et al., 2024). A technology may be useful in one instructional situation and unnecessary in another because its value depends on the learning objective, the task, the learners, and the context in which it is used (Aldhaheri et al., 2026; Theodorio, 2024). This position is consistent with the broader literature showing that effective technology integration depends on the alignment of technological possibilities with pedagogical and content-related demands (Kurebay et al., 2026; McLaren et al., 2021).

One important condition is therefore pedagogical alignment. Technology should contribute to a clearly identified learning objective and support the type of activity required to achieve it (Børte & Lillejord, 2024). In technology-enhanced language teaching, Canals and Mor (2022) emphasize task design and identify principles related to meaningful language use, interaction, collaboration, learner autonomy, and the purposeful use of digital environments. Similarly, research on technology integration measurement has identified cognitive engagement, collaboration, and online inquiry among the key pedagogical dimensions used to judge the quality of integration (Rotar, 2025; Song et al., 2025). Thus, the relevant question is not whether a tool contains many features, but whether its affordances support the learning activity that students actually need to perform (Panakaje et al., 2024).

Meaningful integration also requires attention to learners and context. Technology that supports interaction in one setting may create barriers in another if it requires substantial

technical knowledge, reliable connectivity, complex procedures, or resources that learners do not have (Navas-Bonilla, 2025; Yang et al., 2024). Reviews of technology integration have consistently identified access to resources, technical support, teacher knowledge, institutional conditions, and learner-related factors as influences on effective integration (Cabalbag, 2025; Haryanto et al., 2026; Singun, 2025). This means that accessibility and feasibility are not secondary technical concerns; they are part of the pedagogical decision itself. A theoretically suitable technology has limited educational value if students cannot use it effectively within the conditions of the learning environment (Mustafa et al., 2024).

Finally, meaningful technology use requires evaluation and reflection. Selecting a technology does not guarantee that it will function as intended once a task is implemented (Bankins & Formosa, 2023). Teachers need to consider whether students are actually engaging with the intended learning process, whether the technology is supporting rather than distracting from the task, and whether adjustments are needed (Shreeve et al., 2025; Li, 2026). This is particularly important as new technologies, including generative AI, introduce rapidly changing possibilities that may encourage teachers to focus on what a tool can do before considering what learners need (AlBlooshi, 2026; Ukwandu et al., 2025). A critical and pedagogically grounded approach therefore requires teachers to evaluate technology according to its contribution to learning rather than its novelty or technical sophistication.

Taken together, these principles suggest that meaningful technology integration rests on four closely related considerations: pedagogical purpose, alignment with the learning task, responsiveness to learners and context, and ongoing evaluation of educational value. These considerations provide the conceptual basis for the approach developed in the following sections, where technologies are examined according to the pedagogical functions, they can serve rather than simply according to their platforms or features.

3. A PEDAGOGICALLY GUIDED APPROACH TO TECHNOLOGY INTEGRATION

The preceding discussion suggests that meaningful technology integration depends not only on what a technology can do, but on how teachers connect technological affordances to specific learning purposes. Building on this premise, this article conceptualizes technology integration as an iterative pedagogical decision-making process in which technology is considered only after the learning need, objective, and task requirements have been identified. The proposed approach consists of seven interconnected decisions.

Step 1: Identify the pedagogical need.

Technology integration should begin with an instructional need rather than with a particular platform. Teachers first identify what learners need to improve, what they are currently unable to do, or what limitation in the existing learning environment needs to be addressed. This may involve limited opportunities for speaking practice, insufficient interaction, weak formative feedback, or difficulty engaging learners with particular content.

Step 2: Define the learning objective.

The identified need is then translated into a clear and observable learning objective. This step provides a basis for evaluating whether technology is warranted and, later, whether its use has achieved its intended purpose. Without a clearly defined outcome, technology use risks becoming an activity in itself rather than a means of supporting learning.

Step 3: Determine the required learning activity.

The learning objective determines the type of activity students need to undertake. Depending on the intended outcome, this may involve interaction, collaboration, guided practice, reflection, feedback, authentic communication, or independent learning. Identifying the required activity before selecting a platform narrows the technological options according to their potential pedagogical affordances.

Step 4: Decide whether technology is needed, and select it based on pedagogical fit.

Before a particular technology is considered, teachers ask whether technology is needed to achieve the objective and required activity at all. If a non-technology alternative can serve the activity equally well or better, such as in-class pair discussion, paper-based peer feedback, or teacher-led questioning, that alternative should be preferred. If technology is warranted, selection is based on the extent to which its affordances support the identified activity and objective, with a preliminary check that it is feasible and accessible for the learners concerned. Availability, popularity, novelty, or familiarity may influence feasibility, but they should not determine pedagogical choice.

Step 5: Design the learning task.

Technology alone does not create a meaningful learning experience. The teacher must design a task that uses the selected affordances in ways that require learners to engage with the intended content and skills. The same platform may therefore support very different levels of learning depending on how the task is structured.

Step 6: Check accessibility and cognitive demands.

Before implementation, the selected technology should be considered against the practical and cognitive conditions of the learning context. Accessibility, device compatibility, internet requirements, login procedures, and ease of use may determine whether students can participate as intended. The technology should also avoid introducing unnecessary cognitive demands that compete with the learning objective.

Step 7: Monitor, evaluate, and adapt.

Technology integration should not end with implementation. Teachers need to examine whether the technology actually supported the intended learning outcome and whether students were able to participate effectively. Evidence from student performance, interaction, feedback, and reflection can inform subsequent adjustments, including modifying the task, changing the technology, or discontinuing its use. Technology integration is therefore better understood as an iterative process of pedagogical evaluation and adaptation rather than a one-time act of technology selection.

These steps place pedagogical purpose before technological choice. The process moves from identifying what learners need to achieve, to determining what learning activity is required, and only then to considering which technology can support that activity. This reverses a tool-driven approach in which available technologies shape the learning task and instead positions technology as one component of a broader instructional design process (see Figure 1).



Figure 1. Pedagogical-Driven Technology Integration Framework

4. FUNCTION OVER PLATFORM: ORGANIZING TECHNOLOGY BY PEDAGOGICAL PURPOSE

Technology should not be considered educationally meaningful simply because it is interactive, widely used, or technically advanced. Its value depends on the function it serves within a learning task. In EFL contexts, different technologies can support different stages of the learning process, whatever specific outcome, speaking, writing, listening, or critical thinking, a task targets. The same platform may also serve more than one function depending on how the teacher designs the task. Therefore, the technologies discussed below are organized according to their pedagogical functions rather than their platform names.

4.1 Interactive and Engagement-Oriented Platforms

Some technologies are most useful at the beginning of a learning activity, where the aim is to activate prior knowledge, generate ideas, or encourage students to participate before moving into more demanding tasks. Wordwall and Mentimeter, for example, can be used not as learning outcomes in themselves, but as starting points for interaction and engagement.

Wordwall allows teachers to create short interactive activities such as quizzes, random wheels, matching tasks, and polls (Çil, 2021; Maysarah, 2026). Its value for EFL instruction lies less in the activity format itself than in what follows it. Students can respond to questions, justify choices, or use prompts generated by the activity to initiate discussion. Such low-stakes activities can create repeated opportunities for spontaneous production and participation (Harnoman, 2024). They can also move beyond recall when students are asked to explain or justify their responses, thereby creating opportunities for basic analysis and reasoning (Pelangi et al., 2025). Its contribution, however, remains dependent on how the activity is designed and extended into subsequent learning tasks.

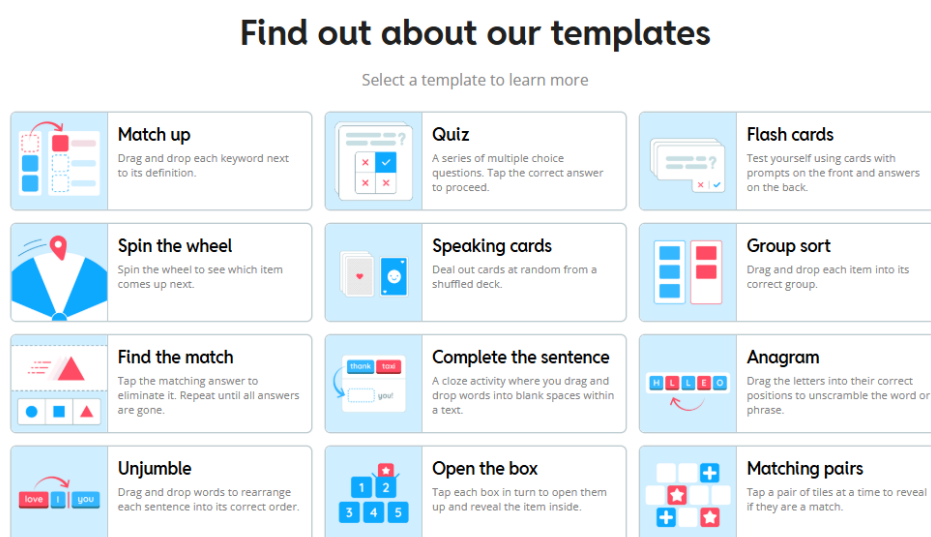


Figure 2. Screenshot of the Wordwall interface showing multiple interactive activity formats

Mentimeter serves a similar activation function through live polls, quizzes, word clouds, and other forms of immediate response (Mohin et al., 2022). In EFL instruction, these features can

be used to introduce a problem, collect different viewpoints, or generate questions that students subsequently discuss and defend. Thus, its pedagogical value is not simply the speed with which responses are collected, but its ability to make students' ideas visible and provide a starting point for discussion and reasoning (Anggriani et al., 2022; Tarazi & Ortega-Martín, 2023).

4.2 Enabling Interaction and Collaborative Meaning-Making

When the learning objective requires students to exchange ideas, respond to others, negotiate meaning, or develop an argument collaboratively, technologies that support interaction become more relevant. In this function, Padlet, VoiceThread, Google Meet, and Jitsi Meet can provide spaces for students to move from individual preparation to shared communication.

Padlet allows students to post questions, ideas, and responses and to view and respond to the contributions of others (Alabbad & Huwamel, 2020; Dollah et al., 2021). This makes it particularly useful when students need time to formulate an idea before expressing it to others. In collaborative tasks, students can prepare responses, participate in debates, or solve problems together before discussing their ideas as a class (Hadistia et al., 2024). For critical thinking, the important feature is not simply posting, but the opportunity to examine different perspectives, evaluate peers' contributions, and construct a reasoned response (Nguyen & Pham, 2025). Recent research likewise reports the use of Padlet-supported activities for both interactive and



critical-thinking development in EFL settings.

Figure 3. Example of a Padlet board using the “My Childhood vs Parent’s Childhood” template, illustrating how students can post and organize responses on a virtual discussion board.

VoiceThread extends this interaction through asynchronous audio and video responses. Students can respond to a shared video or prompt and then listen to or comment on their peers' contributions (Chuah & Ch'ng, 2023; Hwang et al., 2025). Among other uses, this is particularly relevant to spoken production, as students can rehearse and record responses rather than relying only on immediate, real-time performance. At the same time, responding to peers and constructing reasoned contributions can create opportunities for critical thinking (Lertola & Alsúa, 2025).

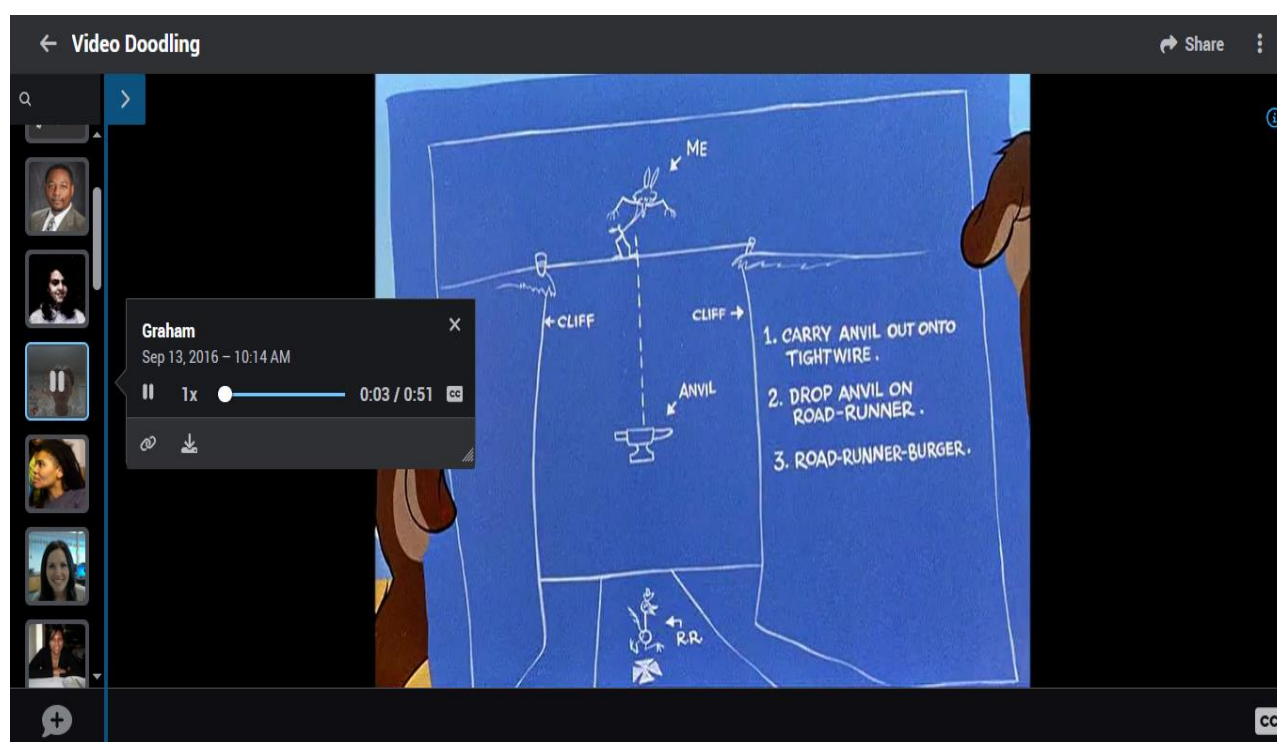


Figure 4. Screenshot of the VoiceThread interface illustrating a video-based task with students' audio and video responses

Synchronous platforms such as Google Meet and Jitsi Meet serve a different form of interaction by extending opportunities for real-time communication beyond the physical classroom. Their main pedagogical contribution is therefore not the platform itself, but the additional space they provide for live discussion, small-group collaboration, and problem-solving. Breakout rooms, shared materials, and interactive discussion can be used to connect online communication with the wider learning task (Navarrete et al., 2025; Octaberlina & Muslimin, 2022).

4.3 From Input to Output: Guided Processing and Practice

Technology can also be used to structure the transition from receiving input to producing language. Nearpod and Edpuzzle, for example, allow teachers to combine video or audio input with questions, pauses, and response activities (Bakhtiyor & Mirzaev, 2022; Putri, 2024). Instead of asking students simply to watch a video, teachers can interrupt the input and ask learners to predict, explain, interpret, or respond. This creates a more active relationship between input and language production.

The two platforms can therefore support structured, repeated language production, while their questioning functions can also be used to move students beyond comprehension toward interpretation and evaluation (Pupah & Sholihah, 2022). Their usefulness, however, depends on the quality of the questions and tasks designed around the media. Technical accessibility also needs to be considered, as difficulties with audio recording, platform access, or connectivity can interfere with the intended activity (Hidayat & Praseno, 2021).

4.4 Beyond the Classroom: Authentic Communication and Learner Autonomy

Some technologies are particularly valuable because they connect classroom learning with forms of communication that students encounter outside formal instruction. WhatsApp, Free4Talk, YouTube, and Facebook can serve this function when they are used deliberately as spaces for authentic communication rather than simply as additional content-delivery channels.

WhatsApp, for example, can provide a familiar and accessible environment for continued interaction beyond scheduled class time. Voice notes, discussion prompts, images, links, and short messages can create frequent opportunities for students to use English in relatively low-stakes situations (Tragant et al., 2021). In this context, the pedagogical value of WhatsApp lies in extending opportunities for interaction rather than in the application itself.

Free4Talk provides another route to spontaneous oral communication by allowing learners to interact with English speakers beyond their immediate classroom. Such interaction can require learners to respond to unexpected questions, negotiate meaning, and adapt their language during communication (Lestari et al., 2023; Bahar & Dalimunte, 2025). Its use can therefore support both language practice and learner autonomy. However, because open online environments may expose students to inappropriate or sensitive content, teacher guidance and awareness of platform limitations remain necessary (Tobing & Damanik, 2025).

YouTube and Facebook can similarly provide access to authentic language input and current topics. When teachers select content connected to students' inquiry topics, these platforms can provide material for discussion, interpretation, comparison of viewpoints, and subsequent production — spoken or written (Wang et al., 2022; Duha et al., 2025). Their pedagogical value therefore comes from what students are asked to do with the content, rather than from exposure to online media alone.

4.5 AI-Supported Scaffolding and Feedback

The emergence of generative and conversational AI has expanded the possibilities for individualized language practice. In this context, Gliglish can be considered a scaffolding tool rather than simply another language-learning platform. It provides scenario-based opportunities for students to practice vocabulary, sentence structures, pronunciation, and spoken interaction, while AI-generated feedback can support immediate revision and self-correction (Gayed et al., 2022; Gimadieva, 2024; Radhiyya et al., 2025).

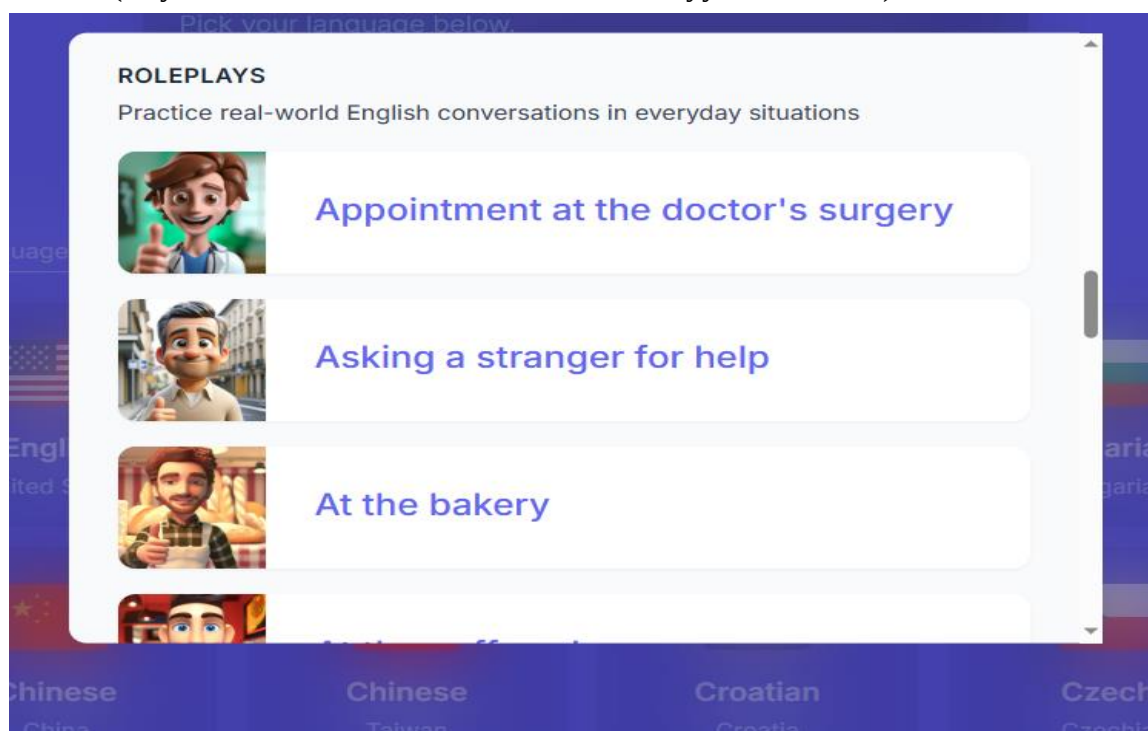


Figure 5. Gliglish interface showing roleplay activities for practicing real-world English conversations.

Its relevance to the present framework lies in the opportunity for repeated, self-paced practice outside the classroom. Students can rehearse conversations, respond to scenarios, and receive feedback without waiting for teacher intervention. Such use can support learner autonomy and extend practice time, while scenario-based prompts can also require students to make decisions and explain their responses (Thao et al., 2025). Nevertheless, AI should remain a scaffold within the learning design rather than becoming a substitute for meaningful human communication.

4.6 The Tool Is Not the Point

Across these functions, the central point is that no platform has a fixed pedagogical value. Wordwall may initiate a discussion, Padlet may support collaborative reasoning, VoiceThread may provide opportunities for repeated oral production, and AI may provide individualized rehearsal. However, none of these functions is guaranteed by the technology itself. Their contribution depends on the learning objective, the task, the learners, and the way the teacher structures the activity.

This is also why accessibility and cognitive demands must remain part of technology selection. Connectivity problems, difficult login procedures, unfamiliar interfaces, and recording

problems can prevent students from reaching the intended learning activity (Aduba & Mayowa-Adebara, 2021; Shrestha et al., 2025; Pratama et al., 2024). A technically sophisticated platform may therefore be less appropriate than a simpler one if the latter provides the required pedagogical function with fewer barriers.

5. DESIGNING FOR INCLUSION AND ACCESSIBILITY

Technology integration cannot be considered pedagogically appropriate if some learners are unable to access or participate in the activity it creates (Maysarah, 2026). Access, however, involves more than having an internet connection or a digital device (Kurebay et al., 2026; Navarrete et al., 2025). Recent research on educational digital inequality shows that disparities also occur in students' access to hardware and the internet, their digital skills, and their ability to use technology effectively for learning (Abd-Rahman & Hajar, 2021; Shrestha et al., 2025; Wang et al., 2024). These differences mean that the same technology-mediated task may create very different participation conditions for different learners.

Accessibility should therefore be considered when technology is selected, not after it has been implemented. A tool may offer strong pedagogical affordances but still be a poor choice if it requires stable high-speed connectivity, a specific device, extensive technical skills, or a complicated registration process (Major et al., 2021). The 2023 UNESCO Global Education Monitoring Report similarly identifies digital exclusion as a significant risk of educational technology and argues that technology decisions should be judged in relation to equity and learner needs (UNESCO, 2023). The issue is consequently not whether a platform is technically capable of supporting a task, but whether learners can realistically use that capability.

This principle also extends beyond technical access. Learners differ in their confidence, familiarity with digital environments, preferred modes of participation, and ability to respond through particular media (Agbeyangi & Suleman, 2024). Universal Design for Learning (UDL) therefore emphasizes designing multiple means of engagement, representation, action, and expression so that variability among learners is considered from the beginning of instructional design (CAST, 2024). Recent higher-education research likewise suggests that digital technologies can support more flexible and accessible learning when they are deliberately integrated within an inclusive pedagogical framework rather than introduced as technological additions (Veytia et al., 2024).

For EFL instruction, this has a direct implication for task design. If the objective is oral communication, for example, requiring every learner to participate through a synchronous video platform may introduce barriers that are unrelated to the language-learning objective (Weng et al., 2025). An asynchronous recording, audio response, or alternative participation route may preserve the same learning objective while reducing unnecessary technical or participation barriers (Belt & Lowenthal, 2022). Similarly, when a task requires sustained online interaction, a lower-bandwidth alternative may be more appropriate than a platform whose pedagogical advantages depend on continuous high-quality connectivity (Akkara et al., 2020).

Accessibility, therefore, should not be understood as making technology easier to use after a decision has already been made. It is part of deciding whether the technology is appropriate in the first place. A technology that provides strong affordances but prevents a proportion of learners from participating cannot be considered a good pedagogical match for that context.

This places accessibility alongside learning objectives, task requirements, and learner needs as a criterion of technology selection.

6. THE RISKS AND LIMITATIONS OF TECHNOLOGY-ENHANCED LEARNING

Digital tools can support learning when they are appropriately designed and implemented, but they can also introduce new barriers and unintended consequences. Research in technology-enhanced learning therefore points to the importance of considering not only what technology can enable, but also what it may complicate. The following risks are particularly relevant to EFL contexts.

6.1 Technical Challenges

Technical problems can undermine an otherwise well-designed learning activity (Ibrahim et al., 2025). Unstable internet connections, platform delays, device limitations, and login problems may interrupt communication or prevent students from participating at all (Martin et al., 2025). Recent research in higher education has also linked technology-related difficulties and student–institution misfit to technostress, which can negatively affect students' academic performance, satisfaction, and motivation (Gong et al., 2024; Monazam-Tabrizi et al., 2025).

For example, a speaking activity that requires students to join a live video session may fail to achieve its objective when students experience repeated disconnections or audio delays. Similarly, requiring students to move between several platforms during one lesson may create technical problems that have little to do with the intended learning outcome (Yeganeh et al., 2025). These examples reinforce the point made in the accessibility section: technical feasibility is part of pedagogical suitability, not a separate issue to be considered after technology has been selected.

6.2 Cognitive Challenges

Technology can also create cognitive demands that are unrelated to the learning objective. The problem is not necessarily that digital learning is inherently cognitively demanding; rather, unnecessary complexity can arise when students must manage several interfaces, notifications, logins, instructions, and sources of information while simultaneously trying to complete the learning task (Vedechkina & Borgonovi, 2021).

Recent research on technology fatigue in higher education identifies system-specific technology overload as a contributor to technology fatigue, particularly when students must work with increasingly complex systems or multiple technologies simultaneously (Evanick, 2025). This is particularly relevant to courses that use a different platform for video meetings, another for quizzes, another for discussion, and additional applications for assignments or feedback (Ibrahim et al., 2025).

For example, asking students to watch a video on one platform, answer questions on a second platform, upload their response to a third, and discuss it in a fourth may create considerable procedural demands even when each individual tool is easy to use. The learning task can therefore become partly a task of managing technology. This suggests that the number of tools used in a course should not be treated as an indicator of technological richness. A smaller number of well-integrated tools may provide better conditions for learning than a larger collection of disconnected platforms.

6.3 Pedagogical Challenges

A more fundamental risk arises when technology becomes the focus of an activity rather than a means of supporting learning. A platform may be highly interactive, visually attractive, or technically sophisticated without making a meaningful contribution to the intended learning outcome. What matters, therefore, is not the presence of technology itself, but the learning activity that technology enables.

This distinction is supported by Sailer et al. (2024), whose systematic review and second-order meta-analysis found that the learning effects of technology-enhanced instruction varied according to the type of learning activity supported. Technology used primarily to substitute for existing practices showed more limited effects, whereas stronger effects were associated with technologies that supported more active, constructive, and interactive forms of learning. Technology therefore becomes pedagogically meaningful when it changes or supports what learners do, rather than simply changing the medium through which an existing activity is delivered.

This distinction is particularly relevant in EFL teaching. A digital quiz, for example, may increase students' visible activity without requiring them to explain, evaluate, or communicate their ideas. Similarly, asking students to post a response on a discussion board does not necessarily create meaningful interaction if students simply submit answers without responding to or building on their peers' ideas. Research on technology-enhanced language learning likewise emphasizes the importance of connecting technology with task design and the learning processes that the task is intended to support (Canals & Mor, 2023). The relevant question is therefore not whether a tool makes a lesson more "interactive," but what students are actually required to think, communicate, and do through it.

6.4 Participation Challenges

Technology also does not guarantee active participation. Digital environments may make participation easier for some learners while leaving others largely passive (Gopinathan et al., 2022). Research on synchronous online learning has shown that students may choose passive participation even when opportunities for interaction are available, with factors such as confidence, anxiety, and the nature of the learning environment influencing participation (Donelan et al., 2025).

This distinction between being present and being cognitively engaged is particularly important. A student may attend an online session, watch a video, click through a presentation, or submit an answer without actively processing, questioning, explaining, or applying the content. The systematic review by Sailer et al. (2024) similarly demonstrates that the learning activities facilitated by technology are central to its educational effects, with more constructive and interactive activities associated with stronger learning outcomes.

For example, a Padlet activity may appear highly participatory because every student has posted a response. Yet if students do not compare ideas, respond to peers, justify their positions, or revise their thinking, the activity may remain largely at the level of individual response rather than genuine interaction. Visible digital activity should therefore not be confused with meaningful participation.

6.5 Digital Literacy Challenges

Another risk is assuming that familiarity with everyday digital technologies automatically prepares students for academic technology use. Digital competence is broader than the ability to navigate social media or messaging applications; students may still require support to search for reliable information, evaluate digital content, organize information, communicate academically, and use digital tools strategically for learning (Wang et al., 2022; UNESCO, 2023).

This issue becomes increasingly important as technology-enhanced learning environments become more complex. Students' digital literacy can influence how effectively they access and navigate digital learning resources, indicating that technological familiarity alone does not guarantee effective academic use (Wang et al., 2022). Recent work on technology-enhanced learning similarly highlights digital readiness and unequal access to resources as factors that can shape students' opportunities for engagement (Rotar, 2025).

In EFL contexts, the distinction can be particularly clear. A student may use WhatsApp or Instagram confidently in everyday life but still struggle to use a digital platform to construct an evidence-based argument, evaluate an online source, interpret automated feedback, or collaborate on an academic task. Consequently, teachers may need to provide task-specific digital guidance rather than assuming that general technological familiarity is sufficient.

6.6 AI, Authenticity, and Learner Dependence

Generative AI introduces a further set of risks because it can perform parts of the learning process that students are expected to perform themselves. In EFL education, AI can generate ideas, translate expressions, produce written responses, simulate conversations, and provide immediate feedback. These capabilities can support learning, but they can also reduce the amount of independent thinking required from learners when the technology is used as a substitute rather than as a scaffold (Kohnke & Zou, 2025).

This concern is particularly relevant to the cognitive processes involved in language learning. Research on generative-AI-assisted EFL writing has shown that AI-supported and traditional writing involve different patterns of cognitive activity, highlighting the need to consider what learners actually do during AI-supported tasks rather than evaluating the final product alone (Liu et al., 2023). The educational value of AI therefore depends partly on whether learners remain actively involved in generating, evaluating, and revising ideas.

The concern also extends to the authenticity of student work. When AI generates arguments, translates content, corrects language, and produces a polished response, the final product may provide limited evidence of the learner's own reasoning or language production. This does not mean that AI use is inherently incompatible with authentic learning. Rather, the pedagogical question is whether AI replaces the cognitive work that the task was designed to develop or provides support while leaving that work with the learner (Kohnke & Zou, 2025).

For example, an EFL student may use AI to generate an argument, translate it into English, correct the language, and produce a polished final response. A different use of the same technology would ask students to critique an AI-generated argument, identify weaknesses, verify claims, and revise the response. The first use can reduce the learner's role in the task, whereas the second can make AI an object of analysis and a scaffold for further language and critical-thinking work.

The distinction, therefore, is not simply between AI use and no AI use, but between AI use that replaces the learner's cognitive work and AI use that supports deeper engagement with that

work. This distinction is particularly important in EFL education, where language production, reasoning, and interaction may themselves constitute the intended learning outcomes.

7. THE FRAMEWORK IN PRACTICE: WORKED EXAMPLES

To illustrate how the framework introduced in Section 3 operates in practice, this section walks through three illustrative scenarios. They differ in language skill, learning context, and outcome of the decision at Step 4. The purpose is not to prescribe a fixed sequence for every context, but to show how a teacher's reasoning might move through the steps and lead to different technological decisions, including a decision not to use technology.

7.1 Written reflection after discussion (technology selected)

Scenario: An EFL teacher works with intermediate (B1) university students who discuss topics capably in class but produce written reflections that read as rushed summaries rather than considered responses.

- Step 1 (Identify the pedagogical need). Comprehension and spoken participation are adequate; the gap lies in the transition from discussion to structured written reflection.
- Step 2 (Define the learning objective). Students should write a reflective paragraph of about 120–150 words that refers to at least two points raised in discussion, compares perspectives using appropriate linking devices (e.g., *however*, *whereas*) and reporting verbs (e.g., *argued*, *suggested*), and reaches a reasoned conclusion.
- Step 3 (Determine the required learning activity). The objective calls for reflection combined with peer feedback: students revisit the discussion, read peers' ideas, and organize their thinking in writing before finalizing their own response.
- Step 4 (Decide whether technology is needed and select it). A non-technology option, such as exchanging handwritten drafts in class, is possible, but it limits each student to the contributions of a few nearby peers and to one lesson. Technology is therefore warranted. Several tools could support comparative reading, including a shared document or a learning management system (LMS) forum. Padlet is selected here because all responses are visible at once on a single board, without opening separate threads, and students can post short drafts without complex formatting. If the institution required the LMS forum, the same objective and task design would apply, with the forum replacing Padlet at this step.
- Step 5 (Design the task). Students post a short draft, then must respond to at least one peer's point, using a reporting verb and explaining why they agree or disagree, before writing their final paragraph. The task, rather than the platform, pushes students toward evaluation instead of summary.
- Step 6 (Check accessibility and cognitive demands). Because posting is asynchronous, students with intermittent connectivity can contribute when access allows, and no account is needed beyond a shared link. The task uses one tool only, limiting procedural load.
- Step 7 (Monitor, evaluate, and adapt). The teacher reviews the board and the final paragraphs against the linguistic criteria in Step 2 and asks students, through a short paper exit slip, what they found difficult. If most paragraphs still summarize rather than evaluate, the task prompt is revised first, since the platform was not the source of the difficulty.

7.2 Speaking practice in a low-bandwidth setting (simple technology selected)

Scenario: Elementary-to-intermediate (A2–B1) students have little speaking time in class, and many rely on limited mobile data and shared devices.

- Steps 1–3. The need is more opportunities for extended speaking. The objective is a 60–90 second spoken response that states an opinion with at least two reasons, using connectors such as *because* and *however*. The required activity is repeated, low-pressure oral production with peer listening.
- Step 4. In-class pair work alone cannot supply enough practice time, so technology is warranted. A live video platform such as Google Meet would provide interaction, but real-time video places heavy demands on connectivity (Belt & Lowenthal, 2022). WhatsApp voice notes (Section 4.4) provide the required function, asynchronous spoken practice, with small file sizes and a familiar interface (Akkara et al., 2020).
- Step 5. Students record a voice note responding to a prompt, then listen to one classmate's note and reply with a follow-up question.
- Step 6. Recording is possible offline and sending can wait until data is available; class time is used for students without devices to record in pairs. The teacher sets group rules to protect students' personal information, since phone numbers are visible in groups.
- Step 7. The teacher samples recordings for the criteria in Step 2, checks participation rates, and, if too many students cannot send messages, moves recording into class time.

7.3 Vocabulary interaction in class (decision not to use technology)

Scenario: A teacher of A2 learners considers using a digital quiz platform to motivate vocabulary practice.

- Steps 1–3. The need is for learners to use new vocabulary to negotiate meaning. The objective is to ask and answer questions using target words in pairs, and the required activity is spontaneous face-to-face interaction.
- Step 4. Technology is judged not to be needed. A quiz platform could raise visible activity, but it would mainly test recognition and add logins and interface demands (Section 6.3). An information-gap activity with paper cards requires learners to speak, ask for clarification, and repeat, which matches the objective more directly.
- Steps 5–7. The teacher designs the card task, notes participation, and reconsiders technology later only if a specific need arises, such as providing extra practice outside class.

7.4 Comparison across examples

Taken together, the examples show that the same sequence can lead to a platform commonly used for collaboration (7.1), a simple messaging tool selected for accessibility (7.2), or no technology at all (7.3). In each case, technology selection is one decision within a longer chain of pedagogical reasoning. These scenarios are illustrative rather than empirical validations, and testing the framework in real classrooms remains a direction for future research.

8. IMPLICATIONS FOR EFL TEACHERS, INSTITUTIONS, AND TEACHER EDUCATION

This article has several limitations. First, the framework is conceptual: it is derived from a narrative synthesis of research on technology integration, technology-enhanced language learning, task design, accessibility, and AI, and it has not been tested with teachers or learners.

The worked examples in Section 7 are constructed illustrations, not empirical evidence, and the propositions in Section 3.1 should be treated as hypotheses. Second, the literature was not reviewed systematically, so relevant studies may have been overlooked. Third, much of the evidence on specific platforms comes from small studies in particular contexts, and platform features change quickly, so the examples in Section 4 may date. Fourth, the framework was developed with reference to EFL and may need adaptation for different ages, proficiency levels, or subject areas. Finally, a seven-step process may appear demanding given teachers' workload, and its usability in everyday planning remains to be examined.

Future research could validate and refine the framework in three complementary ways. Expert review or a Delphi study with EFL teacher educators, instructional designers, and educational technology researchers could examine the clarity, sequence, completeness, and relevance of the steps, and the extent to which experts reach consensus on the propositions. Teacher piloting could ask in-service or pre-service teachers to plan lessons with the framework and compare their decisions and lesson plans with those made without it, using think-aloud protocols, lesson-plan analysis, and interviews to assess usability, workload, and reasoning. Design-based research could then implement and revise the framework over repeated cycles in different EFL settings, including low-bandwidth and institution-mandated-platform contexts, examining effects on task design, learner participation, and language outcomes. Comparative studies could also test how the framework relates to TPACK, SAMR, and backward design in practice.

9. CONCLUSION

Technology integration in EFL education should be understood as a pedagogical decision-making process rather than as the adoption of digital tools. As discussed throughout this article, the educational value of technology does not derive from its availability, novelty, or technical sophistication, but from the extent to which its affordances support clearly defined learning objectives and the activities required to achieve them. This distinction shifts attention from whether a technology is used to how and why it is used within a particular instructional context.

The framework proposed in this article operationalizes this shift through a sequence of interconnected decisions: identifying a pedagogical need, defining the learning objective, determining the required learning activity, selecting technology according to pedagogical fit, designing the task, considering accessibility and cognitive demands, and evaluating and adapting the implementation. Within this process, technology selection represents one component of instructional design rather than its starting point. Organizing technologies according to pedagogical function further reinforces this position by directing attention to what technologies enable learners to do rather than to the platforms themselves. Because the framework is derived conceptually, it is offered as a set of propositions to be examined through expert review, teacher piloting, and design-based research (see Section 9).

The discussion also demonstrates that purposeful integration cannot be separated from the conditions under which technology is used. Technical constraints, cognitive demands, unequal access, limited digital literacy, passive participation, and inappropriate uses of AI can weaken the relationship between technological affordances and intended learning outcomes. Consequently, pedagogically appropriate technology integration requires continuous consideration of learner needs, contextual conditions, accessibility, and evidence of actual learning. These considerations also extend beyond individual teachers, with implications for institutional technology policies, professional development, and teacher education.

Ultimately, meaningful technology integration in EFL is not a matter of increasing the quantity of technology used in instruction, but of strengthening the quality of the relationship between learning purpose, task design, learner needs, and technological affordances. The central shift proposed in this article is therefore from tool-centered adoption to purpose-driven integration: technology is most educationally valuable when its use is justified by a demonstrated pedagogical need, or by a legitimate access, inclusion, or administrative purpose, and is evaluated according to the learning it enables.

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