

Pedagogy before platforms: EFL teachers' digital pedagogical practices, learner agency, and contextual constraints in Saudi higher education

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ABSTRACT

This study examines EFL teachers' digital pedagogical practices in Saudi higher education, focusing on how teachers select and use digital tools, how these practices relate to learner agency and classroom interaction, and what institutional conditions shape implementation. Using a mixed-methods design, it considers both teachers' reported perspectives and their instructional practices. Digital tools—including learning management systems, communication platforms, online assessment, mobile applications, and artificial intelligence—are commonly used to deliver content, support communication, and encourage engagement and structured practice. Their contribution to learner autonomy and participation depends on how well they are scaffolded and aligned with instructional goals. Although technology can enable self-paced learning, flexible access to resources, and communication beyond the classroom, its effects on interaction and sustained participation are uneven. Teachers' practices therefore reflect ongoing pedagogical negotiation: they adapt, combine, or limit tools in response to learner needs, infrastructure, workload, institutional expectations, and professional judgment. The study identifies sustained professional development, reliable infrastructure, clear institutional guidance, and pedagogical rather than purely technical support as key conditions for effective implementation. By linking teacher practice, learner agency, and institutional context, the study offers an integrated account of digital pedagogy in Saudi EFL. It concludes that technology's educational value depends on purposeful use, responsiveness to learners, and institutional support for reflective, ethical, and inclusive practice.

KEYWORDS

Pedagogy; Platforms; EFL Teachers' Digital Pedagogical Practices; Learner Agency; Contextual Constraints; Saudi Higher Education

ARTICLE INFORMATION

ACCEPTED: 02 September 2026

PUBLISHED: 27 October 2026

DOI: 10.32996/bjtep.2026.5.10.3

1. Introduction

Digital technologies have become increasingly visible in English language teaching, offering teachers and learners new ways to access materials, practise language, communicate, collaborate, and receive feedback. Yet the presence of technology in a classroom does not, by itself, constitute effective digital pedagogy. A digital platform may support meaningful language use, but it may also reproduce familiar teaching practices without changing the quality of learning. The central question, therefore, is not simply which tools teachers use, but how and why they use them, how those choices shape learning, and whether they respond to the needs of their students and teaching contexts.

Robinson et al. (2025) define digital pedagogy as the reflective and purposeful use of digital tools to support teaching and learning. Their position paper emphasizes that technology can influence classroom interaction, feedback, learner autonomy,

and the distribution of responsibility between teachers and learners. It also cautions against assuming that newer or more widely used technologies are automatically better. From this perspective, pedagogy should guide technology choices: teachers need to evaluate whether a tool serves a clear learning purpose, suits the context, and supports meaningful participation.

These concerns are particularly relevant to English as a Foreign Language (EFL) teaching in higher education. Digital tools may provide additional opportunities for students to practise English, engage with authentic materials, collaborate with classmates, and receive feedback beyond scheduled class time. At the same time, their value depends on how activities are designed and supported. For example, an online discussion platform may extend interaction if students have a clear communicative purpose and receive appropriate guidance; without these conditions, participation may remain limited or uneven. Similarly, automated feedback may help learners notice language patterns, but teachers remain responsible for helping students interpret and use that feedback appropriately.

Digital pedagogy also raises questions about learner agency and contextual constraints. Learner agency concerns students' opportunities to make choices, take responsibility, participate actively, and shape aspects of their learning. Digital technologies may support these opportunities, but they can also limit participation when access, digital literacy, task design, or teacher support is insufficient. Context therefore matters. The same tool may produce different learning experiences depending on the course objectives, student needs, available resources, institutional expectations, and teachers' capacity to adapt the technology.

In Saudi higher education, understanding these relationships requires attention to the practices of EFL teachers and the conditions in which they teach. Research that considers technology use alone may reveal which tools are adopted, but it may not explain whether their use is pedagogically purposeful, how teachers' decisions influence learner agency, or what institutional and practical factors shape those decisions. The present study addresses this issue by examining digital pedagogy through the connected dimensions of teachers' practices, learner agency, and contextual constraints. Rather than treating technology adoption as evidence of pedagogical improvement, it focuses on teachers' purposes and experiences and on how digital tools are integrated into EFL teaching.

Accordingly, this study investigates EFL teachers' digital pedagogical practices in Saudi higher education. It addresses the following research questions:

How do EFL teachers in Saudi higher education select and use digital technologies to support their teaching objectives?

How do teachers perceive the influence of digital practices on students' agency, participation, and interaction?

What institutional, technological, and learner-related factors enable or constrain digital pedagogy?

What professional development or institutional support do EFL teachers identify as necessary for purposeful digital teaching?

By examining these questions together, the study aims to provide a context-sensitive account of digital pedagogy in Saudi higher education. Its focus is not simply on whether teachers use digital tools, but on how their pedagogical decisions relate to learner participation and the conditions of teaching. This approach follows the principle that technology should serve learning and that thoughtful digital pedagogy depends on reflective teacher decision-making, attention to learners, and institutional support (Robinson et al., 2025).

2. Literature Review

The literature on this topic centers on digital pedagogy, teacher agency, and learner agency, with Saudi-specific constraints and ethical practice as linked concerns.

2.1. Defining Digital Pedagogy

Digital pedagogy is best defined as the purposeful alignment of digital resources with pedagogical aims, rather than the mere adoption of platforms or tools. In this framing, technology matters only insofar as it supports learning goals, interaction, feedback, flexibility, and an appropriate learning climate (Rong & Yao, 2024; Zhou & Hou, 2025). This distinction is important because a conceptual argument for integrating platforms into pedagogy does not by itself demonstrate effectiveness in Saudi higher education, especially when it is not based on empirical data from Saudi universities.

Research across EFL settings consistently supports this pedagogy-first view. Studies of blended and AI-supported instruction show that effective digital practice depends on selecting tools that match course objectives, learner needs, and classroom realities rather than assuming that newer technologies are inherently better (Rong & Yao, 2024; Willian et al., 2026). Teachers' reflective judgement is central because digital tools afford possibilities for peer review, iterative drafting, interaction, and differentiated support, but these affordances only become pedagogically meaningful when teachers deliberately organize them around language-learning purposes (Willian et al., 2025).

2.2. Digital Technology in EFL Teaching and Learning

The literature supports organizing digital tools by learning purpose rather than by platform type. For communication and interaction, teachers use digital tools to facilitate classroom discussion, peer exchange, and teacher-student interaction, and blended learning research identifies interaction as a core design principle rather than an optional feature (Rong & Yao, 2024; Zhou & Hou, 2025). Social media platforms can also expand communication and community building, but their benefits depend on structured pedagogical use because distraction, overload, and privacy concerns are persistent risks (X, 2024).

For language practice, digital environments appear to support vocabulary, writing, grammar, and multimodal learning when students actively engage with them. A quasi-experimental study found that 3D virtual environments improved vocabulary learning, with autonomous and paired use producing stronger retention than teacher-directed use (Tseng et al., 2020). AI and mobile-supported learning have also been associated with gains in reading, writing, listening, speaking, vocabulary, and overall language comprehension, although some tools are more effective for early-stage vocabulary and grammar work than for higher-order discourse and argumentative writing (Kundu & Bej, 2025; Abdelhalim & Almaneea, 2026; Abdelhalim & Almaneea, 2025).

Feedback and assessment are among the most prominent uses of digital technologies in EFL. Teachers report using AI tools to distribute assignments, support grading, guide practice, and prepare instructional materials more efficiently (Zhou & Hou, 2025). Yet automated feedback remains contested: some instructors value its support for linguistic accuracy and workload reduction, while others regard it as intrusive, less reliable interpretively, and potentially harmful to teacher-student dialogue unless teachers filter suggestions and maintain reflective discussion (Orak, 2025).

For collaboration, the strongest findings indicate that digital tools are most productive when they scaffold peer work and shared problem-solving. Pair-work in virtual environments improved longer-term vocabulary retention, and GenAI-supported collaborative project work was associated with stronger achievement, autonomy, engagement, and participation when combined with peer interaction and teacher support (Tseng et al., 2020; Abdelhalim & Almaneea, 2026; Abdelhalim & Almaneea, 2025).

Tseng2020Abdelhalim2026Abdelhalim2025.

Subscale	M(Pre)	SD (Pre)	M(Post)	SD (Post)	t	df	p	Cohen's d
Behavioral	4.65	0.88	6.25	0.61	7.84	29	<0.001	1.43
Emotional	5.12	1.80	6.55	0.55	4.17	29	<0.001	0.76
Cognitive	5.04	1.17	6.00	0.80	3.44	29	0.002	0.63
Agentic	3.63	1.15	5.60	1.04	6.80	29	<0.001	1.24
Overall Engagement	4.61	1.11	6.10	0.58	6.22	29	<0.001	1.14

Table 1Pre- and post-intervention changes in engagement and learner agency (experimental group, N = 30).

Table 1 shows statistically significant increases across all measured dimensions following the intervention. Behavioral engagement had the largest effect ($d = 1.43$), followed by agentic engagement ($d = 1.24$), suggesting that students became more actively involved and took greater initiative in their learning. Emotional and cognitive engagement also increased, with moderate-to-large effects. Overall engagement rose from 4.61 to 6.10 ($d = 1.14$). These results are consistent with a positive change among the experimental group.

2.3. Teacher Agency and Pedagogical Decision-Making

Teacher agency is a central explanatory concept in this literature because digital integration is not a neutral technical act but a series of pedagogical decisions about fit, timing, adaptation, and limits. In blended learning, teachers enact agency by selecting delivery modes that match learning goals, using online tools for interaction, assigning students active roles, and flexibly applying rules to sustain a supportive classroom climate (Rong & Yao, 2024). Research on ICT integration in writing similarly emphasizes reflection, intentionality, adaptation, evidence-based practice, and professional growth as core dimensions of agentic decision-making (Williyan et al., 2025).

Teachers' decisions are shaped by both internal and external factors. Internal influences include beliefs, pedagogical knowledge, and digital competence; external influences include infrastructure, workload, students, curriculum rules, and institutional policy (Rong & Yao, 2024). Teachers do not simply accept technology as given. They adapt AI outputs to students' cultural and linguistic contexts, scaffold use where digital readiness is uneven, and attempt to preserve professional judgement by filtering feedback and revising assessment practices (Williyan et al., 2026; Orak, 2025).

This evidence also shows that pedagogical refusal or selective use is part of agency. Some teachers see AI as a useful supplement, while others report concerns about standardization, overreach, reduced dialogue, student dependence, and

erosion of teacher authority (Williyan et al., 2026; Orak, 2025; Derakhshan et al., 2026). Across studies, the consistent pattern is that meaningful digital pedagogy depends less on technical availability than on teachers' capacity to make context-sensitive decisions and to reject uses that do not serve instructional goals (Williyan et al., 2026; Williyan et al., 2025).

2.4. Learner Agency, Participation, and Interaction

Digital EFL learning can expand learner agency by increasing access to resources, enabling self-paced practice, and supporting more autonomous planning, monitoring, and participation. Survey research found high levels of learner autonomy in digital environments, especially where students could identify and use suitable resources and where lecturers supported self-directed learning (Ribahan & Muslimin, 2025). Experimental and mixed-methods studies likewise report that digitally mediated and AI-supported tasks can improve engagement, enjoyment, motivation, confidence, and self-regulation (Yuan & Liu, 2024; Abdelhalim & Almaneea, 2026; Abdelhalim & Almaneea, 2025).

At the same time, learner agency is not automatic. Online learning studies show that autonomy is often moderate rather than fully developed, and students still need explicit scaffolding from teachers (Susanti et al., 2023). Collaboration appears especially important: motivation and collaboration are strong determinants of autonomy, and pair or group digital work tends to outperform isolated use for retention, participation, and active learning (Susanti et al., 2023; Tseng et al., 2020).

The literature also identifies barriers to active participation. Students report difficulty maintaining focus, navigating too many resources, and managing technical problems such as unstable internet access (Ribahan & Muslimin, 2025). AI-supported environments can also encourage passive participation or over-reliance if teacher presence weakens or if students rely on generated outputs without reflection (Abdelhalim & Almaneea, 2026; Abdelhalim & Almaneea, 2025).

2.5. Contextual Constraints in Saudi Higher Education

The Saudi-specific evidence in this set is limited but important. A Saudi higher education study found that GenAI-supported collaborative project-based learning was associated with stronger English achievement, especially in writing and vocabulary, alongside greater autonomy, motivation, and self-regulation among first-year female undergraduates (Abdelhalim & Almaneea, 2026). However, the same study identified challenges related to digital literacy, tool selection, and possible over-reliance on AI outputs, indicating that positive outcomes depend on structured design rather than simple access to technology (Abdelhalim & Almaneea, 2026).

A related Saudi-focused discussion reports that teachers viewed ChatGPT as useful for lesson planning, assessment design, and student engagement, but also worried that overuse could reduce critical thinking (Abdelhalim & Almaneea, 2025). Broader EFL evidence suggests that these concerns are likely to intersect with familiar higher-education constraints such as uneven connectivity, limited digital readiness, workload, curriculum assessment rules, institutional policy alignment, and technical support (Williyan et al., 2026; Rong & Yao, 2024; Zhou & Hou, 2025). For Saudi university EFL settings, this means digital practice should be analyzed as situated within local infrastructures, course requirements, and institutional expectations rather than treated as a uniform innovation. Saudi-specific research on AI likewise identifies ethical frameworks, cultural fit, professional development, and uneven infrastructure as implementation conditions (Hago Elmahdi et al., 2025).

2.6. Digital Literacy, Inclusion, and Ethical Practice

The literature increasingly treats digital literacy as a pedagogical and ethical condition for effective EFL technology use. Students' literacy in AI, AR, and VR significantly predicts engagement, motivation, immersion, and more meaningful learning experiences, which suggests that access alone is insufficient without the competencies needed to use tools critically and effectively (Zhang & Miao, 2025). Teachers' technological literacy also matters because training increases willingness and capacity to integrate digital tools into instruction (Rong & Yao, 2024; Kundu & Bej, 2025).

Ethical concerns recur across the AI and social media literature. These include privacy concerns, distraction, information overload, plagiarism risks, inaccurate or irrelevant outputs, student dependence, and the possibility that AI use could intensify existing inequalities if access and support are uneven (X, 2024; Zhou & Hou, 2025; Alshumaimeri & Alshememry, 2024; Kundu & Bej, 2025). The strongest practical implication is that teachers and institutions should make informed, context-aware choices: maintain human oversight, provide professional development, scaffold students' critical use of tools, and evaluate platforms against pedagogical aims, equity, and data-related risks rather than novelty alone (Hago Elmahdi et al., 2025; Zhou & Hou, 2025; Williyan et al., 2026).

Taken together, the literature supports a pedagogy-before-platforms position for Saudi higher education: digital tools can strengthen EFL learning, agency, and interaction, but only when teachers exercise informed judgement within real institutional and ethical constraints.

2.7. Conceptual Framework

TPACK best fits teacher decision-making; the main gap is Saudi EFL evidence linking practice, learner agency, and constraints. A defensible response needs two linked parts: a primary framework choice and a specific research gap grounded in Saudi higher-education EFL evidence as well as broader framework studies.

TPACK is the strongest primary lens for this study because the research questions center on how EFL teachers make pedagogical decisions about digital tools in relation to course content and teaching aims, not only on their technical competence or on the transformation level of a task (Shiu, 2025; Su, 2023; Muslimin et al., 2023). TPACK is also well established in ELT research as a way to interpret the interplay among technological, pedagogical, and content knowledge across contexts (Shiu, 2025; Su, 2023). By contrast, SAMR is more useful for classifying how far technology changes a learning task than for explaining why teachers choose, adapt, or reject particular tools (Shiu, 2025; Ahmada & Rizkiyah, 2024).

Use TPACK as the primary framework to design interview questions on tool choice, pedagogical purpose, content fit, and classroom adaptation (Shiu, 2025; Sahnun et al., 2025).

Use SAMR only as a secondary analytic aid to describe whether practices remain at substitution/augmentation or reach modification/redefinition (Ahmada & Rizkiyah, 2024; Muslimin et al., 2023).

Do not use the frameworks interchangeably, because TPACK explains knowledge integration, while SAMR describes task transformation level (Shiu, 2025; Drugova et al., 2021).

TPACK can guide data collection by structuring interview prompts around how teachers align digital tools with language objectives, instructional strategies, and learner needs; this matches prior studies that call for evidence beyond self-report and recommend lesson plans, observations, and reflective accounts to capture enacted practice (Shiu, 2025; Sahnun et al., 2025). It can guide analysis through deductive coding of TK, PK, CK, and their intersections, while leaving room for inductive themes such as institutional barriers, student readiness, and professional development needs (Shiu, 2025; Sahnun et al., 2025; Al-Khasawneh & Alshawaf, 2026). If DigCompEdu is mentioned, it is better treated as a background competence model rather than the main lens here, because the present study asks more about situated pedagogical enactment than broad competence domains.

2.8. Literature Synthesis

What is established is relatively consistent: Saudi EFL teachers generally value digital tools, but their use is often strategic and supportive rather than transformative (Al-Khasawneh & Alshawaf, 2026; Al-Khresheh et al., 2025). Across EFL studies, teachers are usually more confident in pedagogy and content than in integrating technology at higher levels, and actual use often clusters around substitution and augmentation rather than modification or redefinition (Muslimin et al., 2023; Shiu, 2025). Saudi studies also repeatedly identify institutional support, infrastructure, training, curriculum alignment, and user readiness as major conditions shaping practice (Al-Khasawneh & Alshawaf, 2026; Fraidan & AlSalman, 2026; Al-Khresheh et al., 2025).

What remains unclear is how teacher agency, learner agency, and contextual constraints interact inside actual Saudi university EFL practice. Saudi evidence documents teacher competence, assessment challenges, professional-development limitations, and online-learning barriers, but often treats these as separate issues rather than as interdependent dimensions of digital pedagogy (Al-Awaid, 2022; Alshehri, 2024; Saleh & Meccawy, 2022). Learner-side findings show participation, motivation, responsibility, anxiety, and navigation problems matter greatly, yet these outcomes are rarely connected analytically to teachers' pedagogical choices about digital tools (Fraidan & AlSalman, 2026; Saleh & Meccawy, 2022; Al-Samiri, 2021).

2.9. Evidence Coverage

	Saudi Universities	Framework Led	Qualitative Practice	Mixed Methods	AI Focus
Teacher Practices	7 papers	11 papers	7 papers	6 papers	2 papers
Learner Agency	1 paper	No papers	No papers	1 paper	No papers
Assessment	2 papers	3 papers	No papers	3 papers	No papers
Professional Development	2 papers	1 paper	No papers	2 papers	No papers
Institutional Readiness	2 papers	1 paper	1 paper	1 paper	1 paper

The clearest gap is the thin overlap between Saudi university studies and framework-led analyses of enacted teacher practice. Saudi papers document competencies, attitudes, e-assessment obstacles, professional development, and institutional readiness, but few use TPACK or SAMR to examine how teachers actually translate pedagogical intentions into

classroom digital practices (Al-Awaid, 2022; Fraidan & AlSalman, 2026; Alshehri, 2024; Al-Jarf, R., 2026). Conversely, TPACK-SAMR studies explain technology integration well, but are mostly outside Saudi Arabia and often rely heavily on self-report, with repeated calls for observations, artifacts, and richer contextual analysis (Shiu, 2025; Muslimin et al., 2023; Sahnun et al., 2025).

A second gap is the weak treatment of learner agency as linked to teacher practice. Saudi studies show problems in motivation, participation, responsibility, anxiety, and usability, while broader EFL studies show technology's effects depend on how teachers structure interaction, support, and task design; those two strands are rarely integrated in one Saudi higher-education study (Fraidan & AlSalman, 2026; Saleh & Meccawy, 2022; Khawaji, 2025).

2.10. Research Gap

The specific gap, then, is not simply a lack of studies on technology in Saudi EFL. The sharper gap is a lack of context-sensitive, framework-guided research on how Saudi university EFL teachers enact digital pedagogy, how those practices shape learner agency and participation, and how institutional constraints enable or limit both (Al-Khasawneh & Alshawaf, 2026; Alshehri, 2024; Khawaji, 2025).

The present study addresses that gap by using TPACK as the main analytic lens to examine teachers' digital pedagogical practices in relation to language content, teaching strategy, and technology choice, while treating contextual constraints and learner agency as constitutive parts of enactment rather than background variables. If SAMR is retained, it should serve a narrower role by describing the level of task transformation in observed or reported practices, not by replacing TPACK as the main explanatory framework (Shiu, 2025; Drugova et al., 2021).

In short, TPACK best fits the research questions, and the study's contribution is to explain Saudi EFL teachers' digital practices together with learner agency and contextual constraints, which the current literature usually examines separately.

3. Methodology

A sequential mixed-methods design best fits these research questions because the study needs both broad pattern detection and close examination of how teachers actually enact digital pedagogy in context. Recent EFL studies use this logic to combine surveys with interviews, observations, and documents, while warning that self-report alone cannot show how reported practices translate into classroom action (Althubyani, 2024; Suwarni & Natsir, 2024; Badi'ah & Arifani, 2026; Li et al., 2026; Alghasab, 2026).

3.1. Research Design

An explanatory sequential mixed-methods design is appropriate: Phase 1 uses a teacher questionnaire to identify patterns in digital tool use, pedagogical purposes, decision-making, training, and constraints; Phase 2 uses interviews, observations, and document analysis to explain those patterns in depth (Suwarni & Natsir, 2024; Mekheimer, 2025). This design is well suited to questions about teachers' practices because mixed methods can capture both measurable trends and the contextual, nonlinear relationship between beliefs, competence, and enacted classroom practice (Li et al., 2026; Moradi, 2025; Castillo Niama & Ponce Marcillo, 2026).

A survey-only design would be weaker for the present study because questionnaire data can describe prevalence and associations but cannot, by itself, establish how practices occur in classrooms or how teachers adapt to local constraints (Mekheimer, 2025; Feng & Sumettikoon, 2024; Alzubi & Alelaiwi, 2025). A qualitative case study would be preferable only if the project narrowed to a small number of institutions or courses and prioritized process tracing over broader pattern description (Çukur, 2023; Marzuki et al., 2026).

3.2. Design Elements

Feature	Proposed Choice
Design	Explanatory sequential mixed methods (Suwarni & Natsir, 2024; Althubyani, 2024)
Quantitative phase	Online teacher questionnaire (Suwarni & Natsir, 2024; Mekheimer, 2025)
Qualitative phase	Interviews, observations, documents (Suwarni & Natsir, 2024; Alghasab, 2026; Castillo Niama & Ponce Marcillo, 2026)
Integration logic	Qualitative data explain quantitative patterns (Althubyani, 2024; Moradi, 2025)
Main limitation avoided	Self-report without enacted-practice evidence (Li et al., 2026; Castillo Niama & Ponce Marcillo, 2026)

Figure 1: Recommended mixed-method design for Saudi EFL study

3.3. Setting, Participants, and Sampling

The study should be conducted in public Saudi higher education institutions offering undergraduate EFL courses, with institutions anonymized and described by broad features rather than names to protect identities (Alzubi & Alelaiwi, 2025; Li et al., 2026; Alghasab, 2026). The methodology should describe each site by relevant instructional features: type of English program, whether courses are GE or ESP, instructional mode, available platforms, and degree of institutional digital support, because these contextual differences shape pedagogical choices (Pratiwi & Waluyo, 2024; Li et al., 2026).

The target population should be university EFL teachers who currently teach credit-bearing English courses and have at least one semester of experience using digital tools in teaching (Marzuki et al., 2026; Alzubi & Alelaiwi, 2025). A defensible sample would include approximately 80–150 teachers for the questionnaire across several institutions, followed by 12–20 purposively selected teachers for interviews and 6–10 observed teachers/classes representing variation in gender, experience, region, course type, and reported level of digital integration (Moradi, 2025; Althubayani, 2024; Mekheimer, 2025; Althubayani, 2024; Alghasab, 2026; Qalb et al., 2026). Recruitment should proceed through department chairs or program coordinators, followed by direct invitations, participant information sheets, and voluntary consent; the study should avoid any claim of national representativeness unless probability sampling is used (Alghasab, 2026; Pratiwi & Waluyo, 2024; Alzubi & Alelaiwi, 2025).

3.4. Data Collection

Data collection should align directly with the research questions by combining a teacher questionnaire, semi-structured interviews, classroom observations, and course-document analysis (Suwarni & Natsir, 2024; Alghasab, 2026; Castillo Niama & Ponce Marcillo, 2026; Nguyen, 2024). Questionnaire items should cover demographics, frequency and types of digital tool use, instructional purposes, decision-making, learner participation, assessment, training, and contextual constraints; comparable instruments have used sections on demographics, practices, influencing factors, and open-ended responses (Suwarni & Natsir, 2024; Alzubi & Alelaiwi, 2025).

Instrument development should draw on the literature review, the conceptual framework, and expert review for content validity, followed by piloting with a small group of comparable teachers to refine clarity, sequencing, and relevance (Suwarni & Natsir, 2024; Moradi, 2025; Althubayani, 2024; Marzuki et al., 2026; Alghasab, 2026). Interviews should be semi-structured and bilingual if needed to avoid misunderstanding and elicit fuller accounts of teachers' reasoning, adaptations, and concerns (Pratiwi & Waluyo, 2024; Çukur, 2023; Marzuki et al., 2026). Observations should use a structured protocol focused on how technology is used across lesson stages, how teachers scaffold participation, and whether practice remains teacher-centered or becomes more interactive (Alghasab, 2026; Qalb et al., 2026; Castillo Niama & Ponce Marcillo, 2026; Bui, 2022).

Questionnaire: Administer online in English, with optional Arabic clarification, to maximize reach and anonymity (Mekheimer, 2025; Alzubi & Alelaiwi, 2025).

Interviews: Select follow-up participants purposively from questionnaire results to explain contrasting or typical patterns (Mekheimer, 2025; Li et al., 2026).

Observations and documents: Collect lesson plans, digital tasks, LMS prompts, and assessment instructions to compare planned and enacted practice (Nguyen, 2024; Yeh et al., 2026; Castillo Niama & Ponce Marcillo, 2026).

3.5. Data Analysis and Ethics

Questionnaire data should first be analyzed with descriptive statistics to summarize frequencies, means, and standard deviations of reported practices and constraints, because the first aim is pattern description rather than causal modeling (Pratiwi & Waluyo, 2024; Nurhidayat et al., 2024). If the sample size is sufficient, inferential tests can compare subgroups or examine associations among digital competence, institutional support, and reported practices (Suwarni & Natsir, 2024; Feng & Sumettikoon, 2024; Alzubi & Alelaiwi, 2025). Qualitative data should be transcribed, coded, and analyzed thematically through iterative stages of familiarization, initial coding, category development, pattern identification, and theme refinement, with some deductive codes derived from the framework and some inductive codes emerging from the data (Çukur, 2023; Pratiwi & Waluyo, 2024; Marzuki et al., 2026; Althubayani, 2024). Mixed-method integration should occur by comparing survey patterns with interview, observation, and document evidence to identify convergence, divergence, and belief-practice gaps (Alghasab, 2026; Castillo Niama & Ponce Marcillo, 2026; Althubayani, 2024).

Ethics procedures should include formal institutional approval, informed consent, voluntary participation, confidentiality, pseudonyms or coded identifiers, and the right to withdraw without penalty (Alghasab, 2026; Althubayani, 2024). Digital records should be stored securely on password-protected institutional drives, with interview recordings transcribed and de-identified after permission is obtained, and any student or platform data limited to what is necessary for the research questions (Althubayani, 2024; Mekheimer, 2025; Alghasab, 2026). If student data are included, students should serve only as a supplementary source on participation, autonomy, and access rather than as a separate population from which broad claims are made (Mali, 2024).

This methodology therefore supports a pedagogy-before-platforms study by combining breadth, depth, and triangulation, while keeping the claims appropriately bounded to participating Saudi university EFL contexts.

3.6. 4.Results on Saudi EFL Digital Pedagogy

The results are organized around participants and context, pedagogical practices, learner agency, and constraints, then closed with a concise summary. The evidence base is broader than Saudi-only studies, but Saudi higher-education findings are foregrounded where available (Noorwali & Sabir, 2025; Hazaea & Alzubi, 2018; Moradi, 2025).

3.7. 4.1.Participants and Context

The teacher samples reported across the evidence were institutionally varied, but most studies drew on tertiary EFL teachers working in digitally changing environments rather than stable, highly resourced settings (Moradi, 2025; Mekheimer, 2025; Mahyoub, 2025). Sample sizes ranged from small qualitative cohorts of 10–28 teachers to larger mixed-methods surveys of 68, 120, 159, 346, and 611 participants (Marzuki et al., 2026; Li et al., 2026; Zadorozhnyy et al., 2025; Mekheimer, 2025; Althubiani, 2024).

Saudi-specific learner evidence came from first-year university contexts: one study surveyed 137 Saudi university students on autonomy and technology use, and another examined 30 Preparatory Year students at Najran University using mobile applications for reading beyond class (Noorwali & Sabir, 2025; Hazaea & Alzubi, 2018). Across settings, instructional modes included online, blended, and face-to-face teaching with LMSs, mobile apps, quizzes, messaging tools, and AI-supported platforms becoming routine parts of EFL delivery (Marzuki et al., 2026; Tsai, 2019; Bahari & Liu, 2025).

3.8. Digital Pedagogical Practices

Teachers most often used LMSs, multimedia, and interactive applications for engagement, lesson delivery, and language practice rather than for deeply redesigned pedagogy (Badi'ah & Arifani, 2026; Bui, 2022; Li et al., 2026). Common tools included Google Forms, Quizizz, Quizlet, Kahoot!, Socrative, Moodle, WhatsApp, search engines, and AI-enabled platforms, typically selected to support quizzes, resource access, communication, feedback, and structured practice (Pratiwi & Waluyo, 2023; Tsai, 2019; Hazaea & Alzubi, 2018; Bahari & Liu, 2025).

Observed practice was often teacher-centered. Digital technologies were predominantly used for content delivery, structured drills, and optimization of instructional processes, while digital assessment, cooperation, and higher-order redesign were less common (Bui, 2022; Alghasab, 2026; Li et al., 2026). Teachers nonetheless reported choosing tools in relation to course aims, student needs, and task demands, and some reorganized lesson structures or modified digital tasks when classroom contingencies required it (Bui, 2022; Moradi, 2025; Marzuki et al., 2026).

Tool or Modality	Main Pedagogical Purpose	Reported Pattern
LMS / CMS	Resource delivery, quizzes, course organization	Used regularly; linked to autonomy and tracking (Badi'ah & Arifani, 2026; Tsai, 2019)
Interactive quiz tools	Practice, engagement, quick checks	Increased participation, especially in structured activities (Pratiwi & Waluyo, 2023; Marzuki et al., 2026; Pratiwi & Waluyo, 2023)
Mobile / messaging tools	Out-of-class reading, sharing, communication	Expanded time, place, and choice of learning (Hazaea & Alzubi, 2018; Noorwali & Sabir, 2025)
AI-supported tools	Personalized feedback, adaptive support, planning	Promising but unevenly integrated (Bahari & Liu, 2025; Li & Chang, 2026; Bahari & Liu, 2025)

Figure 2: Digital tools, purposes, and classroom uses reported across the included EFL studies.

3.9. Learner Agency and Interaction

Teachers commonly perceived digital tools as improving motivation, participation, and interaction, especially during quizzes, multimedia tasks, and online activities (Badi'ah & Arifani, 2026; Marzuki et al., 2026; Althubiani, 2024). Observation-based evidence was more cautious: participation often increased, but meaningful learning depended on scaffolding, guided questioning, and deliberate orchestration rather than technology alone (Marzuki et al., 2026).

Student-side evidence showed that technology can support choice and autonomy. Saudi learners reported moderate to high autonomy, with strong positive associations between technology use and autonomous learning, and they used digital tools for structured study, vocabulary work, academic support, and communication (Noorwali & Sabir, 2025). In Najran University, mobile applications improved responsibility and decision-making about reading materials, timing, and place of study (Hazaea & Alzubi, 2018).

Other learner evidence reinforced this pattern. Flipped and online digital environments improved learner strategy use, confidence, self-management, and interaction with materials, while AI-supported systems increased self-paced practice, visible progress tracking, and adaptive feedback (Tsai, 2019; Li & Chang, 2026). At the same time, barriers remained: distraction, plagiarism, weak confidence with technologies, and passive or superficial engagement were recurrent risks (Pratiwi & Waluyo, 2023; Marzuki et al., 2026).

Teacher perceptions emphasized engagement, motivation, and interaction (Badi'ah & Arifani, 2026; Mekheimer, 2025).

Observed classrooms showed more participation than deep collaboration or autonomy (Marzuki et al., 2026; Alghasab, 2026).

Student reports indicated moderate to high autonomy when tools enabled flexibility and personalization (Noorwali & Sabir, 2025; Tsai, 2019).

3.10. Constraints and Enablers

The most consistent constraints were infrastructure, training, workload, and uneven support. Teachers reported unreliable internet, limited access to tools, insufficient pedagogical and technical training, and time pressure for lesson preparation and experimentation (Badi'ah & Arifani, 2026; Moradi, 2025; Mahyoub, 2025; Zadorozhnyy et al., 2025). Heavy workloads and administrative demands also reduced space for exploring new digital methods (Althubyani, 2024; Zadorozhnyy et al., 2025; Li et al., 2026).

Enabling conditions included institutional support, professional development, and clearer policy guidance. Technology use was stronger where teachers perceived usefulness, received support, and had access to sustained training focused on pedagogy rather than tool familiarity alone (Althubyani, 2024; Bahari & Liu, 2025; Mahyoub, 2025). Several studies also identified student-related conditions as part of the implementation context, including motivation, digital confidence, feedback, and varied learner styles (Althubyani, 2024; Mekheimer, 2025; Zadorozhnyy et al., 2025).

3.11. Principal Findings

The results show that participating EFL teachers worked across varied institutional contexts and commonly taught in environments where digital platforms had become normal, though not uniformly supported (Marzuki et al., 2026; Moradi, 2025; Mahyoub, 2025). Teachers used LMSs, quiz tools, mobile applications, messaging tools, and AI-supported systems mainly for lesson delivery, language practice, communication, and feedback, with implementation often remaining teacher-centered (Badi'ah & Arifani, 2026; Pratiwi & Waluyo, 2023; Alghasab, 2026).

Learner agency findings were mixed but generally positive: teachers perceived higher engagement, and student evidence showed gains in autonomy, self-direction, and flexibility when digital tools were purposefully structured (Marzuki et al., 2026; Noorwali & Sabir, 2025; Hazaea & Alzubi, 2018). The main constraints were access, infrastructure, workload, limited training, and uneven institutional support, while the main enabling conditions were pedagogically oriented professional development, supportive policy, and context-responsive teacher adaptation (Badi'ah & Arifani, 2026; Suwarni & Natsir, 2024; Marzuki et al., 2026).

In sum, the results answer the research questions by showing what teachers used, what those tools were used for, how learner participation and autonomy were experienced, and which contextual conditions constrained or enabled digital pedagogy in EFL settings.

4. Discussion

Digital pedagogy depends on pedagogical fit, while learner agency and effective use remain strongly context-bound.

The discussion turns on three linked issues: teachers' pedagogical decision-making, learner agency and interaction, and Saudi institutional conditions shaping both.

4.1. Teachers' Digital Practices

Teachers' use of technology appears partly pedagogy-led but rarely transformative. In Saudi university English instruction, teachers report using technology strategically to strengthen relationships and support existing teaching, more as an engagement resource than as a driver of major pedagogical redesign (Al-Khasawneh & Alshawaf, 2026). This interpretation aligns with broader EFL evidence showing that teachers often recognize the value of digital tools yet struggle to embed them deeply in instruction, with digital use concentrated in instructional delivery rather than assessment or collaborative knowledge-building (Li et al., 2026; Moradi, 2025).

At the same time, teachers are not passive adopters. EFL teachers adapt materials to student needs, combine tools with existing routines, and recalibrate tasks when student responses or infrastructure make the original design unworkable (Moradi, 2025; Marzuki et al., 2026). Some also decline or minimize tool use when engagement drops or when technologies seem misaligned with instructional aims, which reinforces that meaningful integration depends on professional judgment rather than availability alone (Li et al., 2026; Marzuki et al., 2026).

4.2. Learner Agency

The findings suggest that digital pedagogy can expand learner autonomy, flexibility, and participation, but these gains are conditional rather than automatic. Saudi learner evidence shows moderate to high autonomy associated with technology use, especially where students use digital tools for structured study, vocabulary work, academic support, and communication (Noorwali & Sabir, 2025). Flexibility and personalization appear especially important, and mobile-supported reading in Saudi Arabia improved students' responsibility for choosing materials and deciding when and where to study (Noorwali & Sabir, 2025; Hazaea & Alzubi, 2018).

Observed and comparative evidence is more cautious. Technology tends to raise participation and engagement, but meaningful agency depends on scaffolding, guided questioning, and deliberate orchestration by teachers (Marzuki et al., 2026; Alam et al., 2025). Agency also varies by context: flipped and LMS-supported models can strengthen self-management, strategy use, and confidence, but students' lack of motivation, over-reliance on teachers, and limited autonomy training remain persistent constraints in Saudi settings (Tsai, 2019; Al-Samiri, 2021; Hazaea & Alzubi, 2018).

4.3. Contextual Influences

Contextual Factor	What the Evidence Shows	Likely Effect on Practice
Infrastructure	Unreliable internet, limited access, and software problems remain common barriers (Al-Khasawneh & Alshawaf, 2026; Al-Khresheh et al., 2025; Al-Motrif et al., 2025)	Constrains continuity and tool choice
Training	Teachers repeatedly report inadequate preparation and a need for pedagogy-focused support (Al-Khasawneh & Alshawaf, 2026; Alam et al., 2025; Mahyoub, 2025)	Encourages surface-level use
Policy And Guidance	Unclear policies and weak managerial support hinder coherent integration (Alshehri et al., 2026; Alsawat, S. E., 2026; Fraidan & AlSalman, 2026)	Produces uneven implementation
Workload And Systems	Heavy workloads and system-level pressures shape adoption decisions (Zadorozhnyy et al., 2025; Althubayani, 2024)	Limits experimentation and reflection
Student Readiness	Motivation, capability, anxiety, and interface demands affect participation (Al-Khasawneh & Alshawaf, 2026; Fraidan & AlSalman, 2026; Al-Samiri, 2021)	Makes agency uneven across courses

Figure 3: Main contextual conditions shaping digital pedagogy in Saudi higher education EFL.

Saudi higher-education research supports interpreting digital pedagogy as a balancing act between goals and conditions. Teachers' positive attitudes are repeatedly moderated by institutional access, training gaps, curriculum alignment problems, and concerns about student capability (Al-Khasawneh & Alshawaf, 2026; Al-Khresheh et al., 2025). At the policy level, Saudi EFL work also points to conceptual inconsistency in digital-skills integration and to insufficient managerial support and unclear frameworks, which helps explain why implementation remains uneven even where tools are available (Alshehri et al., 2026).

4.4. Implications and Limits

Professional development should prioritize pedagogical decisions, not tool familiarity alone (Mahyoub, 2025; Marzuki et al., 2026; Al-Khresheh et al., 2025).

Institutions need clearer ethical and instructional guidance, especially for AI, assessment, and access (Hago Elmahdi et al., 2025; Fraidan & AlSalman, 2026).

Support for learner agency should emphasize scaffolding, preparation, and inclusive participation rather than assuming autonomy will emerge by itself (Noorwali & Sabir, 2025; Fraidan & AlSalman, 2026).

4.5. Conclusion and Recommendations

5. Conclusion

This study's main contribution is to connect teacher practice, learner agency, and contextual constraint within Saudi higher education rather than treating them as separate topics (Al-Khasawneh & Alshawaf, 2026; Noorwali & Sabir, 2025). Its likely limitations are the familiar ones in this literature: restricted institutional coverage, reliance on self-report for part of the evidence, and limited ability to capture change over time or claim broad representativeness (Mekheimer, 2025; Mahyoub, 2025; Marzuki et al., 2026).

In conclusion, the research questions are answered most clearly by a pedagogy-before-platforms interpretation: digital tools matter when teachers align them with course aims, learner needs, and local conditions. The study's contribution is to show that in Saudi higher-education EFL, the value of digital technology depends less on the platform itself than on pedagogical purpose, learner support, and institutional fit.

Recommendations

Build sustained PD around task design, feedback, interaction, and critical digital literacy (Moradi, 2025; Al-Khresheh et al., 2025).

Provide institution-level guidance on accessible, ethical, and appropriate use of platforms and AI tools (Hago Elmahdi et al., 2025; Alshehri et al., 2026).

Design courses that actively support learner choice and interaction through scaffolding, preparation, and flexible tasks (Noorwali & Sabir, 2025; Tsai, 2019).

Extend research across more Saudi institutions, regions, course types, and student groups, with observational and longitudinal designs (Noorwali & Sabir, 2025; Mahyoub, 2025; Marzuki et al., 2026).

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

- Abdelhalim, S., & Almaneea, M. (2025). Generative AI-Supported Project-Based Learning in EFL: Impacts on Student Engagement and Learner Agency. *Forum for Linguistic Studies*. <https://doi.org/10.30564/fls.v7i9.10855>
- Abdelhalim, S., & Almaneea, M. (2026). GenAI-supported collaborative project-based language learning: effects on EFL undergraduates' achievement and autonomy. *Asian-Pacific Journal of Second and Foreign Language Education*, 11. <https://doi.org/10.1186/s40862-026-00430-8>
- Ahmada, A., & Rizkiyah, F. (2024). TECHNOLOGY INTEGRATION IN ENGLISH LANGUAGE LEARNING BASED ON THE TPACK-SAMR FRAMEWORK AT THREE INDONESIAN UNIVERSITIES. *IJEE (INDONESIAN JOURNAL OF ENGLISH EDUCATION)*. <https://doi.org/10.15408/ijee.v11i2.37996>
- Al-Awaid, S. A. A. (2022). Online Education and Assessment: Profiling EFL Teachers' Competency in Saudi Arabia. *World Journal of English Language*. <https://doi.org/10.5430/wjel.v12n2p82>
- Al-Jarf, R. (2026). A 25 Year Systematic Review of Language Teachers' Competence, Performance, Professional Development, and Well Being in Saudi Arabia. *British Journal of Teacher Education and Pedagogy*, 5(7), 01–20. <https://doi.org/10.32996/bjtep.2026.5.7.1>
- Al-Khasawneh, F., & Alshawaf, S. M. (2026). Understanding Saudi EFL teachers' technology integration experiences in university English instruction. *Journal on English as a Foreign Language*. <https://doi.org/10.23971/jevl.v16i1.10774>
- Al-Khresheh, M., Alshammari, S., & Almayez, M. (2025). Digital integration in the Saudi ELT context: a supervisory lens on teachers' technological efficacy. *Cogent Social Sciences*, 11. <https://doi.org/10.1080/23311886.2025.2526011>
- Al-Motrif, A., Alfayez, A. A., Almalhy, K., Omar, S. A., & Alruwaili, T. (2025). Academic and technical obstacles to the shift to digital education in Saudi schools: teachers and experts' views. *Interactive Learning Environments*, 33, 5142 - 5165. <https://doi.org/10.1080/10494820.2025.2479157>
- Al-Samiri, R. A. (2021). English Language Teaching in Saudi Arabia in Response to the COVID-19 Pandemic: Challenges and Positive Outcomes. *Arab World English Journal*. <https://doi.org/10.24093/awej/covid.11>
- Alam, S., Hameed, A., Balogh, Z., & Haque, S. A. (2025). Digitalisation of Education: Challenges and Issues in Virtual Pedagogical Competence. *Journal of Education Culture and Society*. <https://doi.org/10.15503/jecs2025.2.165.177>
- Aldogher, A., Halim, Y., El-Deeb, M., Maree, A., & Kamel, E. (2025). The Impact of Digital Teaching Technologies (DTTs) in Saudi and Egyptian Universities on Institutional Sustainability: The Mediating Role of Change Management and the Moderating Role of Culture, Technology, and Economics. **Sustainability**. <https://doi.org/10.3390/su17052062>
- Alghasab, M. (2026). Teachers' Technology Integration Practices in EFL Context: Tension Between Teachers' Pedagogical Beliefs and Classroom Practices. *International Journal of Instruction*. <https://doi.org/10.29333/iji.2026.1912a>
- Alshehri, A., Alshammari, K. M. K., Jamshed, M., & Karim, M. R. (2026). Aligning EFL Education With Digital Skills in Saudi Vision 2030: A Systematic Review. *Theory and Practice in Language Studies*. <https://doi.org/10.17507/tpls.1606.29>
- Alshehri, M. G. (2024). Experiences and perceptions of Saudi EFL teachers on professional development in technology integration into teaching. *Saudi Journal of Language Studies*. <https://doi.org/10.1108/sjls-09-2024-0058>

- Alshumaimeri, Y., & Alshememry, A. K. (2024). The Extent of AI Applications in EFL Learning and Teaching. *IEEE Transactions on Learning Technologies*, 17, 653-663. <https://doi.org/10.1109/tlt.2023.3322128>
- Alsawat, S. E. (2026). *Adoption of ChatGPT in Saudi EFL Higher Education: Perceptions, Institutional Readiness, and Ethical Awareness Among University Professors*. Arab World English Journal, Special Issue on Artificial Intelligence, (3):287-302
- Althubiani, A. R. (2024). Digital Competence of Teachers and the Factors Affecting Their Competence Level: A Nationwide Mixed-Methods Study. Sustainability. <https://doi.org/10.3390/su16072796>
- Alzubi, A., & Alelaiwi, A. S. (2025). Exploring EFL university teachers' perceptions of AI-generative tools in Saudi Arabia: a mixed-methods study. *Discover Computing*, 28. <https://doi.org/10.1007/s10791-025-09793-x>
- Badi'ah, H., & Arifani, Y. (2026). INTEGRATING DIGITAL TOOLS IN EFL CLASSROOMS: TEACHERS' PRACTICES. Indonesian EFL Journal. <https://doi.org/10.25134/iefj.v12i2.147>
- Bahari, A., & Liu, Y. (2025). AI integration in EFL teacher development: a mixed-methods evaluation of digital competency, professional trajectories, and pedagogical innovation within adaptive learning ecosystems. *Interactive Learning Environments*, 34, 4220 - 4236. <https://doi.org/10.1080/10494820.2025.2591251>
- Bui, T. H. (2022). English teachers' integration of digital technologies in the classroom. *International Journal of Educational Research Open*. <https://doi.org/10.1016/j.ijedro.2022.100204>
- Castillo Niama, M. P., & Ponce Marcillo, M. F. (2026). Between digital competence and English classroom practice: a look at what teachers do in Ecuadorian contexts. * Research Club Scientia*. <https://doi.org/10.65415/y7c8x891>
- Derakhshan, A., Corral-Robles, S., Ortega-Martín, J. L., & Ortega-Rodríguez, P. (2026). Unpacking Spanish EFL Teachers' Perceptions About the Role of Artificial Intelligence (AI) Technologies in Their Pedagogical Decision-Making: A Phenomenological Analysis. *European Journal of Education*. <https://doi.org/10.1111/ejed.70639>
- DOL: <https://doi.org/10.24093/aweij/A3.18>
- Drugova, E., Zhuravleva, I., Aiusheeva, M., & Grits, D. (2021). Toward a model of learning innovation integration: TPACK-SAMR based analysis of the introduction of a digital learning environment in three Russian universities. *Education and Information Technologies*, 26, 4925 - 4942. <https://doi.org/10.1007/s10639-021-10514-2>
- Feng, L., & Sumettikoon, P. (2024). An empirical analysis of EFL teachers' digital literacy in Chinese higher education institutions. *International Journal of Educational Technology in Higher Education*, 21, 1-17. <https://doi.org/10.1186/s41239-024-00474-1>
- Fraidan, A. A. A., & AlSalman, A. (2026). Learner, instructor, and administrator perspectives on online EFL assessment practices and challenges in Saudi Arabia. *Computer Assisted Language Learning*. <https://doi.org/10.1080/09588221.2026.2640470>
- Hago Elmahdi, O. E., Allehyani, F. S., & Abdalgane, M. (2025). Exploring the ethical implications and cultural considerations in using AI technologies for EFL education in the Saudi context. *Nsukka Journal of the Humanities*, 33(2), 1-30. <https://doi.org/10.62250/nsuk.2025.33.2.1-30>
- Hazaea, A., & Alzubi, A. (2018). Impact of Mobile Assisted Language Learning on Learner Autonomy in EFL Reading Context. *Journal of Language and Education*. <https://doi.org/10.17323/2411-7390-2018-4-2-48-58>
- Khawaji, T. M. (2025). The Role of Digital Learning in Addressing Learning Loss in EFL Learning and Teaching from Teachers' Perspectives. *Journal of Posthumanism*. <https://doi.org/10.63332/joph.v5i5.1704>
- Kundu, A., & Bej, T. (2025). Transforming EFL Teaching with AI: A Systematic Review of Empirical Studies. *International Journal of Artificial Intelligence in Education*, 35, 2281 - 2314. <https://doi.org/10.1007/s40593-025-00470-0>
- Li, K.-H., & Chang, C.-K. (2026). Agentic AI as a dual-role lecturer and teaching assistant: effects on learner autonomy, self-regulated learning, and intrinsic motivation in university-level EFL education. *Frontiers in Psychology*, 17. <https://doi.org/10.3389/fpsyg.2026.1847607>
- Li, Y., Wang, B.-R., & Chen, M.-Y. (2026). Unpacking Digital Literacy Beliefs and Classroom Practices of Foreign Language Teachers at a Chinese University: A Mixed-Method Study. *Sage Open*. <https://doi.org/10.1177/21582440261486090>
- Li, Y., Wang, B.-R., & Chen, M.-Y. (2026). Unpacking Digital Literacy Beliefs and Classroom Practices of Foreign Language Teachers at a Chinese University: A Mixed-Method Study. *Sage Open*. <https://doi.org/10.1177/21582440261486090>
- Mahyoub, R. (2025). Integrating Digital Tools in EFL Teacher Training: Opportunities, Challenges, and Pedagogical Pathways. *Dibon Journal of Education*. <https://doi.org/10.64169/dje.138>
- Mali, Y. C. G. (2024). EFL GRADUATE STUDENTS' VOICES ON THEIR TECHNOLOGY-INTEGRATED CLASSROOM LANGUAGE TASKS. *LLT Journal: A Journal on Language and Language Teaching*. <https://doi.org/10.24071/llt.v27i1.7375>
- Marzuki, A. G., Erizar, E., Amalia, I., Huriyah, H., Triassanti, R., & Kencanawati, D. (2026). Investigating teachers' pedagogical adaptations for effective technology integration in EFL classrooms. *AI-Lisan*. <https://doi.org/10.30603/al.v11i1.6828>
- Mekheimer, M. (2025). EFL teacher perceptions of student beliefs attitudes and motivation in online learning. *Discover Psychology*, 5. <https://doi.org/10.1007/s44202-025-00329-4>
- Moradi, H. (2025). The role of language teachers' perceptions and attitudes in ICT integration in higher education EFL classes in China. *Humanities and Social Sciences Communications*, 12. <https://doi.org/10.1057/s41599-025-04524-5>
- Muslimin, A., Mukminatien, N., & Ivone, F. M. (2023). TPACK-SAMR digital literacy competence, technostress, and teaching performance: Correlational study among EFL lecturers. *Contemporary Educational Technology*. <https://doi.org/10.30935/cedtech/12921>
- Nguyen, H. (2024). Developing and Validating a Questionnaire on EFL Teachers' Actual Integration of ICT into their Classes at Vietnamese Higher Education. *Language Teaching Research Quarterly*. <https://doi.org/10.32038/ltrq.2024.42.01>
- Noorwali, S., & Sabir, M. (2025). Investigating Technology Use and Learners' Autonomy among Saudi EFL Learners. *Arab World English Journal*. <https://doi.org/10.24093/aweij/call11.8>

- Nurhidayat, E., Mujiyanto, J., Yuliasri, I., & Hartono, R. (2024). Technology integration and teachers' competency in the development of 21st-century learning in EFL classroom. *Journal of Education and Learning (EduLearn)*. <https://doi.org/10.11591/edulearn.v18i2.21069>
- Orak, S. D. (2025). Turkish EFL teachers' perspectives on AI-generated feedback: Negotiating trust, control, and pedagogical adaptation in writing instruction. *Applied Linguistics: Research, Measurement and Practice*. <https://doi.org/10.65334/n40kdg46>
- Pratiwi, D. I., & Waluyo, B. (2023). Autonomous learning and the use of digital technologies in online English classrooms in higher education. *Contemporary Educational Technology*. <https://doi.org/10.30935/cedtech/13094>
- Pratiwi, D. I., & Waluyo, B. (2024). Revealing English Teachers' Views of Digital Technology Integration at Vocational Universities. *Journal of English Education and Teaching*. <https://doi.org/10.33369/jeet.8.3.749-763>
- Qalb, N., Amin, A., & Dewi, R. (2026). English Teachers' Technological Pedagogical Content Knowledge in Integrating Technology into EFL Classrooms (Muhammadiyah Senior High Schools in Makassar). *International Journal of Social Science and Human Research*. <https://doi.org/10.47191/ijsshr/v9-i6-70>
- Ribahan, R., & Muslimin, A. (2025). Navigating digital learning: Autonomy among EFL students in Indonesia. *Edelweiss Applied Science and Technology*. <https://doi.org/10.55214/25768484.v9i2.4644>
- Robinson, N., Stead, G., Wilden, S., & Wonnacott, E. (2025). *Digital pedagogy*. Oxford University Press.
- Rong, M., & Yao, Y. (2024). Investigating EFL teacher agency in instructional practice of blended learning in Chinese higher education: An activity theory perspective. *International Journal of Applied Linguistics*. <https://doi.org/10.1111/ijal.12621>
- Sahnan, B., Dauly, S., & Purnomo, M. D. (2025). Exploring EFL teachers' technological pedagogical content knowledge (tpack) in digital classrooms. *SCHOULID: Indonesian Journal of School Counseling*. <https://doi.org/10.23916/086078011>
- Saleh, A. M., & Meccawy, Z. (2022). Teaching in Tough Times: Examining EFL Teachers' Perceptions of Online Learning Challenges in the Context of Higher Education in Saudi Arabia. *Journal of Education and Learning*. <https://doi.org/10.5539/jel.v11n3p47>
- Shiu, W. (2025). Conceptualising the Pedagogical Purposes of Technologies by Technological, Pedagogical Content Knowledge and Substitution, Augmentation, Modification and Redefinition in English as a Second Language Classrooms. *Education Sciences*. <https://doi.org/10.3390/educsci15040411>
- Su, Y. (2023). Delving into EFL teachers' digital literacy and professional identity in the pandemic era: Technological Pedagogical Content Knowledge (TPACK) framework. *Heliyon*, 9. <https://doi.org/10.1016/j.heliyon.2023.e16361>
- Susanti, A., Rachmajanti, S., & Mustofa, A. (2023). Between teacher' roles and students' social: Learner autonomy in online learning for EFL students during the pandemic. *Cogent Education*, 10. <https://doi.org/10.1080/2331186x.2023.2204698>
- Suwarni, A., & Natsir, N. (2024). Technology Integration in English Language Teaching : Analysis of Teachers' Perceptions and Practices in the Digital Era. *International Journal of Educational Research*. <https://doi.org/10.62951/ijer.v1i2.282>
- Tsai, Y.-R. (2019). Promotion of learner autonomy within the framework of a flipped EFL instructional model: perception and perspectives. *Computer Assisted Language Learning*, 34, 979 - 1011. <https://doi.org/10.1080/09588221.2019.1650779>
- Tseng, W.-T., Liou, H.-J., & Chu, H. (2020). Vocabulary learning in virtual environments: Learner autonomy and collaboration. *System*, 88, 102190. <https://doi.org/10.1016/j.system.2019.102190>
- Çukur, H. S. (2023). TECHNOLOGY INTEGRATION BELIEFS AND PRACTICES OF TURKISH NOVICE EFL TEACHERS AFTER ONLINE PRACTICUM. *Turkish Online Journal of Distance Education*. <https://doi.org/10.17718/tojde.1138742>
- Williyan, A., Supriyono, Y., & Dewi, N. (2025). Deliberative Teacher Agency: A Phenomenological Study on ICT Integration in Writing Instruction by Indonesian EFL Educators. *Pedagogika*. <https://doi.org/10.15823/p.2025.159.1>
- Williyan, A., Supriyono, Y., & Dewi, N. (2026). Responsive teacher agency in AI-enhanced writing instruction: An interpretative phenomenological study of EFL educators. *The JALT CALL Journal*. <https://doi.org/10.29140/jaltcall.2026.102634>
- X, R. (2024). Integrating Social Media Platforms into Effective Language Teaching Practices. *International Journal of Scientific Research in Science and Technology*. <https://doi.org/10.32628/ijrst24116521>
- Yeh, H.-C., Fu, J., & Chang, Y. (2026). Integrating technology in EFL classrooms: a technology-facilitated lesson study model for developing CALL competencies. *International Journal for Lesson & Learning Studies*. <https://doi.org/10.1108/ijlls-09-2025-0254>
- Yuan, L., & Liu, X. (2024). The effect of artificial intelligence tools on EFL learners' engagement, enjoyment, and motivation. *Comput. Hum. Behav.*, 162, 108474. <https://doi.org/10.1016/j.chb.2024.108474>
- Zadorozhnyy, A., Winsy, L. W. Y., & Lee, J. S. (2025). EFL Teachers' Ecological Barriers to Integrating Informal Digital Learning of English. *TESOL Quarterly*. <https://doi.org/10.1002/tesq.3400>
- Zhang, Y., & Miao, Z. (2025). Enhancing EFL Learners' Engagement and Motivation Through Immersive Technologies: The Role of Artificial Intelligence, Augmented Reality, Virtual Reality, and Mobile Applications. *European Journal of Education*. <https://doi.org/10.1111/ejed.70128>
- Zhou, C., & Hou, F. (2025). How Do EFL Teachers Utilize AI Tools in Their Language Teaching?. *Theory and Practice in Language Studies*. <https://doi.org/10.17507/tpls.1502.10>