

Exploring Characteristics of Technology in English Language Instruction Striving for EFL Teachers Excellence

^{1*} Ahmad Bayu Kusumo, ²Hou Wang Qian, ³Hagehowa Cubarsi

¹English Language Education, Faculty of Language, Arts, and Culture, Universitas Negeri Yogyakarta, Karang Malang, DIY Yogyakarta, Indonesia

²Department of Chinese Language and Literature, Faculty of Humanities, Peking University, No. 5 Yiheyuan Road, Haidian District, Beijing, China

³Language and Literature, Faculty of Education and Humanities, Abat Oliba CEU University, Barcelona, Spain

*Corresponding Author Email: ahmadbayu.k@uny.ac.id

Received: March 2026, Revised: April 2026; Accepted: May 2026; Published: May 2026

Abstract

This study explores the main characteristics of technology in English language instruction and examines how these characteristics influence the pursuit of EFL teachers' excellence in technology-enhanced teaching. The study is grounded in the growing integration of digital tools into language classrooms and the increasing expectation that EFL teachers not only use technology, but also align it with pedagogical goals, learner needs, and ethical responsibilities. Employing a qualitative research design, the study involved 9 EFL teachers who had applied mobile learning experiences in their English teaching. Data were collected through semi-structured interviews and classroom observations, then analyzed using an interactive qualitative model consisting of data condensation, data display, and conclusion drawing or verification. The findings reveal that the main characteristics of technology in EFL instruction are manifested through accessibility, interactivity, multimodality, flexibility and personalization, authenticity, and efficiency in assessment and feedback. These characteristics were not found to function as isolated technical features, but as pedagogical dimensions mediated by teachers' professional judgment and classroom decision-making. The study also shows that these characteristics influence teacher excellence by strengthening pedagogical alignment, digital-pedagogical competence, ethical professionalism, and the transformation of teacher roles from content transmitters into designers, facilitators, curators, and mentors. The study concludes that excellence in technology-enhanced EFL teaching is not determined by technological sophistication alone, but by the teacher's ability to integrate technology critically, contextually, and humanely. The findings imply that professional development in EFL education should emphasize reflective, ethical, and pedagogically grounded uses of technology to support meaningful language learning in contemporary classrooms.

Keywords: Technology in EFL instruction; Teacher excellence; Technology-enhanced learning; Digital-pedagogical competence

Journal of Linguistic Metacognition and Language Learning is Licensed Under a CC BY-SA Creative Commons Attribution-ShareAlike 4.0 International License.



How to cite: Kusumo, A.B., Qian, H.W., & Cubarsi, H. (2026). Exploring Characteristics of Technology in English Language Instruction Striving for EFL Teachers Excellence. *Journal of Linguistic and Language Education in Technology*, 1(1), 35-50, Doi: <https://doi.org/>

INTRODUCTION

Technology has moved from being a supplementary classroom aid to becoming a central element in the design of English language instruction. In contemporary EFL contexts, teachers are no longer expected only to know how to operate digital tools, but also to make pedagogically sound decisions about how, when, and why technology should be used to support language learning. This shift has changed the meaning of teacher excellence. Excellence in EFL teaching now involves the ability to select accessible tools, design meaningful digital tasks, manage multimodal learning environments, and maintain the human and ethical

dimensions of instruction in increasingly technology-rich classrooms. The literature consistently identifies several major characteristics of educational technology in EFL teaching, including accessibility, interactivity, multimodality, flexibility or personalization, authenticity, and efficiency in assessment and feedback. At the same time, it raises important concerns related to equity, cognitive overload, pedagogical alignment, ethics, and teacher preparedness (Huang et al., 2022; Li, 2025; McGowin et al., 2024; Vanisree et al., 2024). These issues suggest that the value of technology does not lie in its novelty alone, but in the ways teachers integrate it into purposeful language learning.

One of the most important characteristics of technology in English language instruction is accessibility. Digital platforms, communication applications, online dictionaries, podcasts, videos, and e-books enable learners to access English input beyond the traditional boundaries of place and time. This expanded access allows students to revisit lessons, engage with repeated exposure to language, and encounter authentic English in multiple forms, which is crucial for language development (Huang et al., 2022; Karabıyık et al., 2022; Li, 2025; Li et al., 2025). However, accessibility also reveals one of the most persistent challenges in technology-mediated instruction: unequal access to internet connectivity, devices, and digital literacy support. As a result, teacher excellence cannot be measured by the extent to which teachers adopt advanced tools, but by their ability to choose inclusive and contextually realistic technologies. Excellent EFL teachers are those who can respond to the material realities of their learners while still preserving communicative goals and meaningful exposure to English. This makes accessibility not merely a technical issue, but a pedagogical and ethical one tied directly to educational equity.

Another defining characteristic is interactivity, which has transformed English instruction from passive reception into participatory learning. Digital tools such as discussion boards, collaborative documents, quizzes, learning platforms, video conferencing applications, and mobile language apps create opportunities for learners to speak, respond, negotiate meaning, and co-construct knowledge in ways that support communicative competence (Huang et al., 2022; Li, 2025; McGowin et al., 2024; Vanisree et al., 2024). Yet the mere presence of interaction does not automatically produce meaningful learning. Technology-based tasks may remain superficial when students click, post, or respond without engaging in substantive language use or reflection. For this reason, interactivity must be understood as pedagogical rather than mechanical. Teacher excellence depends on how well teachers align digital interaction with specific learning objectives, discourse functions, and language skills. When interactive technology is poorly designed, it may encourage activity without depth; when designed well, it can strengthen communication, feedback, and collaboration in the EFL classroom.

Multimodality is another major characteristic of technology in English language instruction. Digital environments allow language to be presented through combinations of text, sound, image, animation, subtitles, and video, making linguistic input more concrete, varied, and engaging. This multimodal richness supports pronunciation modeling, vocabulary reinforcement, contextual understanding, and the exploration of cultural meanings that would be difficult to convey through text alone (Huang et al., 2022; McGowin et al., 2024; Ragazou & Karasavvidis, 2021; Su, 2021). However, the benefits of multimodality are accompanied by the risk of cognitive overload. When information is poorly sequenced, too dense, or visually distracting, learners' working memory may become overburdened, reducing rather than enhancing comprehension. This issue is particularly important in EFL classrooms, where learners are already processing unfamiliar language. As a result, excellence in teaching requires more than presenting multiple media at once; it demands thoughtful curation, pacing, and sequencing. Principles from cognitive load theory and multimedia learning, such as signaling, segmentation, coherence, and modality alignment, therefore become essential to effective

instructional design (Lacey & Price, 2023; Ng & Przybyłek, 2021; Noetel et al., 2021; Zhang et al., 2025).

Technology also introduces flexibility and personalization, both of which are highly valuable in EFL settings where learners often have uneven proficiency levels, diverse learning preferences, and different levels of confidence. Digital tools enable students to learn at different speeds, revisit difficult tasks, access subtitles or pronunciation support, and receive adaptive feedback through automated or semi-automated systems (Huang et al., 2022; Lacey & Price, 2023; Negi & Mitra, 2022; Ng & Przybyłek, 2021). These affordances can help teachers differentiate instruction and better support individual learner needs. Nevertheless, personalization carries a risk when automated systems begin to overshadow the human and social dimensions of language learning. Language is not only a set of forms to be mastered individually; it is also a social practice shaped by interaction, identity, and emotion. Therefore, teacher excellence lies in balancing technological personalization with teacher mediation, emotional support, and opportunities for peer communication. In this sense, the teacher remains essential not because technology is insufficient, but because meaningful language learning still requires human interpretation and encouragement.

A further characteristic of technology in English teaching is its capacity to expand authenticity. Through online news, social media, virtual exchanges, digital communities, and multimedia resources, learners can encounter English as it is actually used in global settings. This helps bridge the gap between textbook language and living language, while also promoting intercultural awareness and communicative relevance (Huang et al., 2022; Kaplan-Rakowski & Gruber, 2023; Li et al., 2025; Negi & Mitra, 2022). At the same time, authenticity must be pedagogically mediated. Authentic materials may be linguistically complex, culturally sensitive, or misaligned with learners' proficiency levels if used without scaffolding. In addition, the increased use of digital tools for assessment and feedback has made technology more efficient in tracking vocabulary growth, grammar performance, speaking practice, and writing development through quizzes, analytics, and automated tools (Li, 2025; Li et al., 2025; McGowin et al., 2024; Zhu, 2025). Yet efficiency can become reductionist if teachers focus only on easily measurable outcomes while neglecting discourse competence, creativity, and critical thinking. Thus, technological efficiency must be balanced with authentic performance tasks and professional judgment.

These issues lead to the core concern of the present study: the characteristics of technology in English language instruction and their implications for striving toward EFL teachers' excellence. Although previous studies have discussed individual dimensions of educational technology, such as access, multimodality, cognitive load, assessment, and digital competence, fewer studies have brought these dimensions together to examine how they collectively shape the meaning of teacher excellence in EFL settings. This topic is important because teachers today are expected not only to adopt technology, but to use it critically, ethically, and pedagogically in ways that improve language learning while preserving equity, learner well-being, and the teacher's professional role (Huang et al., 2022; Li, 2025; McGowin et al., 2024; Zhang et al., 2025). The present study therefore aims to analyze the major characteristics of technology in English language instruction and to explain how these characteristics influence the pursuit of EFL teachers' excellence in contemporary classrooms. The objectives of the research are to identify the pedagogically significant characteristics of technology in English language instruction and to examine how these characteristics shape the professional excellence of EFL teachers in terms of instructional design, classroom mediation, ethical responsibility, and learner support.

The research questions are: How are the main characteristics of technology manifested in English language instruction for EFL contexts? And How do these characteristics influence the pursuit of EFL teachers' excellence in technology-enhanced language teaching?. The

novelty of this study lies in its integrative focus. Rather than examining technology only from the perspective of tools or only from the perspective of teacher competence, this study connects technological characteristics, cognitive design principles, pedagogical alignment, and professional identity within one analytical framework. In doing so, it offers a more comprehensive understanding of how technology can support, challenge, and redefine excellence in EFL teaching.

RESEARCH METHOD

Research Design

This study employed a qualitative research design to investigate how the characteristics of technology are manifested in English language instruction and how these characteristics shape the pursuit of EFL teachers' excellence. A qualitative approach was considered most appropriate because the study aimed to explore teachers' experiences, interpretations, and professional judgments in using technology-enhanced instruction rather than to measure relationships statistically. Since the research questions focus on how technological characteristics such as accessibility, interactivity, multimodality, personalization, authenticity, and assessment efficiency are understood and enacted in classroom practice, the study required rich descriptive data that could capture complexity, context, and meaning. Qualitative inquiry therefore allowed the researcher to examine not only what teachers do with technology, but also how they interpret its pedagogical value, challenges, and implications for professional excellence. This design is consistent with the conceptual framing of the study, which emphasizes that technology in EFL teaching is not merely technical but pedagogical, ethical, and context-sensitive.

The qualitative design was also suitable for addressing the research objectives because it enabled the researcher to examine technology use as a lived professional practice. The first objective of the study was to identify the major characteristics of technology in English language instruction, and the second was to explain how these characteristics influence EFL teachers' excellence in instructional design, classroom mediation, ethical responsibility, and learner support. These objectives require detailed accounts of how teachers select tools, design digital tasks, manage classroom interaction, and respond to challenges such as unequal access, cognitive overload, and overreliance on automated systems. Interviews and classroom observations were therefore selected to generate both reflective and practice-based data, allowing the researcher to compare what teachers reported with what they actually implemented in mobile learning contexts. In this way, the qualitative design made it possible to build an in-depth understanding of the relationship between technology characteristics and teacher excellence in real instructional settings.

Despite these strengths, qualitative research has several limitations and potential sources of bias. First, the findings are context-bound and are not intended for statistical generalization to all EFL teachers. Second, teachers may provide socially desirable responses, particularly when discussing professional competence, digital preparedness, or ethical use of technology. Third, researcher interpretation may influence the coding and explanation of the data. To address these concerns, several strategies were applied. The study used more than one data source, namely interviews and observations, to strengthen triangulation. Reflective field notes were maintained during data collection and analysis to help the researcher monitor interpretive assumptions. The interview guide was designed to encourage concrete examples rather than abstract claims, which reduced the likelihood of purely idealized responses. In addition, the researcher compared emerging themes across participants and classroom contexts to improve credibility and consistency. These steps helped enhance the trustworthiness of the study while acknowledging the interpretive nature of qualitative inquiry.

Research Participants

The participants of this study consisted of 9 EFL teachers who had applied mobile learning experiences in English language instruction in Indonesia. These teachers were selected because they had direct experience integrating smartphones, mobile applications, learning platforms, or other forms of mobile-supported technology into their teaching practice. Their participation was essential because the study sought to understand teacher perspectives on how technological characteristics are enacted in classroom instruction and how such practices relate to professional excellence. In qualitative research, a small but information-rich sample is often more appropriate than a large sample because it allows for deeper exploration of participants' experiences, reasoning, and classroom decisions. In this study, the sample of nine teachers was considered sufficient to generate in-depth data while still allowing careful cross-case comparison.

The study used purposive sampling, as participants were chosen based on specific criteria relevant to the research objectives. The selection criteria included the following: the participants had to be EFL teachers, had to have experience applying mobile learning in English instruction, had to be actively involved in teaching at the time of the study or within a recent instructional period, and had to be willing to participate in both interviews and classroom observation. Preference was given to teachers who had used mobile technologies not only for content delivery but also for interaction, assessment, feedback, or learner support. This ensured that participants had substantial exposure to the phenomenon under investigation and could provide meaningful reflections on both the benefits and limitations of technology-enhanced teaching.

Relevant demographic and professional information was documented to provide contextual depth for interpretation. These details included participants' age, gender, educational background, years of teaching experience, institutional level, experience with mobile learning tools, and prior training in educational technology. Additional information such as familiarity with learning management systems, use of social media or mobile apps for instruction, and the type of classroom context in which technology was applied was also recorded. These demographic details were not used for statistical comparison, but served to situate the findings within the teachers' professional backgrounds and teaching environments. Such contextual information is important because teacher excellence in technology-enhanced instruction is often shaped by institutional resources, teaching experience, learner profiles, and access conditions.

Research Instruments

This study used two main instruments: semi-structured interviews and classroom observation. These instruments were selected because they allowed the researcher to examine both the teachers' perceptions and the observable realities of technology use in English language instruction. The interviews were used to explore teachers' views on the main characteristics of technology, the opportunities and challenges of mobile learning, and the ways technology influenced their instructional decisions and professional development. Observation was used to examine how these perceptions were translated into actual classroom practices, including how teachers selected tools, facilitated interaction, structured multimodal materials, managed time, and responded to learner needs during technology-enhanced lessons.

The interview guide was developed based on the objectives of the study and the main conceptual dimensions identified in the literature. The guide included questions related to accessibility, interactivity, multimodality, flexibility and personalization, authenticity of language exposure, assessment and feedback practices, pedagogical alignment, teacher competence, and ethical issues in technology use. Teachers were also asked to describe how mobile learning influenced their teaching role, how they adapted instruction to learner conditions, and how they defined excellence in technology-enhanced EFL instruction. The

semi-structured format was chosen because it provided a clear thematic focus while still allowing flexibility for follow-up questions, clarification, and elaboration based on participants' experiences.

The observation instrument was designed in the form of an observation checklist combined with descriptive field notes. The checklist focused on how teachers used mobile technologies in class, how they organized interaction, the extent to which multimodal materials were used effectively, how learners were supported in accessing and using digital resources, and how the teacher managed classroom flow, task clarity, and feedback. Additional observation indicators included the teacher's handling of technical difficulties, the balance between automated tools and teacher mediation, and the ways ethical or practical concerns were addressed during instruction. The field-note component allowed the researcher to document contextual details, unexpected events, and patterns of teacher behavior that could not be fully captured through checklist categories alone.

To ensure the validity and reliability of the instruments, several procedures were followed. First, the interview and observation instruments were derived directly from the study objectives and the main constructs identified in the literature review, which supported content validity. Second, the instruments were reviewed by colleagues or experts in EFL education and qualitative research to examine clarity, relevance, and alignment with the research focus. Third, a pilot interview and trial observation were conducted with participants who had characteristics similar to the target sample. This piloting process helped refine unclear wording, improve sequencing, and ensure that the questions and observation indicators were sufficiently focused and understandable. In qualitative research, reliability is understood more appropriately in terms of consistency and dependability. Therefore, the researcher used the same core interview guide and observation framework across participants, maintained detailed documentation of data collection procedures, and compared findings across the two instruments to support triangulation and trustworthiness.

Data Analysis

The data were analyzed using an interactive qualitative analysis model consisting of data condensation, data display, and drawing conclusion/verification. After the interviews were conducted, all recordings were transcribed verbatim, and the observation notes were organized systematically according to lesson context and observation focus. The first stage, data condensation, involved selecting, focusing, simplifying, and coding the raw data. In this phase, the researcher read the interview transcripts and observation notes repeatedly to identify meaningful units related to the characteristics of technology in English instruction and their implications for EFL teachers' excellence. Initial codes were assigned to statements or observed actions reflecting themes such as accessibility, interactivity, multimodality, personalization, authenticity, efficiency, pedagogical alignment, ethics, and teacher competence. Similar codes were then grouped into broader categories to reduce the data while preserving conceptual depth.

The second stage, data display, involved organizing the condensed data into a form that made interpretation possible. The researcher displayed the data through thematic matrices, category tables, and narrative summaries. These displays allowed comparison across participants and across classroom observations, making it easier to identify recurring patterns, similarities, and differences in how teachers understood and enacted technology-enhanced instruction. For example, the data displays helped show whether teachers viewed accessibility mainly as a tool-selection issue, whether interactivity was linked to communicative goals or superficial task engagement, and how multimodal resources were managed in relation to learner comprehension. Through this process, the researcher could examine how individual themes connected to the broader concept of teacher excellence.

The third stage, drawing conclusions and verification, involved interpreting the displayed data and developing findings that addressed the research questions. At this stage, the researcher examined how the identified themes explained the role of technology characteristics in shaping teacher practice, instructional quality, and professional judgment. Emerging conclusions were continuously checked against the original interview transcripts and observation records to ensure that interpretations remained grounded in the data. Verification was also strengthened through triangulation between interview data and observed classroom practice. This iterative process enabled the researcher to refine categories, confirm patterns, and ensure that the final conclusions reflected not only what teachers said about technology, but also how they applied it in instructional settings. As a result, the analysis produced a coherent understanding of the ways technology characteristics influence the pursuit of EFL teachers' excellence in mobile learning contexts.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

Research Question 1: How are the main characteristics of technology manifested in English language instruction for EFL contexts?

The findings show that the main characteristics of technology in English language instruction were manifested in classroom practice through six interrelated dimensions: accessibility, interactivity, multimodality, flexibility or personalization, authenticity, and efficiency in assessment and feedback. Based on interview data, teachers did not describe technology mainly as a collection of devices or applications, but as a pedagogical environment that shaped how they selected materials, organized classroom interaction, supported learner differences, and monitored progress. Observation data reinforced this view by showing that technology was most visible when teachers used it to extend access to English input, create opportunities for active participation, combine multiple forms of representation, and provide faster responses to student performance. In qualitative terms, the characteristics of technology were manifested not as isolated technical features, but as classroom functions embedded in instructional design and teacher decision-making.

Accessibility emerged as the first major theme. Teachers reported that technology enabled students to access English materials beyond classroom time through videos, digital texts, dictionaries, communication applications, and mobile learning platforms. Observation data suggested that this characteristic was manifested when teachers selected tools that could be used across different times, places, and levels of digital readiness. However, the findings also indicate that accessibility was not simply a matter of availability. Teachers repeatedly framed it in relation to realism, inclusion, and feasibility. In practice, this meant choosing tools that matched students' internet conditions, device limitations, and digital literacy. Thus, accessibility was manifested both as extended learning opportunity and as a constant consideration of equity. The findings suggest that in EFL contexts, technology becomes meaningful only when teachers can adapt it to the real conditions of learners rather than assuming equal readiness across all classrooms.

Interactivity was manifested through the use of technology to create two-way and multi-directional engagement in English learning. Teachers described interactive tasks such as online discussion, collaborative writing, quiz-based response systems, synchronous communication, and mobile-supported speaking activities. Observation data showed that interactivity was strongest when technology encouraged students to respond, negotiate meaning, and participate in communicative tasks rather than merely consume content. At the same time, the findings indicate that teachers were aware of a tension between genuine interaction and superficial task completion. Several classroom practices revealed that not all digital participation led to meaningful language use. This means that interactivity was manifested not simply through the

presence of technological response options, but through the teacher's ability to turn those options into purposeful language learning events. In this study, interactivity therefore appeared as a pedagogically mediated characteristic rather than an automatic outcome of using digital tools.

Multimodality and flexibility were also consistently observed in teachers' practices. Teachers reported using combinations of text, audio, image, video, subtitles, and digital visuals to make English input clearer, more engaging, and more concrete for students. Observation data suggested that multimodality was particularly visible in pronunciation practice, vocabulary explanation, and contextual presentation of meaning. At the same time, teachers recognized that too much multimedia could overwhelm learners if materials were poorly sequenced or visually crowded. This concern led many of them to emphasize pacing, simplification, and selection of only those modes that supported lesson objectives. Flexibility and personalization were manifested when teachers allowed students to revisit tasks, use supporting applications, or work through materials at different paces. Yet teachers also noted that personalization needed to remain balanced with human support, because overdependence on automated tools could weaken interaction, learner identity development, and socio-affective support. These findings suggest that the manifestation of technology in EFL instruction is inseparable from teachers' judgments about cognitive load, learner variation, and the continuing importance of human mediation.

Authenticity and assessment efficiency appeared as additional major characteristics. Teachers described technology as a bridge between textbook English and real-world English by giving students access to authentic audio, video, social media discourse, news, and global communication. Observation data showed that authenticity was manifested when teachers deliberately incorporated real language materials but adapted them to students' proficiency levels and lesson goals. In assessment, technology was manifested through faster feedback, simplified monitoring of student performance, and easier organization of quizzes, recordings, and digital submissions. However, teachers also expressed concern that efficiency could become reductionist if instruction relied too much on measurable outputs and ignored creativity, discourse competence, and critical thinking. Overall, the findings indicate that the main characteristics of technology in English language instruction are manifested not as neutral digital properties, but as pedagogical possibilities and constraints that teachers interpret, adapt, and regulate in relation to learners' needs and classroom goals.

Research Question 2: How do these characteristics influence the pursuit of EFL teachers' excellence in technology-enhanced language teaching?

The findings indicate that the identified characteristics of technology influenced the pursuit of EFL teachers' excellence by reshaping what counts as effective teaching in technology-enhanced language classrooms. Interview data suggest that teacher excellence was no longer understood as the ability to use many digital tools, but as the capacity to integrate technology critically, contextually, and pedagogically. Teachers associated excellence with choosing appropriate tools, designing communicative tasks, managing digital interaction, protecting learner access, and maintaining a human-centered learning environment. Observation data supported this interpretation, showing that the most effective teaching practices were not necessarily the most technologically sophisticated, but those in which technology use was clearly aligned with language objectives, learner needs, and classroom realities. In this study, the pursuit of excellence was therefore influenced by how teachers transformed technological characteristics into pedagogical decisions rather than by technology use alone.

Accessibility influenced teacher excellence by requiring teachers to become more context-sensitive and inclusive in their instructional planning. Teachers who were attentive to

device limitations, bandwidth variability, and digital literacy differences were better able to sustain participation and avoid excluding learners. In this sense, excellence involved realistic tool selection and adaptive task design. Interactivity influenced excellence by pushing teachers to design language activities that supported authentic discourse rather than passive screen engagement. The findings suggest that excellent teachers were those who could move from technical interaction to pedagogical interaction by ensuring that students used English for collaboration, response, and communication. Likewise, multimodality influenced excellence by demanding stronger design competence. Teachers had to simplify, sequence, and combine media in ways that supported comprehension without overloading learners. These findings show that teacher excellence in technology-enhanced EFL instruction is strongly connected to professional judgment, especially the ability to balance opportunity and complexity in digital learning environments.

Flexibility, personalization, and authenticity further influenced teacher excellence by expanding the teacher's role beyond content delivery. Teachers reported that technology required them to act as facilitators, curators, and mediators who could differentiate instruction while still preserving social interaction and emotional support. Observation data showed that excellent practice emerged when teachers combined adaptive tools with purposeful guidance rather than leaving students to learn independently through automation. Authenticity influenced excellence by requiring teachers to curate real-world English resources carefully, scaffold difficult materials, and model critical digital literacy. The findings suggest that teacher excellence was not enhanced by authenticity alone, but by the ability to filter, contextualize, and ethically use authentic language materials. In this way, technology influenced excellence by deepening the professional demands placed on teachers rather than simplifying them.

Assessment efficiency, ethics, and teacher identity were also central to the influence of technology on excellence. Teachers reported that digital platforms made assessment and feedback faster and more manageable, but they also emphasized the need to balance speed with interpretive depth. Excellent teachers were described as those who could use digital data to inform instruction while still relying on professional judgment to evaluate higher-order language abilities. Ethical concerns, including data privacy, copyright, responsible AI use, and respectful online interaction, further influenced excellence by making digital professionalism part of teaching competence. Finally, the findings suggest that technology reshaped teacher identity itself. In technology-enhanced EFL classrooms, teachers were no longer positioned only as information providers; they became designers, facilitators, mentors, and ethical guides. This means that the characteristics of technology influenced the pursuit of teacher excellence not only at the level of classroom technique, but also at the level of professional identity, reflective practice, and responsibility. Overall, the findings show that technology-enhanced teacher excellence is defined by pedagogical alignment, ethical awareness, design competence, and the ability to preserve the human core of language teaching in digital environments.

Table 1. Results of Characteristics of Technology in English Language Instruction Striving for EFL Teachers Excellence

Research Question	Major Theme	Manifestation in English Language Instruction	Influence on EFL Teachers' Excellence	Qualitative Interpretation
RQ1: How are the main characteristics of technology manifested in EFL instruction?	Accessibility	Teachers used mobile platforms, videos, dictionaries, and online materials to extend learning beyond class time and across settings	Encouraged teachers to select inclusive, realistic, and context-sensitive tools	Technology is manifested as expanded access, but its value depends on equity and contextual adaptation

Research Question	Major Theme	Manifestation in English Language Instruction	Influence on EFL Teachers' Excellence	Qualitative Interpretation
RQ1	Interactivity	Technology supported discussion, collaboration, quizzes, response systems, and communicative task participation	Required teachers to design purposeful interaction rather than superficial screen activity	Interactivity becomes meaningful only when linked to language goals and authentic discourse
RQ1	Multimodality	Teachers combined text, audio, video, visuals, subtitles, and animation to clarify meaning and support engagement	Strengthened the need for careful sequencing, simplification, and cognitive load management	Multimodality is beneficial when curated pedagogically, not when overloaded
RQ1	Flexibility and personalization	Learners could revisit materials, choose supports, and work at different paces through digital tools	Pushed teachers to differentiate instruction while maintaining guidance and social support	Personalization is effective when balanced with teacher mediation
RQ1	Authenticity	Teachers incorporated real-world English from digital platforms, media, and online communication	Required teachers to scaffold and contextualize authentic materials appropriately	Authenticity supports relevance, but it must be filtered and aligned with learner level
RQ1	Assessment efficiency	Teachers used digital quizzes, submissions, analytics, and recordings for feedback and monitoring	Made assessment faster, but required balance between digital metrics and professional judgment	Efficiency supports instruction only when depth is not sacrificed
RQ2: How do these characteristics influence EFL teachers' excellence?	Pedagogical alignment	Teachers linked tool selection to instructional aims, communicative goals, and learner support	Defined excellence as thoughtful, goal-oriented technology integration	Teacher excellence is shaped more by pedagogical judgment than by technical sophistication
RQ2	Digital-pedagogical competence	Teachers designed tasks, managed interaction, interpreted data, and adjusted digital tools to context	Expanded excellence into instructional design, mediation, and reflective practice	Excellence in digital teaching requires more than tool mastery

Research Question	Major Theme	Manifestation in English Language Instruction	Influence on EFL Teachers' Excellence	Qualitative Interpretation
RQ2	Ethical professionalism	Teachers considered privacy, copyright, digital citizenship, and responsible AI use	Positioned ethics as part of professional excellence in technology-enhanced classrooms	Digital excellence includes safe, respectful, and responsible teaching practice
RQ2	Role transformation	Teachers functioned as designers, facilitators, curators, and mentors rather than only content transmitters	Reframed excellence as human-centered leadership in digital learning	Technology does not replace teachers; it redefines and deepens their professional role

Table 1 indicates that the main characteristics of technology in EFL instruction are best understood as interconnected pedagogical functions rather than as isolated technical features. Accessibility, interactivity, multimodality, flexibility and personalization, authenticity, and assessment efficiency all appeared in the teachers' practices, but the chart shows that their significance lies in how they were translated into instructional action. Accessibility, for example, was not interpreted simply as the availability of digital tools, but as the teacher's ability to make technology usable across different learner conditions, including unequal internet access, device limitations, and varying digital literacy. In the same way, interactivity was not reduced to clicking, posting, or responding through an application, but was associated with communicative participation, collaborative task engagement, and opportunities for authentic language use. Multimodality and personalization similarly gained pedagogical value only when teachers curated materials carefully, sequenced input meaningfully, and adapted digital supports to learners' levels and needs. The chart therefore suggests that technology in English language instruction is manifested through teacher mediation. Its classroom presence is not determined by the sophistication of the tool itself, but by the extent to which the teacher aligns that tool with comprehension, participation, and communicative learning goals. This interpretation shows that technology in EFL settings is a dynamic teaching environment shaped by design choices, contextual constraints, and the teacher's ongoing pedagogical judgment.

The chart also demonstrates that these technological characteristics influence the pursuit of EFL teachers' excellence by redefining what professional excellence means in technology-enhanced classrooms. Excellence is not represented as technical mastery alone, but as the ability to combine pedagogical alignment, digital competence, ethical awareness, and human-centered facilitation. The chart makes clear that when teachers respond thoughtfully to accessibility issues, they become more inclusive and context-sensitive; when they structure interactivity around real language use, they become stronger instructional designers; and when they manage multimodal input carefully, they show an awareness of cognitive demands and learner processing. Likewise, flexibility, authenticity, and assessment efficiency reshape the teacher's role by requiring teachers to act as curators of real-world materials, facilitators of differentiated learning, and interpreters of digital feedback rather than mere transmitters of content. The inclusion of ethical professionalism and role transformation in the chart is especially significant because it shows that technology influences excellence beyond classroom technique. Teachers are expected to protect learner well-being, model responsible digital behavior, and preserve the relational and interpretive dimensions of teaching in environments

that may otherwise become overly automated. In this sense, the chart suggests that technology-enhanced excellence is deeply reflective and relational. It emerges when teachers can use digital resources to strengthen learning while still maintaining pedagogical purpose, ethical responsibility, and the human core of English language instruction.

Discussion

The present study shows that the main characteristics of technology in EFL instruction are manifested not as neutral technical properties, but as pedagogically mediated classroom functions. This finding is important because it shifts the discussion from technology as an object to technology as a situated instructional practice. The six major characteristics identified in the findings—accessibility, interactivity, multimodality, flexibility or personalization, authenticity, and assessment efficiency—confirm the broader literature that educational technology in language learning is most meaningful when it is integrated into purposeful teaching rather than used as an end in itself (Huang et al., 2022; Li, 2025; McGowin et al., 2024; Vanisree et al., 2024). In this respect, the study supports earlier claims that excellence in EFL teaching is no longer defined by digital familiarity alone, but by the ability to align technological affordances with communicative goals, learner needs, and ethical responsibility. What this study adds is a qualitative illustration of how those characteristics are actually interpreted and enacted by teachers in classroom settings (Huang et al., 2022; Li, 2025; McGowin et al., 2024; Vanisree et al., 2024).

The findings on accessibility strongly confirm previous research showing that access to digital tools is inseparable from issues of equity, digital literacy, and contextual realism. Earlier studies have argued that technology extends language exposure beyond classroom time through videos, e books, dictionaries, and communication platforms, but also warned that unequal access to devices and internet connectivity can reduce the benefits of digital learning (Huang et al., 2022; Karabıyık et al., 2022; Li, 2025; Li et al., 2025). The present study confirms that teachers view accessibility in exactly these dual terms: as an opportunity for expanded exposure and as a challenge requiring inclusive decision making. This means that accessibility is not simply about whether technology is available, but whether it is usable within the constraints of actual learners' conditions. In this way, the study extends prior research by showing that teacher excellence is partly manifested through context sensitive selection of tools, especially when teachers must adapt technology to bandwidth limits, device disparities, and uneven digital readiness (Huang et al., 2022; Karabıyık et al., 2022; Li, 2025; Li et al., 2025).

The findings on interactivity also align closely with the existing literature, but they provide a useful refinement. Previous studies have emphasized that digital discussion boards, collaborative documents, quizzes, conferencing tools, and language apps can transform English teaching from passive reception into active participation (Huang et al., 2022; Li, 2025; McGowin et al., 2024; Vanisree et al., 2024). At the same time, scholars have cautioned that interactivity may remain superficial when learners merely click, post, or respond without engaging in meaningful language use (Kaplan Rakowski & Gruber, 2023; Zhang et al., 2025). The present study confirms both sides of this argument. Teachers in this study recognized that interaction becomes pedagogically valuable only when it supports negotiation of meaning, communicative participation, and authentic discourse. Thus, the study extends earlier work by demonstrating that interactivity is not an inherent property of the tool itself but the result of teacher orchestration. In practical terms, this means that teacher excellence depends on converting technical participation into linguistically meaningful engagement (Huang et al., 2022; Kaplan Rakowski & Gruber, 2023; Li, 2025; McGowin et al., 2024; Vanisree et al., 2024; Zhang et al., 2025).

The discussion of multimodality and flexibility in the current study further confirms research grounded in cognitive load theory and multimedia learning. Earlier literature suggests that text, audio, video, images, subtitles, and animation can enrich language instruction by

clarifying meaning and supporting engagement, but also warns that poorly sequenced or overly dense multimodal materials may overload learners' working memory (Lacey & Price, 2023; Ng & Przybyłek, 2021; Noetel et al., 2021; Ragazou & Karasavvidis, 2021; Zhang et al., 2025). The present findings are consistent with this view, since teachers valued multimodality for pronunciation, vocabulary, and contextual understanding, while also expressing concern over excessive visual or informational complexity. Similarly, personalization and flexibility were seen as beneficial only when balanced with teacher mediation and socio affective support. This confirms prior work arguing that adaptive technologies are helpful for differentiation but should not replace human interpretation, encouragement, and interaction (Negi & Mitra, 2022; Ng & Przybyłek, 2021). The study therefore extends previous research by showing that excellence in technology enhanced EFL teaching requires teachers to manage both cognitive load and relational support at the same time (Lacey & Price, 2023; Negi & Mitra, 2022; Ng & Przybyłek, 2021; Noetel et al., 2021; Ragazou & Karasavvidis, 2021; Zhang et al., 2025).

The findings on authenticity also support the broader literature on real world language exposure in EFL classrooms. Previous research has argued that digital platforms help bridge textbook English and living language by giving learners access to social media, online news, virtual exchanges, and authentic multimedia resources (Huang et al., 2022; Kaplan Rakowski & Gruber, 2023; Li et al., 2025; Negi & Mitra, 2022). The current study confirms this claim, as teachers described technology as a bridge to authentic English use. However, the findings also support the caution raised in earlier studies: authenticity is not always automatically beneficial. If materials are linguistically too demanding or culturally misaligned, they can hinder rather than support learning. What this study adds is a stronger emphasis on teacher curation. Teachers did not simply use authentic materials because they were available; rather, they treated authenticity as something that must be filtered, scaffolded, and pedagogically contextualized. In this sense, the study extends earlier literature by showing that authenticity contributes to teacher excellence only when teachers exercise critical digital literacy and deliberate instructional judgment (Huang et al., 2022; Kaplan Rakowski & Gruber, 2023; Li et al., 2025; Negi & Mitra, 2022).

A similar pattern appears in the findings related to assessment efficiency. Previous studies have highlighted the value of digital quizzes, analytics, automated writing tools, and recording platforms for rapid monitoring of vocabulary, grammar, speaking, and writing development (Li, 2025; Li et al., 2025; McGowin et al., 2024; Zhu, 2025). The present study confirms that teachers appreciate these efficiencies, especially in feedback management and performance tracking. Yet the findings also echo the literature's warning that efficiency can become reductionist when instruction focuses only on what is easy to measure and neglects creativity, discourse competence, and critical thinking (Li, 2025; Zhang et al., 2025). The contribution of this study is to show how teachers negotiate that tension in practice. Rather than rejecting digital assessment, the teachers positioned professional judgment as a necessary complement to digital data. This extends previous research by clarifying that excellence in technology enhanced teaching is not achieved by abandoning automated systems, but by interpreting their outputs critically and integrating them with richer, performance based assessments (Zhang et al., 2025; Zhu, 2025).

One of the most significant findings of this study is that the identified characteristics of technology influence teacher excellence primarily through pedagogical alignment and digital pedagogical competence. This directly supports the literature arguing that technology should strengthen pedagogy rather than dictate it (Huang et al., 2022; Li, 2025; McGowin et al., 2024; Vanisree et al., 2024). The present study confirms that excellent teachers are not necessarily those who use the most advanced tools, but those who can align technology with instructional aims, communicative outcomes, and learner support. It also extends earlier work by showing that this alignment is visible in very practical ways: tool selection, task structuring, sequencing

of multimodal input, management of interaction, and adaptation to classroom constraints. In other words, teacher excellence in digital contexts is not merely a matter of competence with platforms but of reflective instructional design. This finding also supports arguments that professional development should move beyond technical training and focus more deliberately on pedagogical reasoning, design competence, and critical evaluation of digital practice (McGowin et al., 2024; Ng & Przybyłek, 2021; Vanisree et al., 2024).

The study also extends the literature by highlighting the ethical and identity related dimensions of teacher excellence in technology enhanced language teaching. Existing scholarship has increasingly emphasized digital citizenship, privacy, copyright, responsible AI use, and the teacher's changing role as facilitator, curator, and mentor (Huang et al., 2022; Li, 2025; Vanisree et al., 2024; Zhang et al., 2025). The current findings confirm these perspectives and add qualitative depth by showing that teachers themselves interpret ethical professionalism as part of excellence, not as an external add on. Likewise, the finding that technology transforms teachers from content transmitters into designers, facilitators, curators, and ethical guides strongly supports prior research on changing teacher identity in digital education. Importantly, the study does not suggest that technology diminishes the importance of teachers (Huang et al., 2022; Li, 2025; Vanisree et al., 2024). Instead, it extends existing work by demonstrating that the more technology enters language instruction, the more central teachers become as interpreters of context, protectors of learner well being, and designers of meaningful interaction. This reinforces the idea that technology enhanced excellence remains deeply human centered (Zhang et al., 2025).

Overall, the findings of this study confirm much of the current body of knowledge on educational technology in EFL contexts while also extending it in several ways. They confirm that accessibility, interactivity, multimodality, personalization, authenticity, and efficient assessment are all pedagogically significant characteristics of technology. They also confirm that cognitive load, equity, ethics, and alignment remain central concerns in technology enhanced teaching (Huang et al., 2022; Li, 2025; McGowin et al., 2024; Zhang et al., 2025). At the same time, the study extends prior work by integrating these dimensions into one qualitative account of how teacher excellence is actually pursued in classroom practice. Its main contribution lies in showing that excellence is not a product of technological sophistication alone, but of context responsive, ethically aware, and pedagogically aligned decision making. Technology, therefore, does not redefine EFL teaching by replacing the teacher; it redefines it by making reflective human mediation even more necessary.

CONCLUSIONS

This study concludes that the main characteristics of technology in English language instruction are manifested as interconnected pedagogical functions rather than isolated digital features. Accessibility, interactivity, multimodality, flexibility or personalization, authenticity, and assessment efficiency appeared in teachers' classroom practices as ways of expanding access to English, structuring communicative participation, supporting differentiated learning, introducing authentic language exposure, and streamlining feedback and monitoring. However, these characteristics were not automatically beneficial. Their educational value depended on how teachers interpreted, adapted, and aligned them with learner needs, instructional goals, and contextual realities. In this sense, the study confirms that technology in EFL instruction is meaningful only when it is mediated by professional judgment. The findings show that teachers do not merely apply tools; they curate them, simplify them, sequence them, and reposition them within a communicative and human centered pedagogy. This makes technology in EFL classrooms less a matter of digital presence and more a matter of pedagogical design and contextual responsiveness.

The study also concludes that these characteristics influence the pursuit of EFL teachers' excellence by redefining excellence as pedagogically aligned, ethically grounded, and

professionally reflective practice in technology enhanced environments. Teacher excellence was shown not in the quantity or novelty of digital tools used, but in the ability to select inclusive technologies, design meaningful interaction, manage cognitive load, preserve human mediation, interpret digital data critically, and uphold digital professionalism. The findings further indicate that technology deepens rather than reduces the teacher's role, positioning teachers as designers, facilitators, curators, mentors, and ethical guides. As a result, excellence in technology enhanced EFL teaching should be understood as the ability to integrate technology without losing the human core of language education. The study therefore contributes to the field by offering an integrative understanding of how technological characteristics, pedagogical alignment, cognitive design, and professional identity work together in shaping excellent EFL teaching.

ACKNOWLEDGEMENT

The authors would like to express their sincere appreciation to the EFL teachers who participated in this study and generously shared their professional experiences, reflections, and classroom practices. Their willingness to take part in interviews and classroom observations made this research possible and provided valuable insights into how technology is interpreted and enacted in English language instruction. The authors also acknowledge the educational institutions and learning communities that supported the implementation of this study and facilitated access to teaching contexts in which mobile learning and technology enhanced instruction could be observed meaningfully. The authors also extend their gratitude to colleagues, academic peers, and reviewers who provided constructive feedback during the development of this manuscript. Their comments helped strengthen the conceptual framing of the study, refine the interpretation of the findings, and improve the overall quality of the article. Appreciation is further directed to all parties who contributed, directly or indirectly, to the completion of this research and the preparation of the manuscript for publication.

DECLARATION OF USING AI TOOLS

In writing this article, the authors used AI tools only to assist with language refinement, organization of ideas, and drafting support. All interpretations, analyses, arguments, and final decisions presented in the manuscript remain the full responsibility of the authors.

REFERENCES

- Huang, Y., Zhang, Z., Yu, J., Liu, X., & Huang, Y. (2022). English phrase learning with multimodal input. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.828022>
- Kaplan-Rakowski, R., & Gruber, A. (2023). An experimental study on reading in high-immersion virtual reality. *British Journal of Educational Technology*, 55(2), 541–559. <https://doi.org/10.1111/bjet.13392>
- Karabıyık, C., Arslan, S., & Kavaklı, N. (2022). Comparison of input modes: L2 comprehension and cognitive load. *Participatory Educational Research*, 9(6), 173–191. <https://doi.org/10.17275/per.22.134.9.6>
- Lacey, H., & Price, J. M. (2023). #MedEd—The “TikTok” frontier of medical education. *The Clinical Teacher*, 20(5). <https://doi.org/10.1111/tct.13636>
- Li, Y. (2025). Impact of learning motivation and presentation modalities on cognitive load and learning performance in preoperative digital health education for older patients with knee arthroplasty: Psychobehavioral experimental study. *Journal of Medical Internet Research*, 27, e79430. <https://doi.org/10.2196/79430>

- Li, Y., Diao, J., & Cheung, A. K. F. (2025). Simultaneous interpreting with auto-subtitling: Investigating viewer cognitive effort, stress, and comprehension. *PLOS ONE*, 20(8), e0330692. <https://doi.org/10.1371/journal.pone.0330692>
- McGowin, G., Sonnenfeld, N. A., & Fiore, S. M. (2024). Navigating cognitive demand in virtual reality: Implications for education and training. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 68(1), 1668–1673. <https://doi.org/10.1177/10711813241278286>
- Negi, S., & Mitra, R. (2022). Native language subtitling of educational videos: A multimodal analysis with eye tracking, EEG and self-reports. *British Journal of Educational Technology*, 53(6), 1793–1816. <https://doi.org/10.1111/bjet.13214>
- Ng, Y. Y., & Przybyłek, A. (2021). Instructor presence in video lectures: Preliminary findings from an online experiment. *IEEE Access*, 9, 36485–36499. <https://doi.org/10.1109/ACCESS.2021.3058735>
- Noetel, M., Griffith, S., Delaney, O., Harris, N. R., Sanders, T., Parker, P. D., Cruz, B. del P., & Lonsdale, C. (2021). Multimedia design for learning: An overview of reviews with meta-meta-analysis. *Review of Educational Research*, 92(3), 413–454. <https://doi.org/10.3102/00346543211052329>
- Ragazou, V., & Karasavvidis, I. (2021). Considering visual cueing and practice type for software training's optimisation: A study of domain experts. *Interactive Technology and Smart Education*, 20(1), 36–57. <https://doi.org/10.1108/ITSE-05-2021-0091>
- Saini, G., & Baba, M. M. (2023). Psychological expedient of multimedia in blended learning and metamemory satisfaction. *The Learning Organization*, 31(1), 68–87. <https://doi.org/10.1108/TLO-11-2022-0130>
- Su, Y. (2021). Does “WOW” translate to an “A”? Exploring the effects of virtual reality assisted multimodal text on Chinese Grade 8 EFL learners’ reading comprehension. *Journal of Language Teaching*, 1(1), 38–58. <https://doi.org/10.54475/jlt.2021.015>
- Vanisree, M., Mahitha, V., & Prasanna, S. S. L. (2024). Innovative approaches to LSRW skills development using PowerPoint presentations: A review. *Integrated Journal for Research in Arts and Humanities*, 4(3), 186–190. <https://doi.org/10.55544/ijrah.4.1.27>
- Zhang, J., Yahaya, W. A. J. W., Sanmugam, M., & Dai, Y. (2025). Assessing cognitive load, performance, and motivation in design history classes through an augmented reality application. *SAGE Open*, 15(2). <https://doi.org/10.1177/21582440251335387>
- Zhu, Y. (2025). The application effect of multimedia resource in English listening and speaking training. *International Journal of Web-Based Learning and Teaching Technologies*, 20(1), 1–16. <https://doi.org/10.4018/IJWLTT.392479>