

ENHANCING DIGITAL LITERACY IN ENGLISH TEACHERS THROUGH EDUTECHNO-PRENEURSHIP IN ELT

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Abstract

Education in the digital era requires English teachers, particularly pre-service teachers, to develop strong digital technology skills. This explorative case study investigates how digital literacy competence supports the development of edutechno-preneurship in English Language Teaching (ELT). The study involved four participants (two pre-service teachers and two in-service teachers) who had experience in conducting online English instruction. Data were obtained through triangulation of semi-structured interviews, digital literacy questionnaires, and classroom and platform observations. The data were analysed using thematic analysis, which generated six main themes: framing edutechno-preneurship, digital literacy competence, technology as a prime mover, personalized learning, flexibility and accessibility, and collaboration and partnership. The findings reveal that three out of four participants (75%) perceived edutechno-preneurship as the integration of education, technology, and entrepreneurship, while one participant emphasized professional self-development. All participants (100%) demonstrated good to very good levels of digital literacy competence. Observational data confirmed their effective use of various platforms, including Zoom, Google Classroom, TikTok, Canva, and YouTube, for both instructional and content-creation purposes. Most participants (75%) positioned technology as a primary driver of their teaching and entrepreneurial practices and implemented personalized and flexible learning approaches in digital environments. Collaboration was reflected through cross-platform engagement and interaction with wider learning communities. These findings indicate that digital literacy competence functions as a foundational enabler in fostering edutechno-preneurship among English teachers in the digital era.

Keywords: Digital Literacy, Pre-service Teachers, Edutechno-preneurship, Educational Technology, Innovative Teaching

INTRODUCTION

The rapid acceleration of digital technology has transformed how teachers design, deliver, and evaluate instruction. In English Language Teaching (ELT), digital competence is no longer an optional skill but a core professional requirement. English teachers and pre-service teachers are expected not only to use digital tools but also to integrate them meaningfully to meet the needs of digitally native learners (Pettersson, 2018). The increasing reliance on digital pedagogical practices, accelerated in part by global disruptions, underscores the importance of ensuring that pre-service teachers are adequately prepared to engage learners through technology-enhanced instruction (König et al., 2020).

In Indonesia, this need is amplified by the country's significant digital penetration over 196 million citizens actively use the internet, including millions of school-aged children. Consequently, teacher preparation programs must ensure that future English teachers are equipped to navigate and utilize digital platforms effectively.

Despite this urgency, studies consistently show that many pre-service teachers struggle to apply digital tools beyond surface-level usage (Dinc, 2019). Although they may be familiar with social media or mobile applications, they often lack the pedagogical and strategic skills required to integrate technology into ELT. This gap often arises due to fragmented digital literacy training, limited practice-based exposure, and insufficient confidence in utilizing digital tools to support pedagogical goals (Tondeur et al., 2017). As a result, the integration of digital competence into teacher education remains uneven, leaving many candidates underprepared for the realities of technology-mediated classrooms (Liu et al., 2023).

Beyond pedagogical challenges, an emerging dimension of digital competence edutechno-preneurship has begun to influence the professional landscape for English teachers. Digital platforms now offer possibilities for teachers to create educational content, build personal branding, deliver online tutoring, and even monetize instructional activities through livestreaming or content creation. However, research exploring the connection between digital literacy and edutechno-preneurship, particularly within Indonesian ELT contexts, remains limited. Existing studies tend to treat digital literacy and entrepreneurship as separate domains, leaving a gap in understanding how digital competence might empower teachers to innovate, scale, or monetize their teaching practices.

This study addresses that gap by examining how English teachers and pre-service teachers conceptualize digital literacy, apply it in their instructional activities, and leverage it to support edutechno-preneurship. The study also investigates how technology enables personalized learning, flexibility and accessibility, and collaboration key principles that shape digital entrepreneurial practices in education. By focusing on teachers' real-world experiences in creating content, managing online classes, and engaging digital audiences, this research provides a contextualized understanding of how digital literacy fuels both pedagogical and entrepreneurial capacities.

Thus, the aim of this study is twofold: (1) To analyze how digital literacy competence influences the development of edutechno-preneurship among English teachers; and (2) To explore how teacher candidates conceptualize, design, and implement digital teaching practices that reflect entrepreneurial thinking.

This study is grounded in a conceptual framework that connects Digital Literacy Competence as the fundamental base to Edutechno-preneurship as the ultimate outcome, supported by four core mediating principles: Technology as a Prime Mover, Personalized Learning, Flexibility and Accessibility, and Collaboration and partnership. The framework clarifies how teachers' ability to effectively use digital tools enables them to innovate pedagogically and engage in entrepreneurial practices within digital platforms.

Digital literacy has emerged as a foundational competency in contemporary education. While earlier conceptualizations emphasized technical skills, contemporary understandings are more expansive and nuanced (Spante et al., 2018; Yazon et al., 2019). Digital literacy refers to teachers' ability to effectively use digital tools for communication, content creation, information processing, and online interaction (Zainuddin, 2018). This competence encompasses three core dimensions: 1) Technical Skills: The proficiency required for operating digital devices, platforms, and applications for teaching purposes; (2) Cognitive Capabilities: The skills for critically evaluating digital content, making informed pedagogical decisions, and engaging in creative problem-solving (Joe, 2019; Pangrazio & Selwyn, 2019; Spante et al., 2018); (3) Socio-emotional Awareness: The capacity to navigate online interactions responsibly, ethically, and safely.

In the context of English Language Teaching (ELT), digital literacy takes on additional significance as it enables educators to incorporate multimodal resources, interactive learning tools, and global communication opportunities to enhance linguistic competence, cultural understanding, and communicative effectiveness (Pettersson, 2018). However, the development of digital literacy in teacher education programs is often hindered by structural factors, resulting in fragmented learning experiences. Studies have consistently shown that pre-service teachers may feel inadequately prepared for instructional technology use despite personal familiarity with digital tools (Hamilton et al., 2016; Redecker, 2017; Yazon et al., 2019; Zuhri & Arif, 2024). Furthermore, the persistent digital divide, characterized by limited access to hardware and reliable internet connectivity in developing countries, can impede digital readiness (Alenezi, 2020; Zhang et al., 2024). To address these challenges, scholars advocate for transformative models that cultivate entrepreneurial thinking and innovation alongside technical skills (Bouwmeester et al., 2019).

Edutechno-preneurship is a transformative model that serves as a hybrid concept blending educational technology with entrepreneurial thinking. At its core, edutechno-preneurship encourages individuals, particularly teachers, to identify educational problems and design technological solutions that are not only functional but also innovative and scalable (Ikeshita et al., 2018). This approach fosters a mindset oriented toward innovation, autonomy, and real-world impact, aligning closely with 21st-century learning principles (creativity, collaboration, and critical thinking). Within this framework, teachers are not merely consumers of digital tools but active developers and implementers of educational technologies (Dr. Lohans Kumar Kalyani, 2024; Otto et al., 2024).

This research positions digital literacy as the foundation for this capacity, highlighting that prospective English teachers must use technology effectively in their professional roles (Vilda Cita Putri et al., 2024). In a high-penetration digital environment like Indonesia as cited in Maisa et al., (2024), this competency enables teachers to leverage platforms, create meaningful content, and guide students in responsibly accessing resources (Maisa et al., 2024).

The practical manifestations of edutechno-preneurship include: (1) Creating monetizable educational content; (2) Conducting online teaching or tutoring, (3) Building professional branding on social media, (4) Engaging digital communities as potential learners.

The following principles illustrate how digital literacy is applied to achieve edutechno-preneurial outcomes. In edutechno-preneurship, technology is conceived as the driving engine of educational change. Digital innovation can "enrich and transform education," expanding access and improving the quality of learning (Bond, 2020). By embracing this principle, teachers utilize diverse platforms (e.g., YouTube, Zoom, Canva) to deliver content in engaging formats, expand classroom boundaries beyond physical limitations, and reach larger, diverse audiences, thereby enabling entrepreneurial opportunities (Fuchs, 2022). This reflects how digital tools not only enhance instruction but also reshape teachers' professional identities.

Technology makes personalized learning practical. Digital platforms can adapt content to individual needs, enabling students to progress at their own pace (Holmes et al., 2019; Zawacki-Richter et al., 2019). In ELT, this involves deploying adaptive quizzes, language apps, or AI-driven feedback that tailor practice to each learner's level, transforming lessons into truly learner-centered experiences. Mastering this principle involves building skills in creating differentiated tasks and using data analytics to inform instruction (Holmes et al., 2019).

This principle asserts that technology liberates ELT from time, place, and ability constraints (Scherer et al., 2021; Tondeur et al., 2017). Students can access lessons on-demand (e.g., through mobile apps), and learning can continue outside the traditional classroom. This flexibility is vital in global ELT. Moreover, technology supports accessibility by accommodating learners with disabilities (e.g., through screen readers or subtitles), supporting diverse learning styles, and promoting inclusion (Bond, 2020). Teacher education, by instilling this principle, trains prospective teachers to use digital platforms so that English learning can happen anytime, anywhere.

This principal highlight collaboration among stakeholders and partnerships with technology providers (Tarchi et al., 2021). Edutechno-preneurship encourages teachers to work together (with mentors, communities, and industry) using technology as a common ground. In ELT, this covers practices such as pre-service teachers collaborating on digital lesson plans, joining Professional Learning Networks (PLNs), or partnering with edtech developers to pilot new tools. Such collaborative technology use fosters deeper engagement and promotes creativity, autonomy, and target-language use in digital projects (Fuchs, 2022). Collaboration extends beyond the school to connecting with global teacher networks, which drives innovation in the field.

METHOD

Research Design

This study employed a qualitative case study design to explore how digital literacy competence supports edutechno-preneurship among English teachers and pre-service teachers. A case study approach was chosen as it allows for an in-depth examination of participants' experiences, perceptions, and practices within a real-life educational context (Pan & Mow, 2023). By focusing on a bounded group of individuals engaged in technology-enhanced practices that demonstrate entrepreneurial characteristics, the research aims to generate rich,

context-sensitive insights into how digital literacy is cultivated through innovative engagement with educational technologies.

Participants and Sampling Rationale

Four participants were selected through purposive sampling to ensure variation in experience while maintaining relevance to the study's focus on edutechno-preneurial activity. The participants consisted of: (1) Two Pre-service Teachers (PST1 and PST2): Enrolled in a final-year teaching practicum or related capstone project in an English education program at a state university in West Java, Indonesia, who had experience using digital tools in teaching or microteaching activities. (2) Two In-service English Teachers (ET1 and ET2): Experienced ELT teachers at the master's level who actively used digital platforms for instruction and educational content creation, one of whom also acted as a technology mentor at their institution.

Selection criteria included: (1) Enrolment in a final-year teaching practicum or related capstone project (for PSTs). (2) Evidence of designing or utilizing educational technologies (e.g., teaching via TikTok, developing digital instructional content, managing digital learning platforms). (3) Active involvement or interest in edutechno-preneurial activities, such as online tutoring, content creation, or livestream teaching. (4) Willingness to reflect on and discuss their experiences with technology integration and digital innovation. This strategy ensured the selection of information-rich cases relevant to the research objectives.

Data Collection Instruments and Procedures

Data collection was based on triangulation across three instruments to ensure credibility and validity, with data gathered within a four-week period, starting on Friday, June 13, 2025. Interviews were the primary instrument, exploring participants' experiences in using digital tools, understanding digital literacy, and engaging in entrepreneurial digital practices. Each session lasted approximately 30-45 minutes and was conducted either face-to-face or online (via Zoom or WhatsApp calls). The interviews were conducted after the questionnaire analysis to clarify and expand on responses. All interview sessions were recorded with the participants' consent and transcribed *verbatim*.

A structured questionnaire was used to assess participants' self-perceived levels of digital literacy across technical, cognitive, and socio-emotional dimensions. Items measured the frequency, confidence, and purpose of technology use in teaching. Participants completed this questionnaire digitally.

Observations focused on participants' real-time online teaching or content creation sessions (e.g., a final-year pre-service teacher actively developing digital learning content through TikTok and YouTube, or an experienced teacher utilizing online learning platforms). Field notes were used to capture platform usage, interaction patterns, teaching strategies, and entrepreneurial elements such as audience engagement and monetization mechanisms.

Data Analysis

Thematic Analysis was the approach used for data analysis. The process followed these stages: (1) Transcription of interview and observation data; (2) Coding meaningful segments, both deductively (guided by the conceptual framework) and inductively (emerging from the

data); (3) Grouping codes into themes; (4) Interpreting themes in relation to the conceptual framework.

The analysis specifically focused on describing and framing the key constructs: edutechno-preneurship, digital literacy competence, technology as a prime mover, personalized learning, flexibility and accessibility, collaboration, and partnership.

Rigorous ethical procedures were maintained throughout the study. Those are (1) Initial Contact and Consent. Participants were fully informed about the purpose, procedures, and ethical considerations, and informed consent was obtained prior to participation; (2) Voluntary Participation: All participants had the right to withdraw at any time without penalty; (3) Confidentiality. The study utilized pseudonyms (PST1, PST2, ET1, ET2) to protect identities; (4) Data Security: All recorded data were stored securely in encrypted files and used solely for research purposes.

To ensure the credibility and validity of the findings, method triangulation was systematically employed. Specifically, data gathered from the Interviews were cross-checked with the Questionnaire results and verified through Observational evidence, strengthening the trustworthiness of the interpretations regarding the influence of digital literacy on edutechno-preneurship.

RESULT AND DISCUSSION

This section presents six themes derived from interviews (DIn), questionnaires (DQ), and digital observations (DO). Data triangulation strengthened the credibility of the findings by confirming recurring patterns across data sources: (1) Framing Edutechno-preneurship; (2) Digital Literacy Competence; (3) Technology as a Prime Mover; (4) Personalized Learning, (5) Flexibility and Accessibility, and (6) Collaboration and Partnership.

Framing Edutechno-preneurship

Participants framed edutechno-preneurship as the integration of educational practice, digital technology, and entrepreneurial activity. Representative answers from the DQ show this variation:

- ET1 defined it as “doing business in education by providing technology tools” (DQ-ET1, June 12, 2025).
- ET2 linked it to social media income: “earning money from Instagram, TikTok, YouTube” (DQ-ET2, June 14, 2025).
- PST2 emphasized career building: “building personal branding to develop career and professionalism” (DQ-PST2, June 20, 2025).

From these four responses, three stressed monetization and digital platforms, while one emphasized professional identity, indicating that most participants view edutechno-preneurship as leveraging digital media for opportunity expansion.

Digital observation (DO) also supported this framing. For example, during a livestream session, ET2 promoted paid English-speaking classes while demonstrating pronunciation techniques (DO-TikTok, 13 June 2025). This real-time integration of teaching and entrepreneurial promotion exemplifies the hybrid role described in the literature (Rippa & Secundo, 2019).

In interviews, ET2 reflected on the challenge of sustaining digital visibility: "I must increase my English so I can help many people" (DIn-ET2, June 13, 2025). This confirms the literature on the pressures of entrepreneurial self-branding in digital ecosystems (Salas-Pilco & Yang, 2022).

Digital Literacy Competence

Questionnaire responses show consistently high self-assessed competence:

- Three participants selected "very good,"
- One selected "good."

Representative DQ data:

- "I am very good at using digital tools in my teaching activities" (DQ-ET1, DQ-ET2, DQ-PST1).
- "I am good at using digital tool" (DQ-PST2).

Observation data confirmed this. PST1 used Google Classroom, Kahoot, and Canva during a lesson (DO-PST1, June 12, 2025), while ET1 consistently used Zoom for synchronous teaching (DO-ET1, June 10, 2025).

However, interviews revealed gaps:

- PST1: "Kadang bingung memilih platform yang paling tepat" (DIn-PST1, June 12, 2025).
- ET1: "Sulit mengikuti perubahan platform yang cepat" (DIn-ET1, June 11, 2025).

These subtle challenges align with research that operational skills often develop faster than pedagogical or evaluative digital literacy (Hamilton et al., 2016).

Technology as a Prime Mover

Participants used multiple tools; PSTs averaged 6 platforms, while ET1 used 2–3. Representative DQ data:

- PST2: "I use Google Classroom, Canva, YouTube, Educaplay, Wordwall, TikTok" (DQ-PST2, June 20, 2025).
- ET1: "Zoom" (DQ-ET1, June 10, 2025).

Digital observation confirmed this difference. PST2 alternated between Blooket and Wordwall during vocabulary reinforcement activities (DO-PST2, June 20, 2025).

When asked about importance, all participants responded "very important" (DQ-ET1, DQ-PST1, DQ-PST2).

A challenge emerged from interviews:

- ET1: "Lebih baik pakai yang sudah stabil daripada banyak aplikasi" (DIn-ET1, June 11, 2025).

This reflects the literature on the tension between tool variety and teacher workload (Krull & Duart, 2017).

Personalized Learning

This theme is most visible in ET2's digital teaching. In interviews, ET2 explained:

- "I bring topics based on what students ask... how can I invite them to practice consistently" (DIn-ET2, June 13, 2025).

Observation data showed dynamic personalization: during a TikTok livestream with ± 300 viewers, ET2 responded to individual comments, adjusted examples, and switched topics based on live questions (DO-ET2, June 13, 2025). This illustrates real-time personalization, consistent with Pane et al., (2015).

Challenges expressed by ET2 include:

- managing unpredictable audience size,
- answering spontaneous linguistic questions,
- maintaining depth without structured materials.

These align with Holmes et al., (2019), who emphasize the importance of scaffolding in personalized online environments.

Flexibility and Accessibility

DQ responses showed varied reasoning behind prioritizing this principle:

- ET1 chose flexibility as the foremost principle (DQ-ET1).
- PST2 emphasized accessibility: "Students can choose the time that suits them" (DQ-PST2).
- PST1 highlighted time management: "Pintar-pintar membagi waktu" (DQ-PST1).

Interviews added nuance:

- ET1: "Menggunakan karyawan membantu mengatur jadwal kelas" (DIn-ET1, June 10, 2025).
- PST2: "I break content into small structured modules" (DIn-PST2, June 20, 2025).

Observation confirmed flexible practice. PST2 allowed asynchronous submissions through Google Classroom, with optional synchronous check-ins (DO-PST2, June 20, 2025). Constraints reported include unstable internet, time-zone coordination with students outside Java, and limitations of online hands-on activities. These mirror challenges reported in learning-flexibility literature (Binkley et al., 2014).

Collaboration and Partnership

Participants demonstrated informal and platform-based partnerships.

Interviews show ET2's evolution:

- "At first it was just for fun, then I realized people want to know more" (DIn-ET2, June 13, 2025).

Observation confirmed platform-mediated partnership: TikTok livestreams enabled learner interaction and monetization via gifting (DO-ET2, June 13, 2025).

Cross-platform synergy also appeared:

- ET2 promoted TikTok sessions on Instagram Stories and posted teaching clips on Reels (DO-ET2, June 12–14, 2025).

These align with the concept of teachers as networked professionals (Kimmons & Veletsianos, 2015). Challenges acknowledged:

- fatigue from constant content creation,
- negative comments,
- pressure to maintain visibility.

These concerns reflect broader discussions on digital teacher wellbeing (Luo et al., 2017).

Integrated Discussion

Triangulated data indicate that edutechno-preneurship is driven by three integrated capacities:

1. Digital literacy → competence baseline
2. Technological innovation → expansion of opportunities
3. Pedagogical adaptability → personalization and flexibility

However, sustainability depends on structural support. Participants' comments about workload, platform instability, and content-production pressure indicate that entrepreneurship in teaching is not purely individual but shaped by systemic conditions supporting arguments by (Salas-Pilco & Yang, 2022).

The findings show that edutechno-preneurship is more than monetization: it is a learner-centered ecosystem enabled by digital affordances, but constrained by infrastructural, pedagogical, and emotional demands.

CONCLUSION

This study shows that digital literacy competence plays a key role in enabling and strengthening edutechno-preneurship among English teachers and pre-service teachers. Participants demonstrated good to very good proficiency in using digital tools, allowing them to integrate platforms such as Zoom, Google Classroom, TikTok, YouTube, and Kahoot into both teaching and entrepreneurial activities. This competence functions as an enabler that supports innovative instruction, wider audience engagement, and new opportunities for digital-based income.

The findings also indicate that participants apply edutechno-preneurship through five principles: positioning themselves as edu-technopreneurs, using technology as a prime mover, personalizing learning, ensuring flexibility and accessibility, and building collaboration with digital communities. These results highlight that edutechno-preneurship involves not only the use of digital tools but the strategic combination of digital competence, learner centered pedagogy, and entrepreneurial thinking.

Despite its contributions, the study has several limitations. It involved only four participants from a single institution, which restricts the generalizability of the findings. Self-reported data may contain personal bias, and limited observations prevented broader comparisons across different digital teaching settings. Future studies involving larger, more diverse samples and longitudinal designs are recommended to gain deeper insights.

The findings have practical implications for teacher education. Training programs should incorporate learning experiences that develop not only technical skills but also digital branding, monetization strategies, and platform management. Institutions should provide mentorship, digital resource support, and professional learning communities to help teachers sustain innovative digital practices. Policymakers may also use these insights to promote digital entrepreneurship as a means to expand educational access. Further research should examine edutechno-preneurship among more diverse teacher populations, explore its impact on student learning outcomes and engagement, and investigate the long-term sustainability and challenges of entrepreneurial digital teaching.

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