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Cultivating Digital Learning Culture: Perspectives of Pre-Service English Teachers at a Private Islamic University in Yogyakarta

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Abstract

Background: The transformation of education in the 21st century demands the development of a digital learning culture that goes beyond merely providing access to technology. It also requires the integration of academic ethics, collaborative practices, and digital literacy into the teaching and learning process. In response to these demands, this study is needed to explore the practices and challenges of fostering a contextual and sustainable digital learning culture among prospective English teachers.
Objective: This paper investigates the practices and challenges in the development of a digital learning culture among pre-service English teachers at a private Islamic university in Yogyakarta.
Methods: Utilizing a descriptive qualitative design, the research captures the perceptions and experiences of six participants from the 2021 cohort, selected through purposive sampling. Data were gathered via online interviews conducted in Indonesian to ensure clarity and comfort, followed by rigorous analysis involving transcription, member checking, and systematic coding (open, analytical, axial, and selective).
Findings: Findings reveal six key practices for fostering a digital learning culture: adherence to academic ethics, staying updated with digital tools, promoting digital literacy, employing student-centered learning, participating in training programs, and fostering collaboration. Three significant challenges were identified: managing digital learning activities, fears of digitization replacing teachers, and negative perceptions of digital learning's value.
Conclusion: The study concludes that addressing these challenges through targeted training, ethical practices, and institutional support is essential for effectively implementing a digital learning culture in English education.

Keywords: Challenges of digital learning culture development; Digital Learning Culture; English Language Education; Pre-Service Teachers; Qualitative Research

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Introduction

Digital learning culture encompasses the collective behaviors, attitudes, and values within educational environments that promote the applicable utilization of digital skills for instructional processes. It involves the integration of digital tools such as virtual classrooms and multimedia resources, fostering digital competency, and encouraging collaboration and communication among educators and students (Aboobaker & Zakarriya, 2021). This culture goes beyond merely employing technology; it establishes an ecosystem where digital tools enhance learning, collaboration, and preparation for a technology-driven world. Critical components of digital learning cultures include adaptability, creativity, student-centered learning, equitable access to resources, and institutional support through infrastructure and training.

The integration of digital technologies has become indispensable in 21st-century education, particularly in English language teaching. Digital platforms, multimedia resources, and virtual classrooms have revolutionized traditional teaching approaches by providing interactive and innovative ways to engage learners. In Indonesia, digital literacy is increasingly emphasized by the government and educational institutions to prepare students and educators for a rapidly evolving technological landscape (C. Wang et al., 2023). The emphasis is remarkably relevant in teacher education, where pre-service English teachers are expected to grasp digital devices and cultivate a digital learning culture in their future classrooms. However, despite the growing availability of digital technologies, their adoption varies widely across institutions, influenced by infrastructure, faculty support, and institutional culture.

Rahman and Sandra (2024) emphasized that developing a digital learning culture among prospective English teachers is not enough by simply providing access to technology. More than that, consistent integration between digital devices and effective teaching methodologies is needed. In private Islamic higher education environments, traditional learning cultures are still very dominant, often hindering the strengthening of digital literacy. This causes a gap between modern education's demands and future educators' readiness. In addition, various challenges also complicate efforts to build a digital learning culture. Some of these include limited access and exposure to digital resources, lack of adequate training related to the integration of technology into pedagogical principles, resistance to change, and the need to maintain a balance

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between technological advances and upheld cultural values. This condition emphasizes the importance of implementing a targeted and comprehensive strategy. The strategy includes improving the quality of prospective teacher training, institutional investment in the procurement and use of technology, and the development of a digital pedagogical approach sensitive to cultural context. Thus, a digital learning culture can grow sustainably and be relevant to current and future educational needs.

This study examines the practices and challenges of developing a digital learning culture among pre-service English teachers at a private Islamic university in Yogyakarta. It explores how pre-service teachers incorporate digital tools into their learning and teaching practices while navigating the unique cultural and institutional constraints of their educational setting. The research is driven by practices mentioned in the existing literature, such as collaborative digital platforms(Shonfeld et al., 2021), multimedia resources, and virtual teaching tools, alongside challenges like limited institutional support, inconsistent technological access, and cultural tensions (Aboobaker & Zakkariya, 2021). Addressing these challenges, the study seeks to provide actionable recommendations for enhancing digital readiness among pre-service teachers and fostering a sustainable and effective digital learning culture.

To guide the research, the following questions are posed: (1) What practices can pre-service English teachers implement to develop a digital learning culture in the English Language Education Department (ELED) at a private Islamic university in Yogyakarta? (2) What challenges do pre-service English teachers face in developing a digital learning culture in the ELED at a private Islamic university in Yogyakarta?

This research contributes to the broader discourse on digital pedagogy by providing insights into the practices and challenges of cultivating a digital learning culture. It also supports efforts to prepare pre-service teachers for effective teaching in technology-driven educational contexts.

Literature Review

This section explores the concept of digital learning culture and its relevance to pre-service English teachers, focusing on their perceptions, practices, and challenges in implementing

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this culture. The review highlights studies related to digital learning culture, including its definition, development strategies, implementation factors, activities within English language education, and the challenges faced by pre-service teachers.

Definition of Digital Learning Culture

Digital learning culture is a transformative approach, stressing the effective usage of digital technology to foster collective behaviors, attitudes, beliefs, and norms within educational or professional environments (Sari et al., 2020). It incorporates digital tools and platforms to enhance learning, promote collaboration, and disseminate valuable information, empowering educators and students to thrive in a technology-driven world. Adopting a digital learning culture is essential for institutions aiming to remain relevant and innovative amidst the rapid technological evolution in education and professional development. Digital learning culture's hallmark is the continuous integration of technology into teaching and learning processes (Imran & Almusharraf, 2024). This entails utilizing resources such as learning management systems (LMS), virtual classrooms, and digital libraries to enhance material delivery and promote active student interaction. For instance, LMS platforms enable instructors to create dynamic learning experiences, providing students with interactive and accessible resources. In addition to fostering engagement with the aforementioned affordances, digital learning culture also emphasizes lifelong learning (Rushami Zien et al., 2024)Digital resources, such as e-learning platforms, micro-credentials, and online courses, empower learners to acquire new knowledge and skills at their own pace. Ultimately, fostering a strong digital learning culture involves not just integrating new technology but also transforming educational mindsets and practices to facilitate ongoing, collaborative, and autonomous learning in a more digital environment.

Collaboration lies at the heart of digital learning culture, as digital platforms facilitate communication and teamwork across geographical and cultural boundaries (Grothaus & Zawacki-Richter, 2021; Rivas & Espinoza, 2023; Velinov & Bleicher, 2023). Tools like video conferencing, collaborative document editing, and online forums enable real-time interactions, fostering diverse perspectives and enriching the learning experience (Gronseth & Bauder, 2022). Another critical feature is personalized learning, enabled by adaptive technologies and data analytics. Educators and digital platforms can tailor content and strategies to meet individual

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learners' needs, enhancing engagement and outcomes (Shonfeld et al., 2021). Adaptive learning systems, for instance, adjust the difficulty and pace of lessons based on students' progress, creating a more meaningful connection with the subject matter. Moreover, digital learning culture promotes digital literacy—critical, ethical, and responsible use of digital tools. This equips educators and students with the skills to navigate online environments, evaluate information reliability, and solve problems effectively using technology (Wei, 2023). Ethical considerations like data privacy and combating misinformation are vital in fostering responsible digital citizenship. A vibrant digital learning culture encourages creativity, inclusivity, and proactive engagement with technological innovations. By embracing this culture, institutions can establish dynamic educational environments that prioritize growth, collaboration, and innovation.

Difference between digital learning culture and Digital literacy

There is a close connection between digital learning culture and digital literacy; yet, definitions, scopes, and consequences of these two ideas are distinct. Digital learning culture is a collective culture or habit in an institution or community that uses digital technology to enhance learning processes, cooperation, creativity, and sustainable growth. This culture prioritizes the incorporation of technology as a fundamental component of everyday educational practices, hence fostering an atmosphere that supports technology-driven learning (Guven & Gulbahar, 2020; Lai, 2011; Purnomo et al., 2024; Yasa et al., 2024). Conversely, digital literacy emphasizes the development of individual competencies in the critical, effective, and responsible management, creation, evaluation, and utilization of digital information. The concept of digital literacy places an emphasis on the specific competences that a person possesses to be able to employ digital technology in an ideal manner in various activities. These activities include studying independently, analyzing information found online, and communicating in digital spaces in a responsible manner (Bejaković & Mrnjavac, 2024; Brocca et al., 2024; Purnomo et al., 2024; Yazon et al., 2019; Yuan et al., 2024)Thus, digital learning culture focuses on collective aspects and the formation of shared habits, while digital literacy is oriented towards developing personal abilities to use digital technology effectively. Table 1 can provide a clear picture of the differences between digital learning culture and digital literacy.

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Table 1. Differences in digital learning culture from digital literacy

Aspect	Digital Learning Culture	Digital Literacy
Definition	A culture that develops in an educational environment or organization, which actively utilizes digital technology to enhance teaching and learning processes, collaboration, innovation, and sustainable development.	A person's ability or competence in using, understanding, evaluating, creating, and managing digital information effectively, critically, and responsibly
Scope	Broader, collective, involving shared practices built within a community or institution.	More specifically, an individual is related to personal abilities in using digital technology and information.
Focus	Building an environment that supports sustainable technology-based learning (e.g., online collaboration, digital innovation, openness to new technologies).	Developing specific individual abilities in mastering digital technology (e.g., searching for information, assessing the quality of information, producing digital content, and understanding digital security).
Practical Implications	Emphasizing changes in collective culture and habits in educational organizations or institutions so technology is integrated into everyday learning processes.	Emphasizing improving individual skills through training and formal and informal education so they can be skilled at using and utilizing digital technology effectively.
Example	Teachers, students, and school administration staff use digital collaboration applications such as Google Classroom, Microsoft Teams, or LMS as an integral part of the daily learning.	Students can evaluate the validity of information sources on the Internet, create learning video content, or protect personal data in online activities.

Practices Employed by Pre-Service English Teachers to Cultivate Digital Learning Culture

Pre-service English teachers play a crucial role in fostering a digital learning culture by integrating technology into their teaching methods, creating collaborative learning spaces, and continuously developing digital competencies (Wu, 2022). The implementation of these three aspects not only improves the quality of learning but also prepares students to face challenges in the increasingly complex digital era. Each aspect supports the others and creates an adaptive, inclusive, and innovative learning environment. In the context of English language education, a

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digital approach allows learning to be more flexible and relevant to the needs of today's generation. Therefore, educational institutions must equip pre-service English teachers with holistic digital competencies. Not only to support the teaching and learning process, but also to instill a lifelong learner mindset in students. These three aspects are discussed in more detail in the following description.

Integrating technology into teaching methods is a key foundation in creating an effective digital learning culture. In the context of English language teaching, technology enables teachers to create interactive and contextual learning experiences. Using applications such as Kahoot! and Quizizz effectively increases students' learning motivation through fun game-based quizzes (Janković et al., 2024; Santiana et al., 2021; Zhang & Crawford, 2024). In addition, platforms such as Google Classroom, Zoom, Google Meet and Edmodo facilitate the distribution of teaching materials and assignments, enabling two-way communication between teachers and students in real-time(Gao et al., 2025; Gupta & Pathania, 2021). Interactive videos from YouTube or Edpuzzle also allow students to access materials more visually and engagingly, supporting various learning styles (Gutiérrez-González et al., 2024). For example, in listening lessons, teachers can insert questions into videos so that students must actively listen. This integration encourages students to be more active and involved in learning while fostering independence. Thus, integrating technology is not just a complement, but a significant instrument in transforming English language pedagogy.

Creating collaborative learning spaces is also important in forming a participatory and communicative digital learning culture. The digital environment allows student interaction not limited to the physical classroom but also extends to virtual spaces. Applications such as Microsoft Teams, Zoom, and Google Meet provide online discussion spaces that allow flexible group work (Gao et al., 2025). Collaboration through Google Docs, Padlet, or Jamboard allows students to compose writing together, provide comments to each other, and develop ideas collectively (Cavinato et al., 2021; Kang, 2022). In practice, students can write group essays on Google Docs, where they must contribute, discuss, and revise together. This activity improves language skills and trains teamwork and collective responsibility. Digital collaboration also creates a more democratic learning atmosphere, where all students can contribute equally. Thus,

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digital collaborative spaces not only support learning but also build soft skills that are very important in the era of globalization.

Continuous development of digital competencies is a prerequisite for prospective English teachers to be able to adapt to changes in educational technology. Teachers must continuously update their knowledge and skills along with the rapid pace of digital innovation. Participating in training, webinars, and technology workshops is an important step to maintain the relevance of teacher professionalism (Ahadi et al., 2024; Shin et al., 2022). For example, training in using Smart Apps Creator allows pre-service English teachers to create interactive Android-based learning media, according to students' needs in the mobile learning era(Eliza et al., 2023). In addition, mastery of applications such as Canva, Powtoon, or Nearpod also enriches the variety of learning media that can increase the attractiveness and effectiveness of teaching (Anggoro et al., 2022; Pratiwi et al., 2021). This competency includes technical skills and a pedagogical understanding of how technology is used appropriately in the context of learning. Therefore, educational institutions must actively support teacher professional development by providing access to training resources and learning communities. In this way, teachers become technology users and educational innovators.

By focusing on these three aspects—integrating technology into teaching methods, creating collaborative learning spaces, and continuously developing digital competencies— pre-service English teachers can play a significant role in shaping a digital learning culture that is adaptive and responsive to technological developments. They strengthen the quality of English learning in the classroom and equip students with essential 21st-century skills. Teachers' readiness to utilize technology will directly impact the quality of students' learning outcomes and readiness to face global challenges. Therefore, strengthening digital culture among pre-service English teachers is a long-term investment for advancing Indonesian education.

Challenges Faced by Pre-Service English Teachers in Developing Digital Learning Culture

Integrating digital technologies into education offers various benefits, but aspiring English teachers face significant challenges in building a digital learning culture. These challenges include limited access to technology, lack of digital literacy and training, concerns about ethics and privacy, resistance to change, and difficulty balancing technology with pedagogy.

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Understanding and addressing these barriers is critical to preparing aspiring English teachers who are competent in the digital age.

Limited access to technology remains a significant barrier for pre-service English teachers in integrating technology into their teaching (Dinc, 2019). In many institutions, especially in resource-constrained areas, technological infrastructure such as stable internet connections, hardware, and educational software is often inadequate (Siregar et al., 2024). This barrier deprives pre-service English teachers of the opportunity to practice or apply technology in real-world learning scenarios. According to research by Mercader, (2020), the lack of digital facilities directly affects training effectiveness and future teachers' digital readiness. Therefore, educational institutions must continuously invest in digital infrastructure to support inclusive and equitable education processes. Providing equal access to technology is the first step to establishing a culture of equitable and effective digital learning.

The next challenge is the uneven distribution of digital literacy training and development in teacher education programs (Soekamto et al., 2022). Many teacher education curricula do not explicitly include mastery of technology as a core competency that must be possessed. As a result, pre-service English teachers feel less confident using digital platforms and are often unable to select or adapt digital tools appropriate to the learning context. A study by Reisoğlu (2022) emphasized that continuous practice-based training, based on field needs, and directly linked to teaching activities, is essential to equip pre-service English teachers with relevant digital skills. Without structured and consistent training, technological adoption in the classroom tends to be superficial and unsustainable (Makrakis, 2024). Additionally, digital literacy also includes critical thinking skills in selecting and evaluating digital resources, which are essential for creating meaningful learning (Yasa et al., 2024).

In the digital era, pre-service English teachers are also faced with ethical dilemmas and privacy issues related to the use of technology (Gümüş et al., 2023). They are required to understand how to protect students' personal data and use educational applications following ethical guidelines (Torres-Hernández & Gallego-Arrufat, 2023). Lack of understanding of cybersecurity and data protection regulations, such as the General Data Protection Regulation (GDPR), can lead to serious potential privacy violations (Chatzipoulidis et al., 2019). A study by Gudmundsdottir and Hatlevik (2020)stated that digital competence concerns technical skills and

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ethical awareness of using data and algorithms in learning. Therefore, teacher education programs must integrate digital ethics components into their training. That way, pre-service English teachers will not only become users of technology, but also protectors of their students' digital rights.

The last challenge is balancing technology use with effective pedagogical principles(Daniela, 2019). Not all digital tools automatically improve the quality of learning; if not used appropriately, technology can be a distraction. Pre-service English teachers need to understand that technology is only a tool, not the end goal in the teaching process. According to Mupita et al. (2018), the Technological Pedagogical Content Knowledge (TPACK) approach is an ideal framework to help teachers synergistically integrate content, pedagogy, and technology. By applying this principle, teachers can ensure that the use of technology is based on student learning needs and supports the achievement of learning objectives. A reflective approach, based on learning evaluation, is essential for technology to truly enrich the teaching process.

Facing the challenges of building a digital learning culture is not easy for pre-service English teachers. However, through a deep understanding of challenges such as limited access, lack of training, ethical issues, resistance to change, and pedagogical balance, relevant and applicable solutions can be designed. Institutional support, curriculum design based on digital competencies, and strengthening technological literacy and digital ethics must be prioritized in pre-service English teachers' education. With thorough preparation, future teachers will be able to create a learning environment that utilizes technology and makes it a means to improve the quality and relevance of English learning in the digital era.

Method

This study utilized a qualitative research approach to comprehensively understand real-world phenomena, specifically pre-service English teachers' perceptions of digital learning culture. Qualitative research allows the exploration of "how" and "why" questions, focusing on participants' views, behaviors, and lived experiences (Bazen et al., 2021; Lim, 2024). It was chosen as the most suitable approach to investigate digital learning culture's nuanced and contextual dynamics in the English Language Education Department (ELED).

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A descriptive qualitative design was adopted to provide detailed and comprehensive insights. This approach facilitates collecting rich, firsthand accounts of participants' understanding of digital learning culture, implementation experiences, and challenges. As described by Lim (2024), qualitative description is particularly effective for studies that require the precise representation of phenomena, incorporating mixed techniques like interviews to elucidate participants' experiences.

The research was conducted within the English Language Education Department at a private Islamic university in Yogyakarta. The department was selected as it represents a cohort of pre-service English teachers who are familiar with digital learning tools and have completed the "Digital Technology in Education" course, a prerequisite for this study. The university's commitment to fostering technological integration in education provided a relevant and supportive context for exploring digital learning culture. Data collection took place in July and August 2024. The first week was devoted to conducting interviews, while the subsequent weeks were spent analyzing the data and preparing to interpret the findings. The setting allowed easy access to participants as the researcher was also a student at the same institution, ensuring familiarity with the environment and ease of communication.

The study involved six participants from the 2021 English Language Education Department cohort. These participants were carefully chosen using purposive sampling to confirm the applicability and extent of the data collected. All participants were chosen based on their familiarity with digital learning tools gained through coursework and practical applications. To ensure diversity and representation, three participants were selected from Class A, and three were from Class B. Participants included a combination of genders and ages varying from 19 to 20. For privacy purposes, pseudonyms such as "Sakura," "Lili," and "Haikal" were used. All participant data were anonymized, and pseudonyms were coded as P1, P2, etc., for data analysis. The purposive sampling strategy allowed the researcher to target participants with direct and relevant experiences, ensuring meaningful contributions to the study's objectives.

Data were collected through semi-structured online interviews conducted via Microsoft Teams. This method was chosen for its ability to elicit detailed and contextualized responses, letting participants reveal their experiences, perceptions, and challenges with their distinctive words. Semi-structured interviews provided the suppleness to probe deeper into responses while

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sustaining a reliable structure associated with the research questions. Participants were contacted beforehand to confirm their willingness and availability. Interview sessions, lasting 10–20 minutes each, were scheduled based on mutual convenience. The interviews were conducted in the participant's mother tongue, Indonesian, to ensure clarity and comfort, minimize misunderstandings, and encourage open communication. The researcher utilized personal devices such as smartphones and laptops to record interviews securely. All recordings were transcribed for analysis. The interviews captured authentic and comprehensive insights by ensuring a relaxed and supportive environment.

The collected data were analyzed systematically through transcription, member checking, and coding, following best practices for qualitative research (Cohen et al., 2017). Interview recordings were transcribed into text to facilitate thorough analysis. Transcription was carried out meticulously to preserve the accuracy of participants' responses, ensuring no data was lost or misinterpreted. To enhance the validity of the findings, transcripts were shared with participants for review. Participants were invited to authenticate the precision of their answers and provide feedback or clarifications. This collaborative step ensured that the data reflected participants' intended meanings.

The data analysis technique in this study was methodical, comprising four coding stages to guarantee a comprehensive and noteworthy interpretation of the data. The first stage, open coding, included categorizing data to find essential themes and patterns, which laid the groundwork for further study. This was followed by analytical coding, which included interpreting the data beyond plain description to identify underlying meaning and linkages. The third stage, axial coding, included restructuring fragmented material to build linkages between categories, resulting in cohesive and integrated themes. Finally, during the selective coding step, these themes were integrated into a comprehensive narrative that corresponded with the study's aims, assuring a consistent depiction of the findings(Corbin & Strauss, 2008). This organized technique allowed the researcher to assess the data systematically while remaining consistent with the study objectives.

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Findings and Discussions

This part provides the results and discussion of this research. Five findings relate to the practices for developing a digital learning culture in the English Language Education Department (ELED), and three address the challenges English Pre-service Teachers face in developing a digital learning culture. These findings are also followed by discussions backed up by experts' opinions.

Practices to Develop Digital Learning Culture

Six practices for developing a digital learning culture, as perceived by the participants, are listed. First, the strategy considers the academic ethic in using digital learning culture. Second, the strategy keeps up to date with digital learning technology. Third and fourth, digital literacy and student-centered learning should be considered strategies to develop digital learning values. Fifth, English pre-service teachers need training in digital learning. The last is the role of teachers and English pre-service teachers in implementing digital learning.

Considering the academic ethic in the use of digital learning culture.

Considering academic ethics in a digital learning culture is essential to ensuring that integrity, privacy, fairness, and accountability remain priorities in the educational process. Educational institutions, educators, and students must collaborate to develop and implement best practices supporting ethical and inclusive digital learning environments. In this way, technology can be optimally utilized to improve the quality of education without sacrificing fundamental academic values in the process of developing. digital learning culture in ELED. Being aware of the norms of academic ethics in digital learning culture, pre-service English teachers could use them to create a digital learning culture appropriately. As mentioned by Participant 1 in their statements, "To be sure, because we are already becoming higher-level students, we are strictly prohibited from just copying answers from the GPT chat, no plagiarism, and cheating." Other statements also come out from Participant 1, "In digital learning, there must be a code of ethics too. Also, our personal data should not be shared; it is important. Some digital learning applications require you to log in using your personal data. If these norms are applied, it can be a strategy to implement a digital learning culture. Students and teachers will feel the value of digital learning plus its benefits." Based on these participants' statements, some

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digital learning users fear the leakage of their data. If there is still a problem, implementing the digital learning culture cannot be developed well.

An essential element of this ethical framework is compliance with standards that regulate digital learning activities (Chatzipoulidis et al., 2019). For example, pre-service English educators acknowledge the significance of academic integrity by refraining from plagiarism and inappropriate aid from AI technologies such as ChatGPT. This viewpoint corresponds with studies emphasizing the need to foster academic integrity in digital learning settings to uphold educational norms and confidence (Sefcik et al., 2020). Furthermore, ethical issues encompass the safeguarding of personal data on digital networks. This issue signifies broader anxieties around data privacy and security in educational settings. Research highlights the necessity of establishing stringent standards to protect personal information and guarantee the responsible use of digital technologies (Astuti et al., 2024)Confronting these ethical dilemmas is essential for successfully cultivating a digital learning culture. Both learners and teachers are more inclined to participate fully in digital learning possibilities when they are assured that ethical standards are maintained. Conversely, unsolved ethical dilemmas, such as data privacy issues, might impede the uptake and efficacy of digital learning efforts. Thus, it is essential to set explicit ethical norms and constantly implement them to cultivate a pleasant and productive digital learning environment.

Other statements from Participant 2 discuss academic honesty. "We should not be arbitrary in using digital media, especially for plagiarism. It violates the norm, in my opinion." Participant 3 also said that "we must practice honesty in every online assignment, as well as technological integrity to become wise users of digital learning. The value or grade we get from these factors can be transparent and objective." Students should not cheat and plagiarize when applying digital learning as a culture. Practicing digital learning must involve honesty from students; thus, the grade or score they get is pure and can be objective (Holden et al., 2021).

Keeping up to date with any forms of digital learning technology.

The following finding reveals that pre-service English teachers keep up to date with digital learning knowledge when they want to develop it in an English course. As stated by Participant 5, if we have extensive knowledge about digital learning, we can benefit from learning activities. This is followed by statements from Participant 4, "In my opinion, knowledge about the use of

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some multimedia and digital learning tools for English language learning is necessary. For example, pre-service teachers can learn what multimedia can be used to teach later in the English class, such as using online podcasts, videos from YouTube, or others."

From these two statements, mastering digital learning well is important for implementing digital learning value. This is related to a study by Norbutaevich (2020) finding that knowledge about digital learning is involved in building an innovative education environment. It is a sophisticated learning framework incorporating an organized scientific knowledge presentation. It was developed and modified in response to modern technology and Internet resources. Knowledge about the newest form of digital learning has also become one of the digital competencies that is important to pre-service English teachers as their 21st century skills before tutoring their students in the future (Pazilah et al., 2024).

Having Digital literacy

Some participants said digital literacy can be an excellent strategy for developing a digital learning culture. Participant 2 stated, "As far as I know, there is something called digital literacy, right? We can get online sources from there later, and with us balancing digital literacy, it is also likely that our ideas can still emerge, and we also get much knowledge from there." Additionally, participant 3 said, "Digital literacy helps us build a digital learning culture because we actively form constructive educational habits and norms by critically assessing information, responsibly dealing with digital resources, effectively collaborating and working together online, and creatively producing digital content". A study by Spires et al. (2018) said that developing the skills to find, understand, and use digital content on the web is crucial in implementing digital literacy. The most important thing to be operative with the Web is strategically searching for information and evaluating its accuracy and relevance.

Applying student-centered learning

Another statement came out as well from Participant 6, "In addition to mastering basic applications or digital technology for learning, as I mentioned earlier, the strategy that can be used can also be through the habituation of student-centered learning. So, they will have the opportunity to apply digital learning." Therefore, to generate active learning, building a learning environment that integrated technology and allowed students to explore learning material through student-centered learning was vitally important. When students know well on the use

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of digital literacy to find resources with the right website, this allows students to engage and collaborate more, have a comfortable area to rethink concepts and generate ideas, and communicate with classmates and professors using technology and the assistance of digital devices, tools, and equipment if student-centered learning is involved in it (Guven & Gulbahar, 2020).

Training on digital learning for English pre-service teachers.

In this finding, Participant 5 said, "For me, the strategy can be through seminars or workshops, basically the events that can motivate people, especially us as English pre-service teachers, to use digital learning as much as possible." Teachers' poor-quality output is caused mainly by their lack of attendance at workshops and other professional development programs. This includes their inability to upgrade their skills and failure to attend conferences and workshops. Many teachers participate in professional development programs, which affects productivity (Bowman et al., 2022; Popova et al., 2022; Ramos et al., 2022). Thus, training for English pre-service teachers is important before becoming teachers. Educators who benefit from enough infrastructure and equitable upkeep of technology may fully collaborate in integrating contemporary trends and technologies into their theoretical and practical teaching methods. It follows naturally that those teachers and institutions in higher education will be the ones affected when they are forced to adapt to the rapidly evolving technological landscape (Fareen, 2022).

Teachers' and English pre-service teachers' role in implementing digital learning.

In the school's area, teachers and students are influencing each other; moreover, when they deploy digital learning. Participant 3 stated, "If they can convince each other, they can indirectly become role models for building the digital learning culture itself in that environment." Participant 4 also stated, "In my opinion, as English pre-service teachers, developing effective communication and collaboration with other English pre-service teachers is necessary, so we can develop the value of digital learning through social interaction, who knows, through that we can exchange ideas".

In a study by Frenzel et al. (2021), teacher emotions fall under this broad category of evaluative reactions, which includes several psychological and physiological subsystems that are expressly incorporated into the situations and social settings that educators deal with daily. Teachers perform with students, parents, coworkers, and superiors to complete various tasks,

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including making classrooms run smoothly, encouraging students to participate and succeed, getting parents to be happy and supportive, and getting coworkers and superiors to be happy and cooperative. Based on this opinion, the value of digital learning can depend on the relationships between teachers and students, whether they prefer digital learning or not.

Challenges faced by English Pre-service Teachers in developing a digital learning culture.

Four findings on this research are revealed in dealing with the challenges faced by pre service English teachers in developing a digital learning culture. First, there are difficulties in controlling learning activities in implementing digital learning. Second, there is fear of the position of digitization that could replace teachers. Third, English pre-service teachers face a burden when implementing digital learning. Finally, there is a belief in underestimating the value of digital learning.

Difficulties in controlling learning activities in the implementation of digital learning.

In this finding, the difficulties the participant faces will be discussed. Participant 1 stated, "It is hard to focus on digital learning in the classroom because sometimes, as students, we are distracted to open other applications that have nothing to do with learning." Additionally, Participant 6 stated, "Maybe there will be difficulties in controlling students if I use digital learning in English learning activities if I become a teacher in the future because if they (the students) are left alone, they will lose focus on the material and instead open other applications on their cellphones."

Meanwhile, Khairiah et al. (2022) have a different point of view from the EFL teachers. The study said teachers also have difficulty teaching, have problems managing their students, and face impediments to adapting to digital learning. These difficulties between students and teachers cannot be separated because they should give a spirit to each other in learning activities if they want to implement the value of digital learning. Moreover, the same difficulty is that teachers' ability to exercise control over online instruction is limited (Le et al., 2022; Y. Wang et al., 2023). This is because the application is utilized and does not have a discussion forum menu. Despite the menu's existence, many students do not use it effectively. These problems between students and teachers cannot be separated because they should give spirit to each other in learning activities if they want to implement the value of digital learning.

Fear of the position of digitization that could replace teachers.

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Some English pre-service teachers are considering that their position can be replaced with digital learning media and sources. Participant 1 stated that "this kind of fear arises because English education or materials can be accessed anywhere, so most of my friends, as pre-service teachers, underestimate the use of digital technology in the classroom. They are afraid that the use of digital media will become more popular and shift the position of the teacher." Based on this perception, the application of digital learning can be hampered by this kind of fear. When English pre-service teachers are concerned about this, digital learning culture cannot be fully developed. Thus, it has become one of the challenges of pre-service English teachers.

Many studies revealed that automation and augmentation are the two main applications of artificial intelligence in the workplace(Le et al., 2022; Leyer & Schneider, 2021; Tschang & Almirall, 2021). Augmentation is when humans work closely with machines to complete a task, as opposed to automation, which suggests that machines take over a human task. Technology was thought to help students, for example, by giving them direct feedback. This idea was acknowledged in several posts, but doubts were raised about technology's actual ability to mentor pupils. Though technological scaffolding by itself was deemed insufficient, the professionals acknowledged the potential of technology to guide and assist pupils (Depaepe et al., 2022). However, pre-service English teachers must still be wise in implying digital learning to assist their learning activities to avoid dependency on digitalization.

The burden faced by English pre-service teachers in implementing digital learning.

Applying digital learning tools might be a burden for some students. Participant 2 said, "Because there are many online assignments, we would like to delay doing them. Even though the value or essence of digital learning itself should be helpful." Also, Participant 3 stated, "Most of the time, when I first transitioned from offline learning to online learning, I could not manage my time. Because everything is online, there are no direct reminders from lecturers or other student friends, so I think you must be able to manage your time." Based on these statements, digital learning is not always flexible enough for all pupils and sometimes makes it hard to do their homework.

Students who struggle with self-control often do not give themselves enough time to do homework, which leads to late or poor assignments (Rawashdeh, 2021). The study by Heo et

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al.(2021) indicates that time management is essential for students in online learning settings. Digital learning can become burdensome if students lack self-efficacy in managing their time.

Belief in underestimating the value of digital learning.

When a lousy belief appears in digital learning, those beliefs can be a challenge to develop the value of a digital learning culture. Participant 5 states, "People who believe or think that many people use digital learning only for using it, so the value or credibility of the task is often underestimated. Digital learning cannot just be used, but must also follow the applicable education curriculum." Participant 6 also stated, "Sometimes people believe that digital learning can only be applied to people who are already qualified and in a conducive environment. So, the spread of the benefits of digital learning culture is uneven." Statement from Participant 4 is as follows, "So I personally believe that digital learning still cannot replace direct interaction with friends or teachers in class."

All statements from the participants above are similar to the research by Dong et al. (2020). The study mentioned that Chinese parents tended to favor traditional learning in early childhood educational settings and held unfavorable opinions about the advantages and values of online education. This results from their lack of preparation and training for online learning. Thus, the study became a reminder of how crucial digital training is for English pre-service teachers. They should also consider if their students possess the appropriate age and proficiency level to engage as consumers of digital learning when pre-service English instructors assume their future roles. If English pre-service teachers have prioritized these two points, negative beliefs towards digital learning will be avoided.

Conclusion

This research examined the cultivation of a digital learning culture among pre-service English teachers at a private Islamic institution in Yogyakarta. Employing a qualitative descriptive approach highlighted six primary practices essential for this cultivation: adhering to academic ethics, staying updated with digital tools, promoting digital literacy, applying student-centered learning methods, participating in relevant training programs, and fostering collaboration among peers and educators.

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The study also identified challenges impeding the establishment of a robust digital learning culture, including difficulties in managing digital activities, concerns about digitalization replacing teachers, and negative perceptions of digital learning. Addressing these challenges through strategies such as comprehensive training, institutional support, and ethical digital practices can effectively integrate digital learning into pedagogical frameworks. Findings underscore the importance of balancing innovative digital tools within cultural and institutional contexts to enhance learning experiences and professional development. Workshops and training programs should emphasize ethical practices and meaningful technology integration aligned with learning objectives. Digital literacy among students must be prioritized to empower responsible and effective technology use. Institutions should encourage exploration of diverse digital tools and foster collaborative spaces, positioning technology as a facilitator rather than a barrier.

Institutional support remains critical to resolving infrastructural deficiencies and ensuring equitable access to technology. Universities should invest in robust digital platforms and reliable internet connectivity, cultivating an environment that values innovation and adaptability. Education policies must prioritize digital learning integration across curricula, providing incentives and funding for teacher training and infrastructure development, especially in under-resourced institutions. This study offers foundational insights for further exploration of digital learning culture in varied cultural and institutional contexts. Future research could examine long-term impacts on student outcomes or conduct cross-cultural comparisons to identify universal and context-specific strategies for cultivating digital learning cultures.

References

Aboobaker, N., & Zakkariya, K. (2021). Digital learning orientation and innovative behavior in the higher education sector: effects of organizational learning culture and readiness for change. *International Journal of Educational Management*, *35*(5), 1030–1047. https://doi.org/10.1108/IJEM-09-2019-0345

Ahadi, A., Bower, M., Lai, J., Singh, A., & Garrett, M. (2024). Evaluation of teacher professional learning workshops on the use of technology - a systematic review. *Professional Development in Education*, *50*(1), 221–237. https://doi.org/10.1080/19415257.2021.2011773

Anggoro, K. J., Khasanah, U., & Milnes, N. (2022). Nearpod Slides to Enhance Students' Self-Study. *SiSal Journal*, *13*(4), 442–446. https://doi.org/10.37237/130405

Astuti, E. F., Hidayanto, A. N., Nurwardani, S., & Salsabila, A. Z. (2024). Assessing Indonesian MSMEs' Awareness of Personal Data Protection by PDP Law and ISO/IEC 27001:2013. *International Journal of Safety and Security Engineering*, *14*(5), 1559–1567. https://doi.org/10.18280/ijsse.140523

Bazen, A., Barg, F. K., & Takeshita, J. (2021). Research Techniques Made Simple: An Introduction to Qualitative Research. In *Journal of Investigative Dermatology* (Vol. 141, Issue 2, pp. 241-247.e1). Elsevier B.V. https://doi.org/10.1016/j.jid.2020.11.029

Bejaković, P., & Mrnjavac, Ž. (2024). The characteristics and role of digital literacy in an effective health protection. In *Heliyon* (Vol. 10, Issue 8). Elsevier Ltd. https://doi.org/10.1016/j.heliyon.2024.e29737

Bowman, M. A., Vongkulluksn, V. W., Jiang, Z., & Xie, K. (2022). Teachers' exposure to professional development and the quality of their instructional technology use: The mediating role of teachers' value and ability beliefs. *Journal of Research on Technology in Education*, *54*(2), 188–204. https://doi.org/10.1080/15391523.2020.1830895

Brocca, N., Masia, V., & Garassino, D. (2024). Empowering critical digital literacy in EFL: Teachers' evaluation of didactic materials involving the recognition of presupposed information. *Language Teaching Research*. https://doi.org/10.1177/13621688241235019

Cavinato, A. G., Hunter, R. A., Ott, L. S., & Robinson, J. K. (2021). Promoting student interaction, engagement, and success in an online environment. In *Analytical and Bioanalytical Chemistry* (Vol. 413, Issue 6, pp. 1513–1520). Springer Science and Business Media Deutschland GmbH. https://doi.org/10.1007/s00216-021-03178-x

Chatzipoulidis, A., Tsiakis, T., & Kargidis, T. (2019). A readiness assessment tool for GDPR compliance certification. *Computer Fraud & Security*, *2019*(8), 14–19. https://doi.org/10.1016/S1361-3723(19)30086-7

Cohen, L., Manion, L., & Morrison, K. (2017). *Research Methods in Education*. Routledge. https://doi.org/10.4324/9781315456539

Corbin, J., & Strauss, A. (2008). *Basics of Qualitative Research (3rd ed.): Techniques and Procedures for Developing Grounded Theory*. SAGE Publications, Inc. https://doi.org/10.4135/9781452230153

Daniela, L. (2019). Smart Pedagogy for Technology-Enhanced Learning. In *Didactics of Smart Pedagogy* (pp. 3–21). Springer International Publishing. https://doi.org/10.1007/978-3-030-01551-0_1

Depaepe, F., Leuven, K., Vanbecelaere, S., Leuven Kulak, K., Johanna Pöysä-Tarhonen, B., & Merikko, J. (n.d.). *``Replacing teachers? Doubt it.'' Practitioners' views on adaptive learning technologies' impact on the teaching profession*.

Dinc, E. (2019). Prospective Teachers' Perceptions of Barriers to Technology Integration in Education. *Contemporary Educational Technology*, *10*(4), 381–398. https://doi.org/10.30935/cet.634187

Dong, C., Cao, S., & Li, H. (2020). Young children's online learning during COVID-19 pandemic: Chinese parents' beliefs and attitudes. *Children and Youth Services Review*, *118*. https://doi.org/10.1016/j.childyouth.2020.105440

Eliza, F., Fadli, R., Hakiki, M., Trisnawati, W., Abdulah, Putra, Y. I., Fauziah, Marind, G., & Hidayah, Y. (2023). Revolution in Engineering Education through Android-Based Learning Media for Mobile Learning: Practicality of Mobile Learning Media to Improve Electrical Measuring Skills in the Industrial Age 4.0. *International Journal of Interactive Mobile Technologies (IJIM)*, *17*(20), 60–75. https://doi.org/10.3991/ijim.v17i20.42093

Fareen, J. A. M. (2022). Digital Learning in Higher Education: A Road to Transformation and Reform. *European Journal of Interactive Multimedia and Education*, *3*(1), e02206. https://doi.org/10.30935/ejimed/11493

Frenzel, A. C., Daniels, L., & Burić, I. (2021). Teacher emotions in the classroom and their implications for students. *Educational Psychologist*, *56*(4), 250–264. https://doi.org/10.1080/00461520.2021.1985501

Gao, Y., Zhu, L., & Tian, M. (2025). SWOT analysis of the application of three digital media in OLPE physical education teaching: Edmodo, Zoom, and Google Meet. *BMC Medical Education*, *25*(1), 243. https://doi.org/10.1186/s12909-025-06826-3

Gronseth, S. L., & Bauder, D. K. (2022). A synergistic framework for curricular flexibility in online collaborative learning. *Distance Education*, *43*(2), 221–238. https://doi.org/10.1080/01587919.2022.2064822

Grothaus, C., & Zawacki-Richter, O. (2021). Collaborative online learning in the cultural context of South East Asia: A systematic review. *Hacettepe Egitim Dergisi*, *36*(2), 489–508. https://doi.org/10.16986/HUJE.2020062020

Gudmundsdottir, G. B., & Hatlevik, O. E. (2020). "I just Google it"-Developing professional digital competence and preparing student teachers to exercise responsible ICT use. *Nordic Journal of Comparative and International Education*, *4*(3–4), 39–55. https://doi.org/10.7577/njcie.3752

Gümüş, M. M., Çakır, R., & Korkmaz, Ö. (2023). Investigation of pre-service teachers' sensitivity to cyberbullying, perceptions of digital ethics and awareness of digital data security. *Education and Information Technologies*, *28*(11), 14399–14421. https://doi.org/10.1007/s10639-023-11785-7

Gupta, A., & Pathania, P. (2021). To study the impact of Google Classroom as a platform of learning and collaboration at the teacher education level. *Education and Information Technologies*, *26*(1), 843–857. https://doi.org/10.1007/s10639-020-10294-1

Gutiérrez-González, R., Zamarron, A., & Royuela, A. (2024). Video-based lecture engagement in a flipped classroom environment. *BMC Medical Education*, *24*(1). https://doi.org/10.1186/s12909-024-06228-x

Guven, I., & Gulbahar, Y. (2020). *Building a Digital Learning Culture by Rethinking Pedagogies for the 21st Century* (pp. 150–170). https://doi.org/10.4018/978-1-7998-1591-4.ch009

Heo, H., Bonk, C. J., & Doo, M. Y. (2021). Enhancing learning engagement during COVID-19 pandemic: Self-efficacy in time management, technology use, and online learning environments. *Journal of Computer Assisted Learning*, *37*(6), 1640–1652. https://doi.org/10.1111/jcal.12603

Holden, O. L., Norris, M. E., & Kuhlmeier, V. A. (2021). Academic Integrity in Online Assessment: A Research Review. In *Frontiers in Education* (Vol. 6). Frontiers Media S.A. https://doi.org/10.3389/feduc.2021.639814

Imran, M., & Almusharraf, N. (2024). Digital Learning Demand and Applicability of Quality 4.0 for Future Education: A Systematic Review. *International Journal of Engineering Pedagogy*, *14*(4), 38–53. https://doi.org/10.3991/ijep.v14i4.48847

Janković, A., Marič ić, M., & Cvjetićanin, S. (2024). Comparing science success of primary school students in the gamified learning environment via Kahoot and Quizizz. *Journal of Computers in Education*, *11*(2), 471–494. https://doi.org/10.1007/s40692-023-00266-y

Kang, N. (2022). Promoting EFL Learners' Proficiency and Motivation via Google Jamboard-based Autonomous Knowledge Sharing. *English Teaching(South Korea)*, *77*(4), 3–27. https://doi.org/10.15858/engtea.77.4.202212.3

Khairiah, K., Mubaraq, Z., Asmendri, A., Hendriani, S., Musa, D. T., & Sihombing, A. A. (2022). Delegitimization of leadership in overcoming difficulties in online learning during the COVID-19 pandemic. *World Journal on Educational Technology: Current Issues*, *14*(3), 726–739. https://doi.org/10.18844/wjet.v14i3.7209

Lai, K.-W. (2011). Digital technology and the culture of teaching and learning in higher education. In *Australasian Journal of Educational Technology* (Vol. 8).

Le, V. T., Nguyen, N. H., Tran, T. L. N., Nguyen, L. T., Nguyen, T. A., & Nguyen, M. T. (2022). The interaction patterns of pandemic-initiated online teaching: How teachers adapted. *System*, *105*. https://doi.org/10.1016/j.system.2022.102755

Leyer, M., & Schneider, S. (2021). Decision augmentation and automation with artificial intelligence: Threat or opportunity for managers? *Business Horizons*, *64*(5), 711–724. https://doi.org/10.1016/j.bushor.2021.02.026

Lim, W. M. (2024). What Is Qualitative Research? An Overview and Guidelines. *Australasian Marketing Journal*. https://doi.org/10.1177/14413582241264619

Makrakis, V. (2024). Teachers' Resilience Scale for Sustainability Enabled by ICT/Metaverse Learning Technologies: Factorial Structure, Reliability, and Validation. *Sustainability*, *16*(17), 7679. https://doi.org/10.3390/su16177679

Mercader, C. (2020). Explanatory model of barriers to integration of digital technologies in higher education institutions. *Education and Information Technologies*, *25*(6), 5133–5147. https://doi.org/10.1007/s10639-020-10222-3

Mupita, J., Widiaty, I., & Abdullah, A. G. (2018). How important is technological, pedagogical, content knowledge? A literature reviews. *IOP Conference Series: Materials Science and Engineering*, *434*(1). https://doi.org/10.1088/1757-899X/434/1/012285

Norbutaevich, J. T. (2020). Use of Digital Learning Technologies in Education on the Example of Smart Education. *Journal La Edusci*, *1*(3), 33–37. https://doi.org/10.37899/journallaedusci.v1i3.193

Pazilah, F. N., Hashim, H., Yunus, M. M., & Rafiq, K. R. M. (2024). Exploring Malaysian ESL Pre-service Teachers' Perceptions on Knowledge of Learners, Digital Literacy and 21st Century Competency. *International Journal of Learning, Teaching and Educational Research*, *23*(1), 300–317. https://doi.org/10.26803/ijlter.23.1.15

Popova, A., Evans, D. K., Breeding, M. E., & Arancibia, V. (2022). Teacher Professional Development around the World: The Gap between Evidence and Practice. *World Bank Research Observer*, *37*(1), 107–136. https://doi.org/10.1093/wbro/lkab006

Pratiwi, M. S., Zulherman, & Amirullah, G. (2021). The Use of the Powtoon Application in Learning Videos for Elementary School Students. *Journal of Physics: Conference Series*, *1783*(1). https://doi.org/10.1088/1742-6596/1783/1/012115

Purnomo, E. N., Imron, A., Wiyono, B. B., Sobri, A. Y., & Dami, Z. A. (2024). Transformation of Digital-Based School Culture: implications of change management on Virtual Learning Environment integration. *Cogent Education*, *11*(1). https://doi.org/10.1080/2331186X.2024.2303562

Rahman, M., & Sandra, H. (2024). The Practicality of Embedding Digital Technology In Pre-Service EFL Teacher. *Modality Journal: International Journal of Linguistics and Literature*, *4*(1), 45–62. https://doi.org/10.30983/mj.v4i1.8371

Ramos, J. L., Cattaneo, A. A. P., de Jong, F. P. C. M., & Espadeiro, R. G. (2022). Pedagogical models for the facilitation of teacher professional development via video-supported collaborative learning. A review of the state of the art. In *Journal of Research on Technology in Education* (Vol. 54, Issue 5, pp. 695–718). Routledge. https://doi.org/10.1080/15391523.2021.1911720

Rawashdeh, A. (2021). *Advantages and Disadvantages of Using e-Learning in University Education: Analyzing Students' Perspectives*. *19*(2), 107–117. www.ejel.org

Reisoğlu, İ. (2022). How Does Digital Competence Training Affect Teachers' Professional Development and Activities? *Technology, Knowledge and Learning*, *27*(3), 721–748. https://doi.org/10.1007/s10758-021-09501-w

Rivas, J., & Espinoza, A. (2023). Desarrollo de un proyecto de aprendizaje colaborativo en línea. El trabajo colaborativo y las Tecnologías de Información y Comunicación. La Perspectiva de la Internacionalización. *Revista de Educación y Derecho*, *28*. https://doi.org/10.1344/REYD2023.28.42805

Rushami Zien, N. H., Abu Bakar, N. A., & Saad, R. (2024). Learning beyond borders: lifelong learning and learning culture in Islamic institutions in the pursuit of quality education. *Quality Education for All*, *1*(2), 80–93. https://doi.org/10.1108/qea-01-2024-0010

Santiana, S., Pujasari, R. S., Marzuki, A. G., & Erizar. (2021). Digital Games-Based Learning: An Innovative Language Learning in EFL Classroom by Utilizing Kahoot! *Jurnal*

Pendidikan Humaniora, *9*(4), 158–163. https://www.researchgate.net/publication/382182934

Sari, A. I., Suryani, N., Rochsantiningsih, D., & Suharno, S. (2020). Digital learning, smartphone usage, and digital culture in indonesia education. *Integration of Education*, *24*(1), 20–31. https://doi.org/10.15507/1991-9468.098.024.202001.020-031

Sefcik, L., Striepe, M., & Yorke, J. (2020). Mapping the landscape of academic integrity education programs: what approaches are effective? *Assessment & Evaluation in Higher Education*, *45*(1), 30–43. https://doi.org/10.1080/02602938.2019.1604942

Shin, J. K., Borup, J., Barbour, M. K., & Quiroga Velasquez, R. V. (2022). Webinars for English Language Teachers During the Pandemic: Global Perspectives on Transitioning to Remote Online Teaching. *AERA Open*, *8*. https://doi.org/10.1177/23328584221083976

Shonfeld, M., Cotnam-Kappel, M., Judge, M., Ng, C. Y., Ntebutse, J. G., Williamson-Leadley, S., & Yildiz, M. N. (2021). Learning in digital environments: a model for cross-cultural alignment. *Educational Technology Research and Development*, *69*(4), 2151–2170. https://doi.org/10.1007/s11423-021-09967-6

Siregar, R. A., Purnawarman, P., Damayanti, I. L., & Raja, F. D. (2024). The Lonely Journey of EFL Pre-Service Teachers In Remote Areas: Readiness And Challenges In Integrating ICT In Teaching. *Teaching English With Technology*, *2024*(1). https://doi.org/10.56297/FSYB3031/WWCS6171

Soekamto, H., Nikolaeva, I., Abbood, A. A. A., Grachev, D., Kosov, M., Yumashev, A., Kostyrin, E., Lazareva, N., Kvitkovskaja, A., & Nikitina, N. (2022). Professional Development of Rural Teachers Based on Digital Literacy. *Emerging Science Journal*, *6*(6), 1525–1540. https://doi.org/10.28991/ESJ-2022-06-06-019

Spires, H. A., Medlock Paul, C., & Kerkhoff, S. N. (2018). Digital Literacy for the 21st Century. In *Encyclopedia of Information Science and Technology, Fourth Edition* (pp. 2235–2242). IGI Global. https://doi.org/10.4018/978-1-5225-2255-3.ch194

Torres-Hernández, N., & Gallego-Arrufat, M.-J. (2023). Pre-service teachers' perceptions of data protection in primary education. *Contemporary Educational Technology*, *15*(1), ep399. https://doi.org/10.30935/cedtech/12658

Tschang, F. T., & Almirall, E. (2021). Artificial Intelligence as Augmenting Automation: Implications for Employment. *Academy of Management Perspectives*, *35*(4), 642–659. https://doi.org/10.5465/amp.2019.0062

Velinov, E., & Bleicher, J. (2023). The Impact of Experiential Learning and the Use of Digital Platforms on Global Virtual Teams' Motivation. *Journal of Teaching in International Business*, *34*(4), 172–193. https://doi.org/10.1080/08975930.2023.2293293

Wang, C., Zhang, M., Sesunan, A., & Yolanda, L. (2023). *Technology-Driven Educational Reform in Indonesia: A look into the current status of the Merdeka Belajar program*.

Wang, Y., Pan, Z., & Wang, M. (2023). The moderating effect of participation in online learning activities and perceived importance of online learning on EFL teachers' teaching ability. *Heliyon*, *9*(3). https://doi.org/10.1016/j.heliyon.2023.e13890

Wei, Z. (2023). Navigating Digital Learning Landscapes: Unveiling the Interplay Between Learning Behaviors, Digital Literacy, and Educational Outcomes. *Journal of the Knowledge Economy*. https://doi.org/10.1007/s13132-023-01522-3

Yasa, A. D., Rahayu, S., Handayanto, S. K., & Ekawati, R. (2024). Evaluating the Impact of Smart Learning-Based Inquiry on Enhancing Digital Literacy and Critical Thinking Skills. *Ingenierie Des Systemes d'Information*, *29*(1), 219–233. https://doi.org/10.18280/isi.290122

Yazon, A. D., Ang-Manaig, K., Buama, C. A. C., & Tesoro, J. F. B. (2019). Digital literacy, digital competence and research productivity of educators. *Universal Journal of Educational Research*, *7*(8), 1734–1743. https://doi.org/10.13189/ujer.2019.070812

Yuan, X., Rehman, S., Altalbe, A., Rehman, E., & Shahiman, M. A. (2024). Digital literacy as a catalyst for academic confidence: exploring the interplay between academic self-efficacy and academic procrastination among medical students. *BMC Medical Education*, *24*(1). https://doi.org/10.1186/s12909-024-06329-7

Zhang, Z., & Crawford, J. (2024). EFL learners' motivation in a gamified formative assessment: The case of Quizizz. *Education and Information Technologies*, *29*(5), 6217–6239. https://doi.org/10.1007/s10639-023-12034-7