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Educational technology and teachers: effective teaching time in the classroom during the practicum

Tecnologia educacional e professores: tempo de ensino efetivo em sala de aula durante o practicum

Tecnología educativa y docentes: tiempo de enseñanza efectivo en el aula durante el practicum

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This study discusses the importance of targeted teacher training and infrastructure investment to enhance the effective use of technology in teaching, particularly in under-resourced educational settings.
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This paper proposes strategies that can help teachers reduce the time spent installing software or hardware in everyday classes, time that they can use to attract, motivate and deepen student learning.

ABSTRACT

The use of technological tools is a key factor for the practice of foreign languages. However, teachers require strategies to improve efficiency in their use. This study aims to identify teaching strategies to optimize class time when using educational technical tools (ETT) in the context of the practices of EFL teachers in the province of Manabí, Ecuador. The work adopts the postmodern paradigm and the mixed method approach. The participants are 42 teachers in training from the National and Foreign Language Pedagogy Program at a national university. 53% women, 45% men and 2% other sexual identities. Ages range between 20 and 22 years. The ad hoc instruments for data collection are a survey, a class observation form and an interview guide. The results show (1) the most frequent difficulties of participants in installing ETT in language practices, (2) knowledge of participants regarding ETT and frequency of use, (3) experiences of participants to improve efficiency in the use of ETT. Among the results, five strategies are presented that can contribute to the improvement of teaching time management when teachers use ETT. It is concluded that the factors to be improved in teachers in training are (a) teachers' knowledge about hardware configuration, (b) knowledge of educational applications and (c) the quality of the Internet connection.

Keywords: technology integration; teaching time; digital skills; foreign language teaching; professional skills.

RESUMO

A utilização de ferramentas tecnológicas é um fator chave para a prática de línguas estrangeiras. Contudo, os professores necessitam de estratégias para melhorar a eficiência na sua utilização. Este estudo tem como objetivo identificar estratégias de ensino para otimizar o tempo de aula utilizando ferramentas técnicas educacionais (ETT) no contexto das práticas dos professores de inglês como língua estrangeira na província de Manabí, Equador. O trabalho adota o paradigma pós-moderno e abordagem de método misto. Os participantes são 42 professores estagiários do Programa de Pedagogia de Línguas Nacionais e Estrangeiras de uma universidade nacional. 53% mulheres, 45% homens e 2% outras identidades sexuais. As idades variam entre 20 e 22 anos. Os instrumentos ad hoc para a recolha de dados são o inquérito, o formulário de observação de aulas e o guião de entrevistas. Os resultados mostram (1) dificuldades mais frequentes dos participantes para instalar a TET nas práticas linguísticas, (2) conhecimento dos participantes sobre a TET e frequência de uso, (3) experiências dos participantes para melhorar a eficiência no uso da TET. Entre os resultados são apresentadas cinco estratégias que podem contribuir para melhorar a gestão do tempo docente quando os professores utilizam a ETT. Conclui-se que os fatores para melhorar a formação de professores são (a) o conhecimento dos professores sobre configuração de hardware, (b) conhecimento de aplicações educacionais e (c) a qualidade da conexão à Internet.

Palavras-chave: integração tecnológica; tempo de instrução; competências digitais; ensino de línguas estrangeiras; habilidades profissionais.

RESUMEN

El uso de herramientas tecnológicas es un factor clave para la práctica de lenguas extranjeras. Sin embargo, los docentes requieren estrategias para mejorar la eficiencia en su utilización. Este estudio tiene como objetivo identificar estrategias de enseñanza para optimizar el tiempo de clase al utilizar herramientas técnicas educativas (ETT) en el contexto de las prácticas de maestros de inglés como lengua extranjera en la provincia de Manabí, Ecuador. El trabajo adopta el paradigma post moderno y el enfoque de método mixto. Los participantes son 42 maestros en prácticas del Programa de Pedagogía de Lenguas Nacionales y Extranjeras en una universidad nacional. 53% mujeres, 45% hombres y 2% otras identidades sexuales. Las edades oscilan entre 20 y 22 años. Los instrumentos ad hoc, para la recolección de datos son encuesta, formulario de observación de clase y guía de entrevista. Los resultados muestran (1) dificultades más frecuentes de los participantes para instalar ETT en las prácticas idiomáticas, (2) conocimiento de los participantes respecto a ETT y frecuencia de uso, (3) experiencias de los participantes para mejorar la eficiencia en el uso de ETT. Entre los resultados se presenta cinco estrategias que pueden aportar al mejoramiento de la gestión del tiempo de enseñanza cuando los maestros utilizan ETT. Se concluye que los factores a mejorar en los docentes en formación son el (a) conocimiento de los docentes sobre configuración de hardware, (b) el conocimiento de aplicaciones educativas y (c) la calidad de la conexión a Internet.

Palabras clave: integración de tecnología; tiempo de instrucción; competencias digitales; enseñanza de lenguas extranjeras; competencias profesionales.

INTRODUCTION

Internships are an essential stage in teacher training. In this scenario, there can be significant mismatches between professional training and job performance. Thus, student teachers find it difficult to implement effective teaching techniques and communicate adequately with young children, which puts the quality of education they can offer at risk. Furthermore, in the recent decade, educational innovations focusing on the use of technology have been implemented, but limited research has been done on the optimal use of class time when using such educational technology tools (ETT)

The research arises within the framework of the collaboration between the Universidad Laica Eloy Alfaro de Manabí in Ecuador and the Doctorate program in Psycho didactics and Specific Didactics of the University of the Basque Country in Spain. Thus, it is possible to determine that with increasing reliance on digital tools and platforms, educators are presented with both opportunities and challenges in optimizing their teaching practices (Hallström & Ankiewicz, 2024) Technology, from learning management systems to interactive educational tools, transforms traditional teaching methods, making them more dynamic and responsive to student learning requirements (Abramowitz et al., 2024; Bayaga, 2024). This work examines the teaching time when teachers use educational technological tools that can influence teaching efficacy, enhance classroom efficiency, and foster a collaborative learning environment.

Scholars like Abdallah (2024), highlight the need for post-method pedagogies that encourage teachers to develop practical strategies tailored to their contexts, blending technological tools with communicative language teaching. More recently, authors such as Moraga-Toledo et al. (2024); Anthony & Miller, 2024) have explored how digital platforms can support collaborative learning in multilingual environments, providing both flexibility and interactivity to language instruction.

Instructors' efficiency requires to improve the usage of technological tools in daily linguistic practices. Thus, it is necessary to enhance student learning outcomes, foster an inclusive society, and democracy in the classroom (Conrad et al., 2024). Thus, integration of technology in the classroom became essential in modern education. It enhances learning, improves classroom management, and optimizes the teaching process (Faloye & Faniran, 2023). The rise of Information and Communication Technologies (ICTs) has revolutionized the way educators deliver content, engage students, and assess learning outcomes. Among the tasks of educators is the transmission of general knowledge but also preparing students for a highly technological world. This is a key element for effective teaching today (Lawrent, 2024).

Historically, instructors were closely associated with transmitting knowledge in traditional classroom-based settings (Fakhri et al., 2024). Thus, the role of instructors has evolved through technological advancements and pedagogical paradigms. Instructors have become facilitators, mentors, and agents of change, adapting their roles to innovative teaching methods, technological tools, and student needs. According to Lynch et al. (2024). The modern educator must prepare students for a world in constant flux. Thus, educators can use technology tools to substitute, augment, modify, and redefine the learning experience, promoting critical thinking and creativity. In addition, instructors are required to balance traditional teaching with digital fluency, enabling teaching environments to support students to develop critical thinking and technological literacy skills, among other soft skills (Tsui et al., 2024).

Freire (2020) emphasizes the importance of critical pedagogy, where educators challenge social injustices and encourage students to question dominant power structures. Besides, instructors are responsible for addressing societal challenges, fostering inclusivity, and promoting democratic values within the classroom (Getenet et al., 2024). Thus, technology can contribute to making more interactive and accessible lessons. However, transformative roles also face growing inequality and the need for democratic engagement in education (Lai et al., 2024; Sui et al., 2024).

A significant issue is the lack of access to adequate technological resources, including reliable internet and up-to-date equipment (Ferri et al., 2020). In addition, the increased administrative workload associated with technology integration can be overwhelming, particularly when teachers expect to manage virtual platforms and digital tools without sufficient support (Rao et al., 2021). Thus, Christou et al. (2024) and Khaldi (2024), emphasize the need for continuous professional development and institutional support to help instructors stay updated with the newest technological tool usage and troubleshoot technical issues.

Concerning technologic tools and instruction innovation, Ochieng & Gyasi (2021) state that digital platforms foster active learning by encouraging students to participate in discussions, work collaboratively, and engage with multimedia resources. Moreover, the introduction of game-based learning has significantly enhanced student motivation, making learning more interactive and enjoyable (Ashraf et al., 2021).

Furthermore, instructors can integrate multimedia content such as videos, podcasts, and simulations to create a dynamic learning experience (Levinson et al., 2022). Thus, technology is not limited to student engagement. It also optimizes

teaching efficiency. Thus, communication is one of the aspects improved by technological tools to increase the possibilities of distance education (Rapanta et al., 2021). Teachers now have access to a wealth of data that helps them assess student learning, identify areas for improvement, and personalize their teaching methods (Lawrent, 2024). Thus, automated grading systems, digital formative assessments, and data analytics tools provide instant feedback to students and teachers, enhancing the learning process (Siskind et al., 2022).

Concerning to challenges for the use of technological tools in current instruction, Ochieng & Gyasi (2021) emphasize that while technology can enhance learning, but it should not replace the fundamental elements of teaching soft skills such as critical thinking, creativity, and personal interaction.

Johnson (2020) affirms that technology allows students to take control of their learning through activities for exploration, research, and creation of their digital models. However, schools in rural or underserved areas still struggle to maintain the necessary infrastructure to support tech-based education in nations (Moraga-Toledo et al., 2024). According to Ferri et al. (2020), technological tools can improve collaborative and autonomous learning. Thus, Edulastic and Quizlet enable students to practice skills independently, while collaborative platforms like Google Docs encourage teamwork and peer learning. However, despite the advantages of technological tools in the classroom, connectivity issues, lack of access to adequate equipment, or insufficient teacher training are some of the most significant barriers that still reduce the effective usage of educational technology in many countries worldwide (Fakhri et al., 2024).

In addition, Hallström & Ankiewicz (2024) argue that continuous professional development is crucial for teachers to stay current with the latest technological trends and to use these tools effectively in their instruction. Meanwhile, Abramowitz et al. (2024) argue that students can be enhanced by adaptive learning technologies, which personalize instruction based on each student's needs. It creates a more flexible learning environment, allowing for differentiation and scaffolding, particularly for students with diverse learning needs.

Consequently, technological tools can foster a more inclusive classroom where students can learn at their own pace and individual learning preferences. However, another challenge to overcome is passive learning experience. It appears when teachers do not integrate technological tools into pedagogical frameworks. Teachers must balance technological tools with other teaching methods to ensure students develop communicational skills (Lawrent, 2024).

Concerning preview studies related to this research, the authors cite the work of Al Haddar et al. (2023) about how digital platforms offer services that encourage student participation in discussions, forums, and other collaborative activities in the classroom. Meanwhile, the work of Moraga-Toledo et al. (2024) remarks that instructors and students in rural and poor neighborhoods schools still struggle to access tech-based education in South America. Thus, Alam (2023) found that tools like Google Classroom, Zoom, and Microsoft Teams enable teachers to manage large classrooms effectively by organizing resources, tracking student progress, and facilitating communication. The work of Hallström & Ankiewicz (2024) states that instructors should update their digital competencies permanently to warrant professional development in the era of information. The work of Vassilakopoulou and Hustad (2023) and Kyza (2023) found that technology can help teachers to execute the lesson planning and improve teaching time management.

In addition, Akram et al. (2022) found that instructors need to improve their knowledge about technical tool administration. However, implementing sustainable values in technology education also requires a solid understanding of technical challenges, where technical difficulties can be reduced with advance preparation and planning (Hallström & Ankiewicz, 2024). On the other hand, Wells (2024) states that, for educators, the ability to maintain focus on technological readiness and the long-term outcome of their teaching becomes essential when the challenges of the present often seem overwhelming. These initiatives also help teachers develop contingency plans for technical difficulties, ensuring that lessons run even when problems using technological tools arise.

Furthermore, this work delves into how technology can address educational challenges from the student teachers' internship period to ongoing professional development.

The research questions to answer in the study are:

1. What is the student teacher more frequent difficulties to install technological tools in the practicum?
2. How do student teachers manage learners' groups while installing ETT in the practicum?
3. What is the student teacher ETT knowledge and frequency of usage in the practicum?
4. How can the student teachers improve their instruction efficiency when using ETT in the practicum?

This study aims to identify teaching strategies to optimize lessons teaching time when using educational technological tools (ETT) in the context of student teachers Practicum program in a university from Manabi, Ecuador.

METHODS

This research adscripts to the postmodern paradigm. It used the mixed methodology of educational research. The participants are 42 student teachers with ages between 20-22 years. They are part of families of workers from different parts of the country. 53% female, 45% male, and 2% other sex identity. They all attend regularly to the 6th to 9th semesters of the *Programa de Pedagogía de los Idiomas Nacionales y Extrangeros* Program in Pedagogy for National and Foreign Languages at a national university from Ecuador.

Table 1. The sample

	Sex identity			
Student teachers' groups	**Female**	**Male**	**Others**	**Total**
6th semester	10	2	1	13
7th semester	5	4	0	9
8th semester	5	10	0	15
9th semester	2	3	0	5
Total	22 (53%)	19 (45%)	1 (2%)	42 (100%)

Source: research project's registers (2024)

Instruments

The instruments used in the research are:

Survey. - The instrument ad hoc., collects data concerning participants' knowledge levels using didactic technological tools. The categories studied are (1) Instructors' Knowledge for Using ICT for academic purposes and (2) Effective Time Required by instructors to set up technical tools in EFL classes. The instrument was examined by a panel of professionals in English Foreign Language instruction, Educational technology, and Psycho-didactics. They recommended reducing the number of questions from 22 in the original version to 15 in the final version and checking question syntax to ensure the participant's comprehension. The research team used a Google form to collect data.

Observation form. - The instrument *ad-hoc*., identifies student teachers' common difficulties faced in using technological tools during the practicum. The categories studied are (1) Common technical issues, (2) Lack of technical resources in classrooms, and (3) Insufficient instructors' training on ICT use. The instrument was examined by a panel of professionals in Practicum, Educational technology, and Psycho-didactics. They recommended training the research team on the correct usage of the checking list. The research team used a printed checklist version during the 15 lessons observations.

Interviews guide. - The instrument ad hoc., collects information about the participants' recommendations to enhance the effective use of technological tools in EFL lessons during practicum. The instrument consists of 2 parts. Part 1 study centered on the categories (1.a.) Strategies to avoid technological tools set up difficulties in the classroom, (1.b.) Strategies used to manage students' groups when technological tool usage difficulties appear, and (1.c.) Problems with the use of technological tools. Part 2 centered on participants' knowledge of using ICT in class. It consists of 7 questions and the categories considered are (2.a.) Instructors' knowledge about TIC usage and (2.b.) the Effective time instructors require to set up their classes. The instrument was examined by a panel of professionals in Practicum, Educational Administration, and Psycho-didactics. They recommended reducing the number of questions from 18 in the original version to 7 in the final version. The interviews were 5 and lasted 45 minutes each one having a total of 225 minutes.1 interview was conducted face-to-face and 4 using the video conferencing service Zoom.

Process

Stage 1. Literature Review. – It conducted a literature review for a better understanding of the current state of research on the integration of technology in education, instructors' digital competencies, and EFL instruction.

Stage 2. Selection of the participants. – The criteria for selection of participants are (1) To be student teachers at the practicum groups of the Program Pedagogy for National and Foreign Language Instruction of a national university in Ecuador.

Stage 3. Preliminary Survey to student teachers. - It used a Google form to administer the survey. A participant requires 5-7 minutes to complete each form.

Stage 4. Observation form. - Research assistants were trained for 2 hours in the administration of the instrument. It executed 15 observations during the practicum in local schools. The analysis was executed with a statistical program.

Stage 5. Interviews. - Interviews were conducted in the university facilities. Interviews were conducted both face-to-face and via videoconferencing platforms. They were recorded and analyzed with a categorial tree.

Stage 6. Data Analysis. - The team used a categorical analysis to identify trends in the relationship between teachers' technological knowledge and effective teaching time in the classroom. This stage involved both qualitative and quantitative analysis techniques to ensure a comprehensive understanding of the data.

Stage 7. Systematization and reporting. – It consisted of finding systematization, highlighting successful practices, and providing recommendations for further improvement. The results and recommendations for using technological tools are presented in the final report

The research follows the ethical codes of University Laica Eloy Alfaro de Manabi in Ecuador and the American Psychology Association (APA).

RESULTS AND DISCUSSION

The results are presented following the order of the research questions.

1. Frequent difficulties with the usage of Educational Technological Tools (ETT)

In answer to question 1: What are the student teachers' more frequent difficulties in installing technological tools in the practicum? The research team extracted the following results from the survey results:

1.1. Lack of training in ETT usage in the practicum: 48.6% of the participants reported encountering training issues sometimes, 45.9% rarely, and 5.4% often. These results suggest the necessity of improving the ETT usage training during the practicum.

1.2. Technical Hardware Issues in the practicum: 43,2% of the participants experienced hardware failures rarely, 43.2% reported sometimes, 37.8% reported often, and 10.8% reported never. These results show that hardware problems affect users, highlighting the need for ongoing support.

1.3. Internet Connection limitations during practicum: 40.5% of participants reported having sometimes limitations for Internet connection, and 29.7% reported often. Only one student teacher, meaning 2.7% of participants reported never. These results suggest that Internet connection is still a common concern for many student teachers in practicum.

1.4. Lack of Technological Resources in schools during practicum: 13.5% of participants reported always the lack of technical resources for teaching, 43.2% reported sometimes, 16.2% reported often, and 27% reported rarely. The data shows the need to enhance access to technological tools.

1.5. Lack of Technical Support during the practicum: 37.8% of participants sometimes have a lack of technical support, 29.7% reported often, 29.8% reported rarely, and 2.7% reported always. This highlights the importance of having accessible and consistent technical support.

2. Student teachers' management of learner groups while installing ETT in the practicum

In answer to question 2: How do student teachers manage learners' groups meanwhile installing ETT in the practicum? Table 2 shows information collected with the lesson study form.

Table 2. Student teachers manage learners' groups meanwhile installing ETT

Activities	Responses	Percentage
a. Talking with peers about free topics	21	56.8%
b. Waiting without any specific activity	13	35.1%
c. Checking materials related to the lesson topic	10	27.0%
d. Doing homework for other subjects	6	13.5%
e. Playing games or making other spare activities.	5	13.5%
f. Reviewing the textbooks	4	10.8%
g. Trying to help classmates or doing minor tasks	3	8.1%
Total	62	100%

Source: research project lesson study reports /2024.

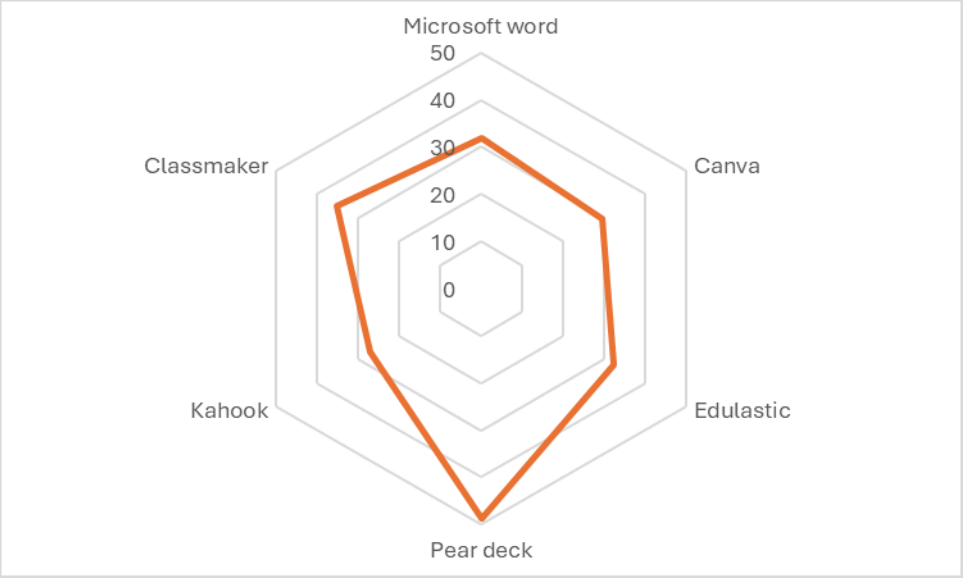
The data collected in the lesson study form shows that when instructors set the devices or informatics applications, 56,8% of the students tend to talk with other students, 35,1% to wait and to do no specific activities, and 27% to check class

materials related to the lesson topic when instructors set up the technological tools at the beginning of the lessons. Researcher team found in the data collected that technological tools set up generates a significant degree of distraction in the students.

3. Student teacher Educational Technical Tools knowledge and frequency of usage

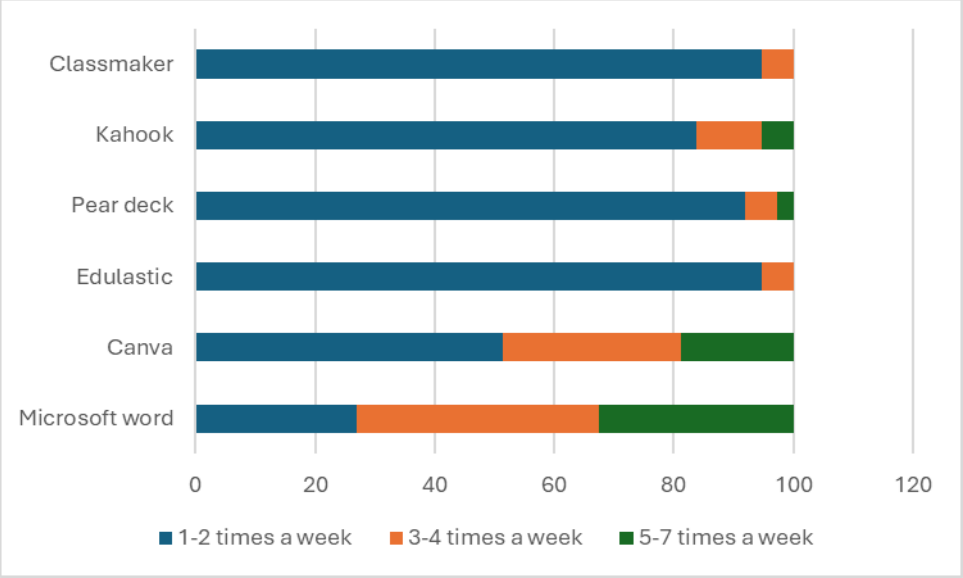
In answer to question 3: What is the student-teacher ETT knowledge and frequency of usage in practicum? Figure 1 and 2 show the information collected in the survey concerning participant knowledge of the appropriate usage of the most popular ETT: Word, Canva, Edulastic, Pear deck, Kahoot, and Class marker, as well as the usage frequency.

Figure 1. Student teachers' knowledge about educational technological tools in the practicum.



Source: research project lesson study reports /2024.

Figure 2. Frequency of educational technical tools usage in the practicum.



Source: research project lesson study reports /2024.

The data allows the research team to state the following information concerning student teachers' knowledge and usage frequency of educational technical tools in the practicum:

Microsoft Word: The data shows that 32.4% of respondents have a good understanding and usage of Microsoft Word. However, a small percentage of individuals rate themselves as less competent, highlighting potential areas for additional training or support for using Microsoft Word. Besides, 32.5% of the participants use it 5-7 times per week, 40.5% use Microsoft Word 3-4 times per week, and 27% of respondents use it 1-2 times per week. The data shows consistent different

usage frequency of Microsoft Word.

Canva: The data shows that 29.7% of participants report high knowledge. The results show that most respondents have a high level of confidence using Canva. A small group reported lower scores, suggesting some variation in familiarity and potential for targeted training to elevate participants' knowledge. Concerning the frequency of usage, 51.4% of the participants use Canva 1-2 times per week, 29.7% use it 3-4 times per week, and 18.9% use it 5-7 times per week. This means that participants use that tool occasionally.

Edulastic: The results show that 32.4% of the student teachers do not know the tool. Most of the remaining respondents rated their knowledge between 2 and 5 levels. Only a few participants rated themselves with a higher level between 7 to 9 points. These results suggest a clear need for training to enhance overall competency. Besides, 94.6% of the participants use it 1-2 times per week, 5.4% use it 3-4 times per week, and 0% of participants use it for more than 5 times per week. Results allow researchers to understand that Edulastic is a tool regularly used for specific purposes.

Pear Deck: The results show that 48.6% of the participants do not know the tool. The remaining responses are distributed between 1 and 7 of knowledge over 10 levels. Only one person rated the highest level of knowledge. Results suggest a strong need for training participants when using the tool. Thus, 91.9% of the participants use it 1-2 times per week, 5.4% use it 3-4 times per week, and just 2.7% use it 5-7 times per week. These findings suggest that Pear Deck is generally used for specific tasks or lessons rather than as a daily tool.

Kahoot: 27% of the participants reported a strong knowledge of digital application. Participants reported knowledge levels among levels 5-7/10. A smaller group rated 10 and another smaller group rated their knowledge at the low level of 2-3. In addition, 83.8% of participants use Kahoot for 1-2 times per week, 10.8% use it for 3-4 times per week, and 5.4% use it for 5-7 times per week. These findings suggest that while Kahoot is regularly incorporated into users' routines, the usage is mostly limited to a few sessions as an occasional teaching resource.

ClassMarker: 35.1% of the participants rated their knowledge at 0 level. Other participants reported various levels between 1 - 5. These results suggest a strong need for training on the use of this tool. 94.6% of the participants use the tool 1-2 times per week and 5.4% use it 3-4 times per week. These findings suggest that Class Marker is generally utilized on an occasional basis, likely for specific assessments or tasks.

4. Educational technical tools use efficiency in practicum

In answer to the question: How can the student teachers improve their instruction efficiency when using ETT in the practicum? Table 3 presents the category analysis of the interviews.

Categorial analysis tree

Category 1: Lesson Time Management

Olivo (2021) states that effective time management during lessons allows teachers to dedicate more instructional time to cognitively engaging activities and enhancing the depth of learning. Such a situation aligns with findings from studies that discuss *inquiry-based learning challenges* in time-constrained environments, which often require careful planning and preparation to balance instructional and interactive segments effectively.

Subcategories of lesson time management: High: Lessons in which time allocation optimally supports interactive learning without interruptions. Moderate: Instances where teachers face occasional time constraints that can limit lesson depth but maintain engagement. Low: Scenarios where time constraints significantly impact the delivery and restrict the planned lesson flow.

Category 2: Learners' Engagement

Researchers also show that engagement is bolstered by integrating educational technology thoughtfully to stimulate active participation. Strategies such as using digital platforms for quizzes or group activities can enhance focus and reduce downtime, though planning, and setup time remains essential. These tools can create a more interactive learning environment, allowing students to stay connected with each content and each other (Lavrysh, 2019).

Subcategories of learners' engagement. - High: the high engagement level occurs when technology integration and activity variety support students' sustained focus and interaction. Moderate: Moderate engagement is observed with less frequent use of interactive tools, though students remain attentive. Low: Engagement is the level when activities are limited or not well-integrated with the instructional content.

The participants' responses show that educational technological tools can improve the lessons interaction using educational technological tools for learners' engagement. Those factors contribute to improving the efficiency of teachers. However, for optimizing the use of technological tools teachers require of time for planning classes and equipment setup. In

addition, they would contact students' relatives and school staff to find solutions to Internet and devices access. They added that tools such as online quizzes, educational videos, and digital platforms facilitate efficiently lesson execution, but it is a complex process that demands teacher dedication and time for lessons planning, execution, and learner knowledge assessment. See table 4.

Table 3. Student teachers' strategies used to improve instruction efficiency

Interviews evidence	Lesson time management	Learners' engagement
I1.12': "I integrate the communication skills to practice using ICT to foster students' abilities and consequently avoid time- consuming."	Moderate	Low
I2.13': "I use ICT to work in group using team activities, such as presentations, or video recording nuggets, but that activity is demanding of time"	High	High
I2.27': "For lesson planning, oral activities, and the digital platform to do activities with the students instead of asking them to write on the board or spend time checking the answers on the board."	Moderate	High
I3.8': "I use digital tools such as Google Classroom to manage assignments, quizzes, and feedback, which streamlines administrative tasks. They spend more time on direct instruction of the lessons every day."	High	High
I3.22': "I mainly use ICT to incorporate interactive learning, like using online quizzes and educational videos, which helps to save time on explanations and makes learning more engaging."	High	Moderate
I4.16': "I have close communication with the student representative to know beforehand what are the technological resources available and in good condition. Otherwise, I use my own equipment."	Moderate	High
I4.29: "Asking my coworkers or school staff who know more about technical tools than me. I also watch videos on YouTube or another platform to learn about the tool. I also attend seminars that provide us with apps we can use. In case of installations, I have my own laptop that help me to save time."	High	High
I5.18: "I conduct a pre-class check of all equipment and software to ensure that everything works smoothly. If issues arise, I always have a backup plan in place, such as having printed materials ready or alternative non tech activities."	High	High

Source: research project interview /2024.

Table 4. Strategies recommended for improving lessons interaction using ETT

Purpose	Strategies	Key route
(1) Time consumption on ETT installation	(1.1.) Read previously the steps to install any application or device	Installation in advance.
	(1.2.) Install the applications one day beforehand	Installation in advance.
	(1.3.) Check doubts about the tools to the school staff before the class	Ask for technical advisory.
	(1.4.) Having all the tools needed for the class and checking they all work properly	Preventing failures.
	(1.5.) Engage students in a warm-up activity like a quick writing prompt or pair discussions	Collaborative activities.
	(1.6.) Have backup materials or non-technology activities like handouts, group tasks, etc.	Interactive learning.
	(1.7.) Use warm-up exercises or quick tasks to keep students engaged to the topic	Interactive learning.
(2) EFL instruction using educational technical tools	(2.1.) Using applications properly for all communication skills differently	Interactive learning.
	(2.2.) Having basic knowledge of apps and computer usage	Software-hardware knowledge.
	(2.3.) Having good general classroom conditions like electricity outlets, internet access, visualization of the material, and audio quality,	Classroom conditions.
	(2.4.) Ensuring students have compatibility between technical tools soft wares and hardware and software	Software and hardware compatibility.
	(2.5.) Training on the platforms use and clear guidelines on the platforms	Software-hardware knowledge.
	(2.6.) Technical support is available in case of unexpected issue.	Ask for technical advisory.
(3) Use ETT for assessing learners' EFL progress	(3.1.) Use rubric used for assessing learners EFL knowledge	Students' assessment.
	(3.2.) Learners' motivation for using technological tools	Motivation for learning.
	(3.3.) Learners' satisfaction using ETT	Motivation for learning.
	(3.4.) Check the time learners spend in each task using technological tools	Interactive learning.
	(3.5.) Monitoring student engagement and their performance in assessments	Motivation for learning.
	(3.6.) Learners' auto evaluation of their progress	Students' assessment.
	(3.7.) Compare learners' progress using ETT and other didactic material.	Students' assessment.
(4) Students can do activities while instructors install ETT.	(4.1.) Vocabulary games	Interactive learning.
	(4.2.) Review previous activities in class	Review topics.
	(4.3.) Pear conversation or dialogues about a class topic	Interactive learning.
	(4.4.) Complete activities in workbook	Use of printed books.
	(4.5.) Begin reading the next text	Use of printed books.
	(4.6.) Brainstorm related to the lesson.	Interactive learning.
(5) Institutions support expected for improving use of ETT in practicum	(5.1.) Internet connectivity and a projector	Classroom conditions. Software-hardware knowledge.
	(5.2.) Broader induction of tools within the platforms on use	Software and hardware compatibility.
	(5.3.) Teachers have updated the essential equipment in classrooms	Software-hardware knowledge.
	(5.4.) Access to new ATTs for improving teaching process	Technology access.
	(5.5.) have paid versions of technological tools.	
(6) Parents' support expected for improving use of ETT in the practicum	(6.1.) Help students use basic technology at home	Technology access.
	(6.2.) Access to Internet at home	Technology access.
	(6.3.) Access to laptops and devices.	Technology access.

Source: research project interview with participants / 2024.

The evidence allows research team infers that for improving the teaching efficiency using ETT, instructors need to have (a) permanent training, (b) proper technical equipment and facilities in classrooms, (c) reliable Internet access, (d) technical advising support, (e) compatible devices and software, and (f) educators and students' ETT guidelines. Thus, responses suggest that educators use a variety of strategies to engage students while setting up technological equipment, with a focus on maintaining student attention and keeping the learning process continuous. Most evidence fall into the subcategories of (a) Installation in advance, (b) Interactive learning, and (c) learners' assessment process. Such subcategories can affect the lesson use of time.

In addition, the evidence shows student teachers manage a variety of methods for assessing the ETT contribution on EFL acquisition process, ranging from objective assessment formats like standardized test and rubrics to learners' performance auto assessments, and qualitative feedback activities. Thus, most of the student teachers recognize the relevance of monitoring learners' ETT engagement, language production, motivation for learning the target language, and satisfaction, but they also found useful the combination of ETT with traditional teaching methods as dictation and writing sentences for grammar knowledge remark. Finally, research team state that the effective assessment of ETT should be multi-faceted, including both, formative and summative assessment. Student teachers can track their learners' progress through data-driven a review meanwhile they collect feedback on learners' experiences using the target language. Such a combination of activities can student teacher to have a holistic understanding about ETT contribution for improving their teaching efficient use of time.

Discussion

Based on the literature review and the results obtained from the research under the Practicum context, authors ratify the position of Moraga-Toledo et al. (2024) when they affirm that the limitations of access to the Internet and digital devices persist for students and instructors located in rural and poor neighborhoods in urban areas. Such a situation contrasts the research finding that the most frequent difficulties using ETT. Thus, Internet connection causes curriculum delays and interruptions. In addition, knowledge of software and hardware is a key factor in diversifying educational technological tool usage.

Many of the results obtained in the practicum align with the current body of research regarding the benefits and challenges of using ETT in the EFL classroom. However, author agree the position of Zeng et al. (2022), when affirm that teachers need to improve their social interaction skills, online teaching methodologies, teaching resources development, and teaching sessions design to improve their efficacy as instructors.

Student teachers also emphasized the efficiency of ETT in classroom management. Nevertheless, several participants expressed frustration with the teaching time lost in setting up or troubleshooting technical problems. It is an observation that coincides with the analysis of Vassilakopoulou and Hustad (2023). These authors stress that the lack of adequate infrastructure and training for instructors in educational technology tools (ETT) remains a major obstacle to the implementation of educational innovations, especially in contexts where technological integration has not been sufficiently supported. That is the case of Ecuador public education. In addition, Bayaga (2024) remarks that educational organization need to support the technology adoption implementing policies and infrastructure.

In addition, a significant portion of respondents admitted that they often lose valuable teaching time by installing digital devices or applications at the beginning of lessons. This issue has also been highlighted in studies such as Akram et al. (2022), who emphasize that teachers' perception of technology integration often reveals frustration due to lack of technical support in the schools. Likewise, Kyza (2023) highlights the importance of having flexible teaching strategies, such as back-up activities, to address unforeseen technical challenges. Sui et al. (2024) suggest that a technological learning environment enhances student self-management, but requires careful planning by teachers to be implemented successfully.

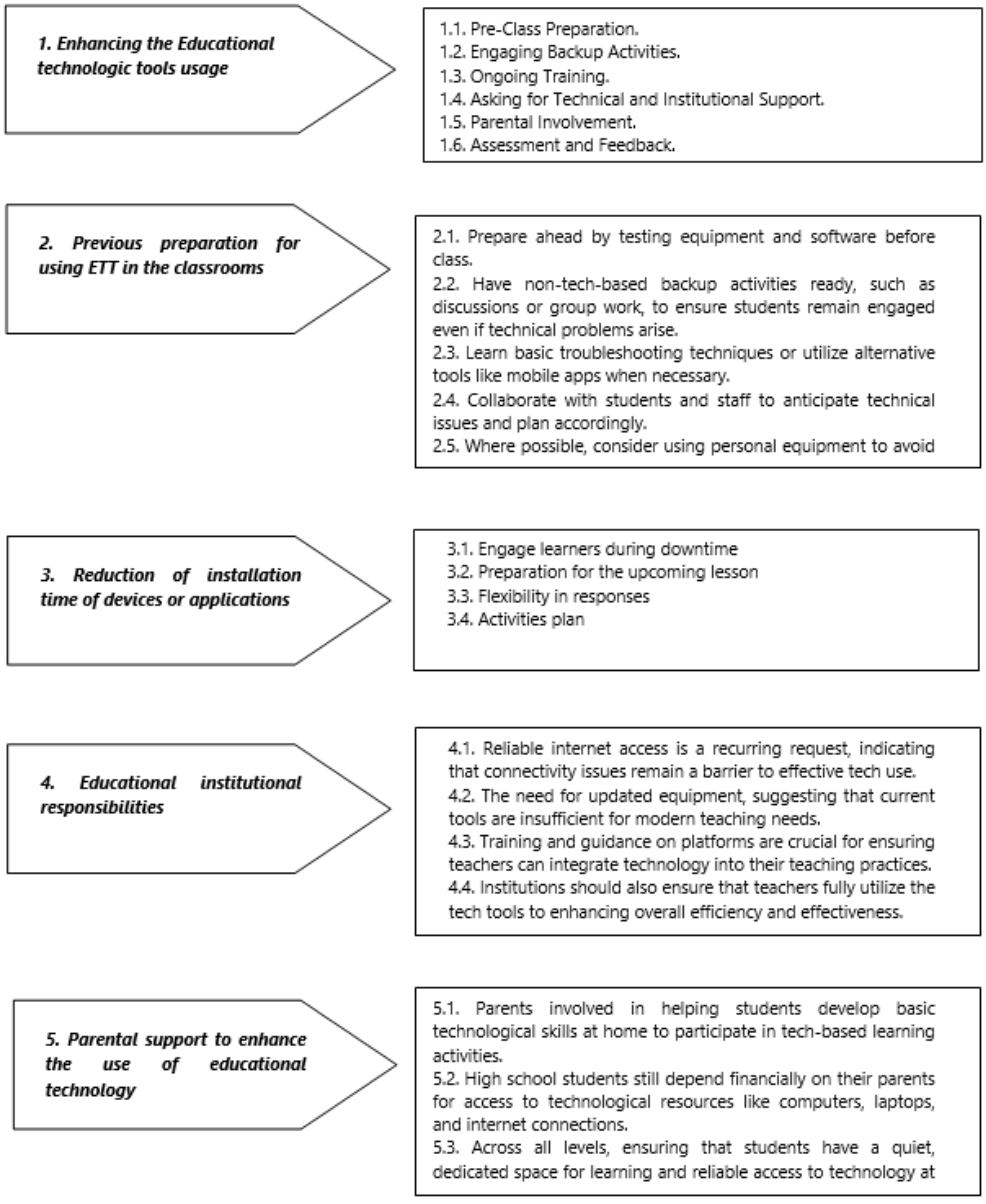
The observations show student teachers have a high familiarity with digital tools and varied frequency of use among applications. The main challenges identified include connectivity issues, the lack of digital resources, and the need for more robust ICT training. Responses also indicate that, despite some challenges, the equipment setup process is generally efficient. Results also show a significant variability in users' knowledge of the different applications evaluated. Overall, respondents demonstrated limited or no knowledge of applications such as Edulastic, Pear Deck, and ClassMarker, indicating a clear need for basic training in these tools. On the other hand, Kahoot stands out as the application with the highest familiarity among users, although there is still a group that could benefit from further skill development. These results suggest that it is crucial to implement training programs that address both beginner and intermediate users, ensuring more effective and widespread use of all the applications in the educational environment.

The results also show that Kahoot, Edulastic, and Canva are the student teachers most widely recognized technological tools. Participants are less familiar with Pear Deck and ClassMarker, indicating the potential need for further training on these platforms to boost their effective use during practicum. Concerning the use frequency of the ETT, results

show that some tools play a central role in everyday lesson instruction, meanwhile others are utilized more occasionally depending on the teaching purposes. Thus, most participants reported using applications like Microsoft Word and Canva 3 to 7 times per week, which shows a very frequent use. In contrast, teachers use ClassMarker and Edulastic only 1 to 2 times a week.

The main issues related to ETT usage were (a) Insufficient technological resources and (b) Internet connectivity problems. Additionally, many participants pointed to the lack of technical support and adequate training as obstacles that limited the efficient use of technology in their classrooms during the practicum. The research team proposes the following strategies for improving teaching time when using ETT (Figure 3):

Figure 3. Strategies for improving teaching time in the context of ETT



Note. Developed by the authors

In addition, Christou et al. (2024) highlight the importance of a comprehensive institutional approach to fostering sustainability in higher education, the evidence shows that many faculty members take the initiative to fill knowledge gaps informally, suggesting that schools may need to supplement professional development with more accessible and flexible learning resources. This approach not only enhances teachers' technical competence, but also promotes a more dynamic learning environment where collaboration and innovation can thrive. By providing diverse resources, such as online learning platforms and communities of practice, a more resilient and adaptive educational ecosystem can be created that responds to contemporary challenges in teaching and learning.

Another finding was the high frequency that student teachers use their own devices and technological resources when institutional equipment is unavailable or malfunctioning during the Practicum time. Although the literature highlights the role of schools in providing adequate technology resources (Anthony & Miller, 2024).

Consequently, several respondents mentioned personal investment in technology to keep lessons flowing, pointing to a possible lack of teaching resources at schools. It suggests that, despite institutional efforts, teachers often must rely on their own means to ensure an effective teaching time management. This situation could reflect the need for a deeper analysis of the allocation of technological resources and the limited technical support.

The results underscore the promise and the complexity of using technology in the educational process of the century XXI. However, meanwhile the benefits are evident for the learners' engagement and teaching efficiency, significant challenges remain, particularly around infrastructure, technological tools training, and class time management. To fully harness the potential of technology, educational institutions must invest in the necessary hardware and software, but also in teachers' training and technical support. In addition, teachers should use flexible strategies to mitigate technological disruptions. Moving forward, a balanced approach that combines technological tools with other innovative pedagogical methods will be essential in optimizing classroom time and improving learning outcomes in an increasingly digital world.

FINAL REMARKS

The authors declare that the research aims have been 100% met: to optimize the teaching time of English as a foreign language in the context of the practicum of a university program in Ecuador. The results show that the most frequent problems that impact negatively on effective teaching time are the Internet connection and the lack of in-depth training in ICT. The authors suggest the following strategies to improve teaching time when use educational technical tools: (1) to implement procedures for lessons time management, (2) to supply permanent technical support, (3) to minimize technological tools setup time, (4) To train instructors for the effective use of ICT, (5) to evaluate the impact of technology use at the school, (6) to involve students in reviewing textbooks when technical installation delays appear, and (7) to run institutional and parental support for educational innovations. However, the educational innovations in the 21st century in Latin America focused on the use of technology in the classrooms. School administrators in Ecuador, convinced that the use of technology favors student learning, seek to have funds allocated from the annual budget for the implementation of technological equipment, software, and Internet access. In addition, efforts are activated to improve the digital skills of teachers and the execution of projects that involve the use of educational technology is encouraged, but there is a lack of supervision processes for the optimal use of these resources. Thus, this work proposes that we reflect on and study the effectiveness of class time used in the stages of installing technological equipment in 21st century teaching.

Limitations and future research

The weakness of the study is the relatively limited number of participants. It does not allow authors to state any generalizations. The authors invite academics to carry out new research projects to evaluate the effective usage of ETT in English language instruction in rural and urban schools using quantitative and qualitative methodologies for assessment. Authors expect to contribute to the innovation of EFL in Ecuador and Latin American countries to improve teaching time when using Educational Technological Tools in classrooms. Moreover, future research could also explore a larger and more diverse sample of teachers from various institutions and regions of Ecuador, incorporating longitudinal designs to assess the sustained impact of strategies. Furthermore, investigating the role of institutional support, professional development, and regional infrastructure in improving teachers' efficiency with ETT could provide new complementary explanations and research agendas both in Ecuador and in several emerging countries.

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B. data research and statistical analysis:	20%	30%	30%	20%
C. elaboration of figures and tables:	30%	25%	25%	20%
D. drafting, reviewing and writing of the text:	30%	25%	25%	20%
E. selection of bibliographical references	20%	25%	25%	30%
F. Other (please indicate)	-	-	-	-

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