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Exploring the Implementation of TPACK Framework in a Chinese EFL Classroom

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Abstract

Technological pedagogical content knowledge (TPACK) is used to define the knowledge of teachers when integrating technology into teaching practices. The study intends to explore the experience of an EFL teacher who uses the TPACK framework in the classroom, and investigate the challenges and opportunities faced by the teacher. Observation, semi-structured interviews, and document analysis were used to collect the data and gather information. The study employed narrative inquiry as well as thematic analysis to analyze the data. The participant was an experienced EFL teacher at a public university in China. The finding reveals that integrating technology into English teaching is challenging due to the lack of digital literacy, technological operation problems, and diverse student's preferences. However, technology integration provides the teacher with some opportunities to motivate students' engagement, enrich diverse learning input, and enhance evaluation and feedback. The study also provides some implications and suggestions for the future study.

Keywords: TPACK, EFL Teacher, Case Study, Technology Integration, Challenges, Opportunities

Introduction

As human society enters the intelligent industry 4.0 era, everything is connected through the internet which plays an important role as a source of expanding horizons (Szymkowiak et al., 2021). The development of information and technology leads to the designing and implementation of new modes in the teaching and learning process. This tremendous shift drives the pace of modernizing education, imparting an informative and digitized character to China's educational landscape. This aligns with the reform requirements outlined in the national documents such as the *"Accelerating the Implementation of Education Modernization Plan (2018–2022)"* CPGRC (2019) and *"China Education Modernization 2035"* (Ministry of Education of the People's Republic of China, 2019). To meet the requirements of the development, *"Education Informatization 2.0 Action Plan"* (2018) was issued in China to propel the development of educational informatization, transitioning from integrated application to innovative development and seeking to comprehensively raise the level of information literacy among educators and learners. Using technology in the classroom to enhance the effectiveness

of the process of teaching and learning is advocated and supported by the government.

Information technology is increasingly applied to the cultivation of English language skills in listening, speaking, reading, writing, translation, and other aspects of the curriculum. The teaching of the English subject has taken the lead in meeting the technological prerequisites for intelligent instruction. There was a rise in the use of technology integration by teachers for teaching and learning to help students learn (Chien, 2019). However, the teaching model has not yet fully adapted the transition to intelligent teaching despite the technological conditions being in place. Challenges occur frequently because of inadequate integration of information technology and educational instruction or an immature learner-centered teaching model. The majority of teachers still use technology without considering other important factors like the pedagogy and the subject content (Taopan et al., 2020). Effective theories and methods for curriculum design have not been updated. Therefore, this study aims to explore the existing challenges as well as the opportunities faced by teachers from the perspective of the Technological Pedagogical Content Knowledge framework (TPACK).

Addressing challenges and opportunities through frameworks like TPACK is essential for educators to adapt teaching methodologies and ensure technology enhances learning. This study aims to illuminate these complexities, fostering digitally literate learners and contributing to ongoing efforts to enhance teaching effectiveness and education modernization in China and globally.

Literature Review
TAPCK FRAMEWORK

The TPACK framework originated from Shulman's introduction of Pedagogical Content Knowledge (PCK). He stated that a teacher's knowledge involved the complex interplay of "Content Knowledge" and "Pedagogical Knowledge" (Shulman, 1986). As information technology took a central role in education, Mishra and Koehler (2006) formally introduced the TPACK concept, which encompasses not only Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK) but also three additional dimensions: Pedagogical Content Knowledge for Technology (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge (TPACK). Content knowledge (CK) is about the knowledge of the skills of subject matter to be learned or taught which requires the teacher to understand the subject content in the field. Pedagogical knowledge (PK) refers to the knowledge about the practices or processes of teaching and learning while Technological knowledge (TK) shows that a teacher knows using technology to instruct. Regarding the dimensions of the concept, there are three aspects of knowledge and intersection. Technological content knowledge (TCK) is the understanding of how to use technology to enhance students' learning of subject matter; Technological pedagogical knowledge (TPK) is the capacity to use technology-supported teaching methodologies; Pedagogical content knowledge (PCK) refers to the ability to use a variety of instructional methodologies to convey subject information. Based on the TPACK framework, teachers are required to assist their students in learning materials by utilizing certain technologies in conjunction with specific teaching methodologies as well as technological pedagogical content knowledge.
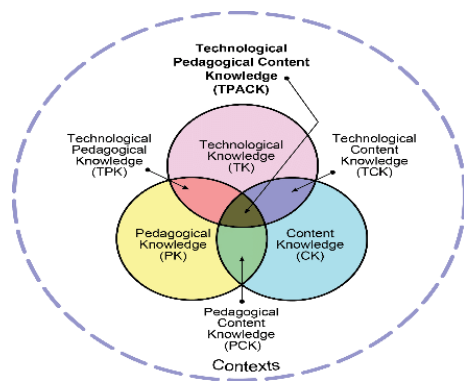
Figure 1: Mishara and Kohler TPACK framework

There are different interpretations regarding the theoretical implications of TPACK. Some scholars view TPACK as an extension of PCK, considering it as subject-specific knowledge associated with information technology, where technology serves as a supporting tool for integrating subject and pedagogical knowledge (Cox, & Graham, 2009; Niess, 2005). In contrast, other scholars argue that the secondary components such as TPK, TCK, and PCK within TPACK suffer from fuzzy definitions and unclear relationships (Angeli et al., 2016). They propose a unitary developmental perspective, suggesting that TPACK can develop independently without relying on the separate development of TK, PK, and CK. Conversely, some researcgers advocate for an equal emphasis on technological knowledge, content knowledge, and pedagogical knowledge, suggesting a synergistic facilitation approach. They believed that TK, CK, and PK interact rather than simply adding up, with core elements mutually influencing and promoting one another and forming a dynamic balance (Mishra & Koehler, 2006; 2009). Wang and Xiong (2018) also assert that the essence of TPACK lies in the interaction, connection, and integration of subject content knowledge, technological knowledge, and pedagogical knowledge which lead to transformative processes. Great attention has been paid to contextual factors. Porras-Hernández and Salinas-Amescua emphasized the significance of context as they found instructors' epistemological views as well as classroom and institutional features, had vastly varied interpretations of what context means (Porras-Hernández & Salinas-Amescua, 2013). Contextual factors encompass macro factors such as national and regional policies, as well as micro factors like school teaching philosophies, teacher beliefs, and teaching environments.

According to the constructivism theory, learning involves constructing, creating, inventing, and developing one's own knowledge and meaning instead of passively receiving what they have been taught (Liu & Chen, 2010). TPACK is defined as a constructivist approach (Chai & Koh, 2017). Learners as well as the learning environment are crucial as the interaction between them creates more meaningful outcomes. The technology integration is likely to create a more interactive learning environment in which teachers can design more activities to motivate students to participate, to collaborate, and to think.

TPACK in Language Teaching Practices

Research on English teachers' TPACK capabilities involves investigating and studying the levels of TPACK among teachers to understand how to develop these abilities. Based on the

TPACK framework, researchers have conducted detailed studies on university English teachers' TPACK characteristics, TPACK capability development, and TPACK integration abilities (Öz, 2015; Zhang et al., 2015). Ziphorah (2014) defines technology integration as the amalgamation of technology with teaching and learning approaches to align with curriculum standards to achieve learning outcomes in each lesson or activity. Some relevant studies have been conducted on the levels of TPACK among English teachers and the influencing factors. For example, Wu & Wang (2015) surveyed 22 elementary school teachers in Taiwan and found that their TPACK levels were relatively high, with the highest level of pedagogical knowledge related to PK and a relatively lower level of technological knowledge (TK). Debbagh and Jones (2018) observed and interviewed four English teachers, comparing the similarities and differences between TK and Technological Content Knowledge (TCK) levels. the components of TPACK are interrelated and can be a useful model for explaining how Indonesian pre-service language teachers use information and communication technologies in their classrooms (Habibi et al., 2020).

Many researchers have applied the TPACK theory to guide English teaching practice. They have conducted practical research on the application of Project-Based Learning (PBL) teaching models in university English classrooms (Bauer-Ramazani & Sabieh, 2018; Liando et al., 2023; Tseng & Yeh, 2019). Some researchers have explored the use of flipped classrooms in university English teaching, incorporating TPACK concepts   (Ni et al., 2023; Piotrowski & Witte, 2016; Seema & İrfana, 2019). Wei et al (2021) investigated how university instructors might build TPACK within the framework of MOOCS instruction. They found it challenging to develop TPK and PCK, but teachers' initiative and student-centered instructional design can help get past these challenges. This underscores the importance of exploring effective strategies and reflective practices to foster a synergistic integration of technology, subject content, and pedagogy. Thus, the purpose of this study is to present the experiences of an EFL teacher implementing the TPACK framework in the teaching of English, as well as the opportunities and problems involved in the teaching process.

Materials and Methods

This study employed narrative inquiry to explore the teacher's teaching experience who has applied the TPACK framework in her EFL class. Observation, semi-structured interviews, and document analysis are used to collect the data. For the data analysis, the thematic analysis with a qualitative approach was employed. The research spanned two months. Purposeful sampling was used to select the participant who had these characteristics: 1) teach in a university; 2) have at least ten years of teaching experience, and 3) know the TPACK framework. Therefore, a participant was selected who was a 45-year-old female EFL teacher who has been teaching for 17 years and currently, she is teaching in a university in China. She had a master's degree in English education, and she also used technology in English language teaching and earned several teaching awards. Besides, she actively took part in the information technology and training programs for MOOCs, Micro-courses, and Blended Teaching.

In this study, a case study design was used as it produces a comprehensive, multifaceted understanding of a difficult problem in the context of real-world situations (Yin, 2009). The thematic analysis was used to analyze the narrative data. Both big and small data sets can be analyzed using thematic analysis, such as case study research with only one or two participants (Cedervall & Åberg, 2010). The thematic analysis involves the process of searching for and

identifying general patterns in relation to the research issues in the data (Yukhymenko et al., 2014). A six-stage guide framework was suggested by Braun and Clark to carry out thematic analysis, which is listed as following steps (Braun & Clarke, 2006):

Table 1
Braun & Clark's six-stage framework of doing thematic analysis

Step 1: Become familiar with the data	Step 4: Review themes
Step 2: Generate initial codes	Step 5: Define themes
Step 3: Search for themes	Step 6: Write-up

An interview protocol was adapted to define the thematic heading. The method of triangulation is used to ensure the validity and reliability of the finding. In this study, observation, semi-structured interview, and document analysis were used to confirm the trustworthiness (Bans-Akutey & Tiimub, 2021). The triangulation process involves reflection, adjustments, and revisions to ensure that the research produces meaningful and accurate information.

Result
Some common challenges regarding the integration of technology in education are discovered in the previous study, such as unwillingness to make major modifications at an institutional level, time problems, or students' passive participation (Cloete, 2017). Some of the same findings were shown in this study. These challenges might be common and occur in other educational circumstances when technology is integrated into teaching. The story of the EFL teacher Stephanie in China is investigated in this study about her teaching experience, especially the challenges and opportunities by the use of technology when she was implementing the TPACK framework.

Challenges in the use of the TPACK framework
  1.Digital literacy
  Digital literacy involves the ability to use, understand, and engage with digital technologies and information effectively. Digital literacy abilities are comprised of technical, cognitive, and socio-emotional dimensions as well as the intersections between these dimensions (Ng, 2012). The technological dimension involves the acquisition of technical skills necessary to navigate digital tools and platforms, such as using software, hardware, online resources, and social media. The cognitive abilities require the ability to evaluate online information, assess the reliability of sources, and use digital resources to solve problems, make decisions, and think creatively. For the social-emotional dimension, understanding the ethical implications of digital actions, including issues related to privacy, security, and responsible online behavior. Digital literacy influences the implementation of the TPACK framework as it emphasizes the integration of Technological, Pedagogical, and Content Knowledge. Therefore, Digital literacy facilitates the smooth integration of digital tools and resources into the teaching and learning process by

enabling educators to make the most of technology in the context of pedagogy and content. In this study, Stephanie was aware that she needed to keep pace with the development of technology, which are shown below:

"Our students are growing up in an environment where technology is very common. New tools and applications are introduced regularly, and it can be overwhelming to stay abreast of all the changes. Integrating technology into the curriculum requires a certain level of proficiency. I have to learn and try to keep up with the advancements all the time"

To integrate technology into the curriculum, the teacher acknowledged the need for a certain level of proficiency and emphasized the necessity of continuous learning to stay updated with technological advancements. This underscored the importance of educators adapting and learning continuously in the digital age to effectively teach and meet the technological needs of students.

2. Technique operational problems

Teachers need to consider technique operation factors in the process of teaching in the classroom. In this study, the participant used Chaoxing Application to teach. Chaoxing Application is a popular platform in China that provides various tools and functionalities for educators. However, she admitted some unexpected situations might happen occasionally which required her to be flexible and prepared in advance.

I utilize the application on my phone to share presentations on the screen. Occasionally, when transitioning from PowerPoint to class activities, I consistently encounter difficulties returning to the presentation. Moreover, the PowerPoint slides may unexpectedly revert to the first page, necessitating a manual flipping through each page one by one. This operation is time-consuming, disrupting the flow of the class, and a little waste of time.

When transitioning from PowerPoint presentations to classroom activities, the teacher faced difficulties in technical operations, possibly stemming from the complexity of the application's interface or workflow. The issue of PowerPoint slides unexpectedly reverting to the first page was described, requiring manual flipping through each page. Such problems potentially arise from glitches in the application or system. The time-consuming nature of these manual flipping operations and the resulting disruption in the flow of the class are highlighted by Stephanie. This demonstrates the negative impact of technical operational issues on teaching efficiency and the smooth progression of the class.

Sometimes we encounter issues with slow internet speed, especially regarding the campus network, causing delays in switching content on the computer. As a precaution, I often carry a USB flash drive. During lectures, there are instances where the audio in the presentation doesn't play, requiring assistance from the control room teacher to investigate and adjust.

The participant was navigating challenges related to the reliability of the campus network, which affects the smooth flow of technology integration in the classroom. The precautionary use

of a USB flash drive indicates a proactive approach to mitigate potential disruptions. The need for assistance from the control room teacher highlights the collaborative nature of addressing technical issues during lectures. This underscored the importance of teachers being adaptable and prepared to troubleshoot technology-related challenges in real time.

3. Diverse student's preferences

When using the TPACK framework, the teacher had to find a balance at the intersection of technology, pedagogy, and content knowledge to create a teaching environment that adapted to student diversity and subject requirements. At the same time, she realized that integrating technology might introduce additional challenges, requiring continuous improvement of teaching strategies.

Some students like online learning, while others prefer traditional face-to-face instruction. They have different tastes. Several students have lower levels of self-discipline and cannot make use of online learning. I need to contemplate how to foster active engagement in both online and offline settings. I spent plenty of time designing teaching activities to ensure effective participation in both environments. This really takes efforts.

The diverse preferences of students for online learning versus traditional face-to-face instruction reflected the diversity in technology. The teacher had to consider how to effectively integrate technology to cater to students who prefer online learning while also supporting those who are inclined to traditional teaching methods. Addressing the issue of students with lower levels of self-discipline required the teacher to contemplate how to design activities at the pedagogical level to encourage all students to participate more actively in learning. She admitted that she had spend a significant amount of time designing teaching activities aimed at ensuring the effective transmission of subject knowledge while also tailoring her teaching methods to accommodate the diverse levels and abilities of students in order to create an inclusive and supportive learning environment.

Opportunities for the use of the TPACK framework

1. Motivating students' engagement

By integrating technology in a pedagogically sound manner, Teachers can better meet students' learning needs, enhance their motivation, and encourage them to participate more actively in the learning process. Today's young students grow up on the internet, and their pervasive exposure to the internet has significantly shaped their learning preferences, communication styles, and information-seeking behaviors. Being digital natives, these students are often adept at navigating online platforms, accessing a wealth of information at their fingertips, and engaging in various digital activities. A variety of technological tools are increasingly adopted by the teacher to create interactive and dynamic learning experiences, making the educational process interesting and relevant to students, as quoted by her:

The application provides various classroom teaching tools. I often utilize the "Shake" feature to randomly select students to answer questions, creating a sense of anticipation among all students. For more challenging questions, I employ the "Quick Response" feature, offering bonus

points to students who participate, serving as an encouragement. Additionally, I facilitate group discussions using the auto-grouping feature and set time limits for assignment submissions through the app.

Stephanie has contributed to creating a positive and interactive learning environment, igniting students' interest and active involvement in the course. By integrating technological tools, she has employed diverse approaches to motivate students in their learning endeavors. This showcase how technology can be effectively utilized to engage students, promote collaboration, and introduce elements of excitement and competition into the learning process. Thoughtful integration of application features used by teachers are likely to contribute to a participatory classroom atmosphere. The participant reflected on her teaching approach:

For a while, I felt that certain key and difficult concepts might be difficult for them to comprehend, leading me to explain in great detail. However, this approach resulted in a quiet and rigid classroom atmosphere. Later, I decided to pose questions, encouraging them to surf the internet or use digital resources to research the topics. During class, they shared their understandings. This brought about pleasant surprises as students enjoyed sharing their perspectives.

The shift from detailed explanations to encouraging students to actively learn by posing questions, led to a livelier classroom atmosphere where students enjoyed sharing their perspectives. The teacher's decision to pose questions in an interactively manner stimulates students to engage in active thinking, fostering their proactiveness. She motivated students to use technology through active participation in information search and analysis, encouraging them to use the internet or digital resources for research indicating the use of technology as a tool to enhance learning. The use of digital resources encourages active participation, collaboration, and the sharing of perspectives among students, contributing to a more interactive and effective teaching approach.

2. Enriching diverse learning input

Enriching diverse learning input through the use of technology is a crucial task. By leveraging modern technological tools, students are provided with more diverse and personalized learning resources, thereby stimulating their interest and unlocking their potential. Digital textbooks, online learning platforms, and virtual reality technologies have opened up new avenues for students to experience learning in innovative ways. These tools not only make knowledge more vivid and engaging but also foster interdisciplinary, comprehensive learning. The teacher made use of an online platform and uploaded and updated rich multimodal learning resources for students as she said:

I have created a course on the online platform, uploading a variety of learning materials, including novels, movie clips, TED talks, and Level 4 Mock Exam Paper. I have defined tasks for students, and I can check the completion status of each task at any time. The textbook is not enough. Extensive reading is important.

The teacher was aware of the inadequacy of textbooks and underscored the importance of extensive reading. She didn't rely merely on traditional textbooks but also provided a diverse range of learning resources to offer a more comprehensive learning experience. The teacher has clearly defined specific tasks for students, aiding in guiding them with clear goals and direction. This emphasizes the teacher's ability to check the completion status of student tasks on the online platfat any time, demonstrating a focus on students' learning progress and providing a real-time feedback mechanism for teaching.

What the teacher have done could be achieved through the functionality of an online platform which emphasized the role of technology in teaching management and monitoring. Stephanie intended to stimulate students' initiative and self-learning abilities by providing diverse learning resources and setting tasks, enabling them to independently explore knowledge during the learning process. She also talked about using blended learning in teaching:

After the class, I often supplement relevant reading materials to expand upon the knowledge covered in the lesson. By integrating the course content with online materials, sometimes we engage in discussions where students actively participate and continue exploring related topics. I use this to facilitate a deeper understanding of the course material. I want my students to comprehend and apply learned knowledge.

By supplementing various types of reading materials and integrating online content, the teacher aims to provide students with a more diverse and comprehensive set of resources beyond the class materials. This approach enhances the learning experience by exposing students to a broader range of knowledge and encouraging active engagement in discussions to deepen their understanding of the topics. The use of online platforms, additional reading materials, and engaging in discussions after class involve the incorporation of technology to enhance the learning experience.

3. Enhancing evaluation and feedback

There was a shift in the assessment paradigm for students connected to the incorporation of technology in the classroom. Constructivism emphasizes that learning is an active process where students construct knowledge through their experiences and interactions. The move towards ongoing assessments, including quizzes, assignments, discussions, and classroom interactions, promotes active student engagement rather than a passive reception of information. The participant mentioned about her measures of evaluation:

In the past, students' grades were determined primarily by final exams. Now, the assessment of courses involves formative assessment, considering mid-term, final, and ongoing performance. Weightings for grades are configured on the platform, with 40% attributed to continuous assessment based on online learning platform data, including quizzes, assignments, discussions, and classroom interactions.

The traditional reliance on summative assessment, such as end-of-term evaluation, has evolved to include a more comprehensive evaluation system. This includes mid-term assessments and ongoing formative assessments, reflecting a broader understanding of student

performance over time. The integration of technology is evident in the reliance on online learning platforms for assessment. Data from these platforms, such as quiz results, assignments, discussions, and classroom interactions, are utilized to gauge student performance. Stephanie mentioned the configuration of weightings for grades on the platform which indicated a systematic use of technology to set and manage the relative importance of different assessment components. The shift towards ongoing performance evaluation suggested a more dynamic and continuous approach to understanding student progress. Constant feedback aids students in understanding their development pinpointing areas in need of improvement, and adjusting their learning strategies accordingly. Peer evaluation is a way, according to Stephanie, to make them become an active learner.

I used a platform system for student peer evaluation. For assignments involving subjective questions, such as reflections on readings, I provided grading criteria and required students to mutually assess each other's work. They can analyze, compare, and evaluate their peers' language and perspectives, gaining insights into their strengths and areas for improvement.

The Teacher required students to mutually assess each other's work encourages active engagement and critical thinking. This approach not only fosters a sense of responsibility. The emphasis on subjective questions allows students to express their thoughts creatively, and the peer evaluation process enables them to receive constructive feedback from their peers. The teacher's strategy of helping students gain insights into their strengths and areas for improvement through peer evaluation aligns with a student-centered approach. It promotes self-awareness and reflective learning, contributing to the overall development of analytical and communication skills. Digital platforms facilitate peer assessment, where students can review and provide feedback on each other's work. This not only enhances collaboration but also promotes a deeper understanding of the subject matter.

Discussion

The results of this study showed that language learning has benefited from and been enhanced by the use of technology (Ahmadi, 2018; Shadiev & Yang, 2020). In addition to positive perspectives, educators have also demonstrated negative opinions regarding the use of technology in the classroom (Shafie et al., 2019). In this study, the teacher was confronted with several difficulties, including the need to master digital literacy, address technical operational problems, and cater to diverse students' preferences. These challenging experiences were typical of the teaching and learning process. Teachers need to take into consideration the TPACK framework, which aids in addressing technology integration in the classroom. However, offering technological tools without properly incorporating them into teaching will not result in learning outcomes among students. The strategic design needs to be created to mediate and improve learning (Agustini et al., 2019). Teachers' level of TPACK has a great influence on the effectiveness of technology integration, such technological skills and professional knowledge. Technology applications are used as a tool instead of being a goal, and should never take center stage in the classroom (Rustamovna, 2021). The focus should remain on how to utilize technology as a facilitator to enhance and complement students' learning experiences to foster meaningful engagement and language learning.

The integration of technology through TPACK is driven by the goal of creating a more effective and engaging learning environment that prepares students for success in the digital age. Digital literacy skills are one of the potential indicators of TPACK abilities, showing an individual can be a qualified technology user (Altun, 2019). Teachers must possess the necessary knowledge. Most importantly, digital literacy is demanded. Teachers should be aware of keeping up with the new trends in the educational field because they have multiple roles as guiders, facilitators, and information providers (Jagtap, 2016). Educators need to possess the ability to convey information not only through traditional teaching methods but also through digital channels such as using online platforms, multimedia resources, and internet searches. Technology integration is an ongoing process that demands a commitment to continuous learning. Teachers must be adaptable, open to exploring new technologies, and willing to invest time in their professional development to effectively integrate technology into their teaching practices.

In addition to teacher's professional development, the use of technology to teach also involves support and assistance from the nation and institutions. In China, as for the country's policies and advocacy in supporting the integration of technology into classroom teaching, many universities have set demands for further accelerating the construction of informatization in classroom teaching. In this study, the university where the participant worked has utilized the School Smart Teaching System as the carrier and constructed multimedia classrooms as well as smart classrooms. In addition to the institutional support, intrinsic awareness and motivation are indispensable. Teachers need to continually adapt to new technologies as they are constantly evolving, which can lead to technical issues when using new tools, especially when they are unfamiliar or lack in-depth understanding of new technologies. Therefore, the teacher keeps open-minded towards new technology, and is well prepared with supplementary teaching content and teaching methods in case of unexpected situations.

Students have different learning styles and preferences. TPACK requires teachers to integrate technology in a way that aligns with diverse learning preferences so that they can cater to the needs of every student effectively. The development of 21st-century skills involves interrelations between educators, learners, and the curriculum (Öztürk et al., 2023). Teachers should design productive learning environments to assist students in acquiring those skills via ongoing learning and active engagement. Similarly, their understanding of pedagogy needs to be updated, covering practices, content, and technology advancements. Some students may be more familiar and comfortable with technology, while others may have limited exposure or face challenges in using digital tools. This diversity in technological proficiency requires teachers to adapt their TPACK strategies to accommodate varying levels of technological competence. Disparities in access to technology outside the classroom can influence students' preferences and impact the effectiveness of TPACK implementation. Teachers should navigate these differences to maintain a balance that fosters active participation which involves tailoring teaching strategies to the specific needs of the students and the subject matter.

In addition to the challenges the teacher encounters, integrating technology into the classroom offers opportunities. Teachers must be proficient in three areas of effective teaching: pedagogy, subject-specific content, and technology use (Ammade et al., 2020). Current university students grew up on the internet and are willing to accept new things. Students are motivated to learn independently which empowers them to explore topics of interest in technology.

Through searching, the capability to explore and search equips students to effectively address challenges. When encountering difficulties or questions during the learning process, they can actively use search tools to find answers, enhancing their problem-solving skills. Moreover, teachers should take students' needs into consideration and the push for new literacies should be dynamic and situation-specific to support the idea of tailored, personalized learning (Edwards, 2016). When teachers enrich the multimodal resources accessible and available on the learning platform, it will be easy for students to locate the necessary learning resources in the blended classroom which increases language input and broadens their knowledge. Furthermore, peer evaluation was used in this study to incorporate constructivist learning ideas to help students better understand and apply subject knowledge and critical thinking. This was in line with the findings by Papanikolaou et al who claimed that as a practical formative evaluation, Peer evaluation encouraged students' learning skills and made them think critically about how they designed their learning experiences (Papanikolaou et al., 2022).

Conclusion

In this study, the story of an EFL teacher Stephanie who carried out her teaching through using the TPACK framework in a university has been examined. Her experience shows both opportunities and challenges when she used the TPACK framework in the language classroom. On the one hand, she faced some difficulties such as digital literacy, technological operation problems, and diverse student's preferences. On the other hand, there are opportunities for motivating students' engagement and participation, enriching diverse learning input, and enhancing the evaluation and feedback. Based on the findings, it is indicated that the TPACK framework provides a holistic view of the knowledge required for effective language teaching with technology. Eeducators can use the TPACK framework to guide their instructional practices, making informed decisions about the integration of technology to enhance language learning experiences. As TPACK emphasizes the integration of three knowledge domains, teachers should strike a balance among them to ensure that the use of technological tools aligns with instructional goals and subject matter requirements. As both technology and educational methods evolve, teachers need ongoing professional development to stay updated on new technologies and instructional strategies. Different subjects, grade levels, and student populations may require different technological tools and teaching methods.

Despite the insights gained from this study, it is essential to acknowledge and address several limitations. Firstly, the sample size was relatively small as there is only one participant in the case study which may limit the generalizability of the findings. Additionally, the data collection method relied heavily on teachers' experience without interviewing students for their responses. Future research endeavors should consider expanding the sample size, diversifying participant demographics, and employing multiple data collection methods to enhance the robustness and applicability of the findings. While acknowledging these shortcomings, it is important to highlight that the current study contributes valuable insights for EFL teachers, educational institutions, and researchers interested in the implementation of the TPACK framework.

Acknowledgments

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