

Factors Influencing EFL Teachers' TPACK of Higher Education in Guizhou, China

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ABSTRACT

This study explores the factors influencing English as a Foreign Language (EFL) teachers' Technological Pedagogical and Content Knowledge (TPACK) in higher education institutions in Guizhou, China, where teachers face challenges in integrating technology despite limited engagement in professional development. Six EFL teachers with varying TPACK levels were selected for qualitative semi-structured interviews. Braun and Clarke's six-step thematic analysis method was employed to analyze the data, identifying key factors influencing TPACK development. Five themes emerged: social environment, personal literacy, teaching practice, professional development, and motivation. The social environment, including university management systems and national policies, significantly impacts TPACK. Teachers' personal literacy, particularly English proficiency, and self-efficacy, also influences TPACK growth. Effective teaching practice and continuous professional development were essential in enhancing TPACK. Motivation played a critical role in teachers' engagement with technological integration. While this study offers valuable insights into the factors influencing EFL-TPACK, the findings are based on a small sample from a specific region, limiting generalizability. Future research should include larger samples across different regions to validate the findings. The study highlights the need for targeted professional development tailored to EFL teachers, emphasizing the integration of technology, pedagogy, and content knowledge. Educational institutions should also foster a supportive social environment and encourage teachers' intrinsic motivation to enhance their TPACK. This study provides an in-depth analysis of the multifaceted factors shaping EFL teachers' TPACK, contributing to the growing literature on educational technology in higher education. Identifying key themes offers practical recommendations for improving teacher training and institutional support to enhance technology integration in EFL teaching.

Keywords – EFL-TPACK, influencing factors, higher education, thematic analysis, teacher development

1 INTRODUCTION

Technology integration in education has revolutionized teaching methodologies, making understanding how teachers adapt to these changes vitally important. This is especially pertinent in the context of English as a Foreign Language (EFL) teaching in higher education, where the application of digital tools and online resources can significantly enhance teaching outcomes and student learning experiences (Aljawarneh, 2019; Shafa et al., 2023; Tütüniş et al., 2022). The theoretical framework of Technological Pedagogical Content Knowledge (Mishra & Koehler, 2006) is a comprehensive framework to explore the integration of technological, pedagogical, and content knowledge required for effective teaching. However, despite its significance, the factors influencing TPACK among EFL teachers in specific educational settings, such as in the higher education institutions of Guizhou Province, China, remain under-explored based on the past literature.

This study is set against the backdrop of this growing emphasis on digital literacy in education, specifically aiming to identify and understand the myriad factors that impact EFL teachers' TPACK within the higher education landscape of Guizhou Province. With the global educational trend moving towards increased technology use, understanding the dynamics of TPACK within this context offers insights into the

challenges and opportunities EFL teachers face in integrating technology into their pedagogical practices. Furthermore, it contributes to the broader discourse on educational technology by providing a nuanced understanding of TPACK in a unique educational and cultural setting.

The primary objective of this research revolves around uncovering the factors influencing EFL teachers' TPACK in higher education settings in Guizhou Province. In pursuit of this goal, purposeful sampling was used to select EFL

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teachers representing high, medium, and low levels of TPACK proficiency within provincial higher education. A semi-structured interview protocol was developed through discussions with EFL experts and validated through a pilot study. The data collected were subject to thematic analysis following Braun & Clarke's (2006) six-step process, allowing for an in-depth exploration of the influencing factors from the perspectives of the selected teachers.

By probing into the factors shaping EFL teachers' TPACK, this study contributes to the existing literature on technological integration in education. It offers practical insights for teachers, policymakers, and researchers interested in enhancing digital literacy and teaching effectiveness in EFL settings. Through this investigation, the research seeks to illuminate the pathways through which EFL teachers in higher education can navigate the challenges of integrating technology into their pedagogical toolkit, ultimately enriching their students' learning experiences.

METHOD

Research design

An exploratory qualitative approach was adopted, involving semi-structured interviews with a purposively selected sample of 6 EFL teachers who were representatives of low-level TPACK teachers, medium-level TPACK teachers, and high-level TPACK teachers. These participants were chosen based on their survey responses to ensure a range of experiences and perceptions concerning TPACK were represented. Interviews were conducted face to face, with each participant lasting approximately 45-90 minutes. The interviews explored teachers' experiences, attitudes, and challenges in technology integration. Thematic analysis following Clarke and Braun's (2013) six-phase process was used to identify key themes and sub-themes related to TPACK in higher education.

Participants

After consulting with EFL experts, six teachers of varying TPACK levels were selected for semi-structured interviews.

Table 1 summarizes the participant information. Generally, the selected teachers in the study can represent the general EFL population in higher education in Guizhou Province, reflecting prevalent gender and educational qualifications within this group.

Data Collection

This study was approved by JKEUPM, a Universiti Putra Malaysia (UPM) committee that ensures research involving human participants is conducted ethically. The data collection involved conducting semi-structured interviews with purposively selected participants. The interview guide was crafted to elicit detailed responses on participants' experiences with integrating technology into their pedagogical practices, challenges faced, strategies developed, and perceptions of the impact of such integration on their teaching and student learning outcomes. Each interview was conducted face to face, lasting between 45 to 90 minutes, and was recorded with the consent of the participants. To facilitate the thematic analysis, interviews were transcribed verbatim. Interview transcripts underwent meticulous preparation for analysis. Data were anonymized and organized for thematic analysis in Nvivo 14.

Throughout the data collection process, ethical standards were strictly adhered to. Participants were informed of the study's purpose, their right to withdraw without penalty and the measures to protect their privacy and confidentiality. All participants provided informed consent before taking part in the study. Data were securely stored and only accessible to the research team, ensuring the confidentiality of participant responses.

Analysis

Braun and Clarke's thematic analysis method was employed to dissect the interview data. The authors independently coded the interview transcripts, focusing on identifying patterns and codes related to influencing factors of EFL teachers' TPACK. These codes were carefully organized into categories. Once the coding was complete, the

Table 1: Participants

<i>Number</i>	<i>Code</i>	<i>Age</i>	<i>Teaching Experience</i>	<i>Educational Background</i>	<i>Gender</i>	<i>TPACK Level</i>
1	H1	30	4 years	Master	Female	High
2	H2	32	6 years	Master	Female	High
3	M1	33	7 years	Master	Female	Medium
4	M2	38	21 years	Master	Female	Medium
5	L1	29	3 years	Master	Female	Low
6	L2	54	30 years	Master	Male	Low

authors collaboratively reviewed these preliminary codes, amalgamating them into broader themes and sub-themes that encapsulated the essence of the EFL teachers' narratives. This stage was critical, as it involved constant comparison with the original transcripts to ensure that the interpretation of data remained true to the participants' experiences and insights. Following meticulous discussions and iterative reviews, five main themes with corresponding sub-themes emerged, capturing the multifaceted influences on EFL teachers' TPACK in the context of higher education in Guizhou province.

The themes revealed a collective experience highlighting the complexity of technology integration in EFL teaching. To ensure accuracy, the authors engaged in regular discussions during the analysis. This collaborative and reflective practice added rigor to the thematic development, ensuring that the interpretation of data was grounded in the participants' accounts.

Several measures were implemented to ensure trustworthiness. First, researchers continuously reflected on each research stage to minimize personal biases, documenting perspectives in a reflective journal after each interview. Second, participant selection considered diversity factors to ensure that the participants represent the group of EFL teachers in Guizhou. Third, investigator triangulation was employed, with independent researchers conducting comparative analyses and discussing coding and themes until consensus was achieved. Fourth, external audits were conducted by inviting EFL experts to assess the naming, defining, and classifying of characteristics and themes, further enhancing the reliability and validity of the research findings.

Upon finalizing the themes, a summary of the study's findings was prepared and shared with all participants, inviting them to provide additional feedback. This step was undertaken to affirm the credibility of the analysis further, although no responses were received.

Throughout the thematic analysis process, the privacy and confidentiality of the participants were of utmost importance. Accordingly, anonymization was used in the publications of the research findings.

FINDINGS AND DISCUSSION

This study revealed five main themes and subsequent sub-themes that impact the EFL-TPACK framework. These themes include the social environment, personal literacy, teaching practice, professional development, and motivation.

Social Environment

The first theme is the social environment, which significantly influences EFL teachers' TPACK through university

management systems, national policies, and mutual influence among fellow teachers, with positive and negative impacts (Shah et al., 2013).

The first social environment is university management systems. University regulations and campus culture profoundly affect teachers' TPACK development (Ling Koh et al., 2014; Q. Wang & Zhao, 2021). A sound university management system can promote the learning and growth of teachers, but an unhealthy environment can lead to negative responses from teachers (Tan et al., 2022; Zaid & Atshan, 2023). For example, mandatory use of specific ICT tools often constrains teachers' autonomy, impeding seamless integration of TK and pedagogical knowledge. For instance, Participant L1 mentioned, "All subjects have requirements of integrating technological knowledge into the class," highlighting the pressure from university policies (Jääskelä et al., 2017). Participants also expressed that mandatory technology use, such as platforms like Rain Classroom, leads to passive acceptance and sometimes frustration due to time-consuming demands (Alemdag et al., 2020; Ifinedo & Kankaanranta, 2021; Yildiz Durak, 2021).

Moreover, participant M1 felt that university management undervalued English courses: "Our university hasn't introduced many policies to help teachers enhance their professional skills." Participant M1's reflections highlight an issue within university management, particularly regarding the lack of emphasis on English teacher development. This neglect can impact EFL teachers' TPACK, as research indicates that insufficient university support hinders teachers' technology use and teaching methods (Nazari et al., 2019), affecting their TPACK effectiveness. Teachers struggle with technology application and teaching innovation without systematic support and training negatively impacting student learning outcomes. This lack of support leads to ineffective technology use and teaching innovation, affecting student outcomes (Raygan & Moradkhani, 2022).

Furthermore, training programs often fail to meet EFL teachers' needs, reducing engagement. Participant H1 admitted, "The school asked me to attend those superficial training programs; I just let the lecture play on my computer and didn't spend time watching it." H1's perspective may reflect teachers' frustration with formalized, impractical training courses. Research like Raygan and Moradkhani (2022) indicates that when training courses fail to meet the actual needs of teachers, their motivation and engagement significantly decrease. Besides, Participant L2 noted, "The university has not specifically targeted us English teachers to improve our information technology skills." This finding suggests that we need to reassess the design and implementation of training programs. Some teachers consider

the programs ineffective; it may be because the programs have failed to adequately consider their specific needs and teaching environments (Yamada, 2018).

University evaluation methods also contribute to EFL teachers' challenges. For example, Participant H1 described the duality of quality and exam-oriented education: "While emphasizing quality education, the university also demands academic performance." This duality of university evaluation standards may lead to confusion and pressure for teachers in teaching assessments (Goos & Salomons, 2017). On the one hand, universities aim to enhance students' overall quality through quality education; on the other hand, they emphasize students' exam scores more than any others. These contradictory demands make it difficult for EFL teachers to find a balance between the two. This dual-standard evaluation system may confuse teachers' choice of teaching methods, then affecting their TPACK (Kulaksız & Karaca, 2022).

The second social environment is national policies and the COVID-19 pandemic. The COVID-19 pandemic has influenced teaching in numerous ways (Aristovnik et al., 2020). Governments worldwide closed universities and required remote teaching, forcing teachers to quickly adapt to new technologies and methods (Carrillo & Flores, 2020). As Participant M2 noted, "At the beginning of the pandemic, the Ministry of Education issued teaching-related documents almost every semester...Due to the recurring nature of the pandemic, the Ministry often released temporary teaching requirements". Participant M2's observations are not isolated. Silva et al. (2022) noted that remote teaching led to adjustments in student assessment methods, such as open-book exams and online submissions. These changes required teachers to adapt their teaching content and methods to suit new assessment forms. Hence, the pandemic accelerated educational technology adoption, impacting teachers' TPACK by enhancing their technological skills and online strategies (Hsu, 2016; Nazari et al., 2019).

However, it also brought significant challenges. For example, Participant M1 noted, "COVID-19 had a significant impact on me because students' learning efficiency was very low...mainly due to the need to wear masks". Those perspectives reflect the helplessness and challenges teachers face with pandemic-induced changes. In language learning, oral expression and interaction with students are crucial. However, masks make these activities more difficult (Mitsven et al., 2022). M1's description highlights the difficulties teachers encounter, indirectly affecting their pedagogical and technological knowledge.

Additionally, Participant H1 emphasized the pressure of online lesson preparation: "I feel that the pressure of online preparation is greater than offline preparation." However,

the finding that the pandemic significantly impacted H1's teaching methods is also subject to context and individual differences. Many studies show that pandemic-induced changes have greatly affected both teachers and students (Charney et al., 2021; Mitsven et al., 2022), including impacts on teachers' TPACK, PK, and TK (Ismael & Al Mulhim, 2022). Conversely, other research indicates that some teachers have adapted without significantly impacting their TPACK (Manokore & Kuntz, 2022; Martina et al., 2022). This discrepancy may reflect individual differences and the effectiveness of different teaching strategies. Moreover, most existing research focuses on short-term impacts, leaving long-term effects unexplored. Thus, while H1's perspective is valid, the diversity of contexts and individual experiences must be considered.

The third social environment is fellow teachers. Fellow teachers emerged as a crucial factor influencing EFL teachers' TPACK, as knowledge exchange and sharing offer new teaching ideas and methods (Kauppi & Pörhölä, 2012). Knowledge sharing among colleagues promotes TPACK development by enhancing technological knowledge and teaching abilities, as highlighted in several studies (Ke & Hsu, 2015; Njiku et al., 2021). These interactions help teachers quickly master new teaching tools, improving their TPACK.

Participant M1 noted the pressure and motivation from colleagues: "Sometimes, my colleagues quickly grasp new technology...sometimes in the office, someone might ask me about software or technological issues". This underscores how peer interactions drive continuous learning and technological application. Because the ability of fellow teachers to quickly grasp and apply new technologies creates positive pressure and motivation for others to learn (Njiku et al., 2021), these teachers serve as role models and drive personal technological development. Participant M1's assistance to colleagues with software or technology-related questions highlights a work culture of mutual support, enhancing both individual and collective understanding of technology. This environment fosters teachers as knowledge sharers and learners, reinforcing their technological knowledge and TPACK through continuous interactions and support.

However, Participant L2 pointed out potentially harmful influences: "If fellow teachers do not learn new things and stick to traditional methods, you might be influenced as well." This suggests that a conservative teaching environment can hinder individual innovation. For example, some research indicates that through collaboration and reflection with colleagues, teachers can effectively develop their TPACK skills (Baran et al., 2019; Njiku et al., 2021). Kartimi et al. (2021) also found that if a group of teachers is reluctant to adopt new technologies, this conservative attitude can impact

the entire team's technological application. These research findings suggest that interactions among fellow teachers significantly impact teachers' technological development, but it is also important to consider the attitude differences within the group.

Professional Development

Professional development is the second influencing theme on EFL-TPACK, and it mainly refers to the professional training and educational background of EFL teachers in this study. Professional development impacts teachers' ability to integrate technology (Lawless & Pellegrino, 2007; Philipsen et al., 2019). The data revealed that EFL teachers lack targeted professional training as in-service and pre-service teachers.

First, many EFL teachers lack professional, targeted training (S. Zein, 2016). For example, Participant H2 highlighted this issue: "I feel that the university training is very general...it does not address our subject". H2 reflects the inadequacies in designing and implementing current professional development programs. This also corroborates the findings of some research that many EFL teachers are dissatisfied with existing professional development programs, finding them lacking in specificity and practicality (Bataineh & Bani Amer, 2023; Kartimi et al., 2021). This affects teachers' professional growth and may harm student learning outcomes. Zein (2017)'s research also supports this view, suggesting that only training programs that meet teachers' specific needs can enhance their teaching skills and effectiveness.

Furthermore, Participant H1 expressed frustration with ineffective training: "Attending some training sessions, there aren't many that truly offer me something valuable." This suggests that professional development's effectiveness largely depends on the activities' quality.

Therefore, universities and educational policymakers need to reconsider the design and implementation of professional development activities to ensure they meet the specific needs of teachers, especially in the rapidly changing technological landscape. Practical integration training for teachers becomes increasingly critical. By providing more specialized and personalized professional development opportunities, better support of EFL teachers' professional growth and improved teaching quality could be achieved.

Second, an EFL teacher's educational background significantly impacts TPACK, especially in pedagogical training (Stohlmann et al., 2012). For example, Participant M1 highlighted a gap in educational background: "As a major in English...I don't know much about teaching methods". This gap can hinder the integration of TPACK, though proactive learning and peer collaboration can compensate (Hofer &

Grandgenett, 2012; Mailizar et al., 2021)

Additionally, Participant H2 pointed out that they faced significant difficulties due to the lack of relevant courses during their undergraduate and graduate education: "There were no relevant courses offered during my undergraduate and master's education." This lack of systematic teaching training highlights the necessity for continuous professional development to support teacher growth and TPACK integration. Existing research indicates that the effective integration of educational technology and pedagogical content knowledge requires systematic and ongoing support during teacher training (Hofer & Grandgenett, 2012; Stohlmann et al., 2012). Therefore, enhancing curriculum design and continuous professional development programs is important for improving teachers' TPACK capabilities.

Personal Literacy

Personal literacy is the third influencing theme on EFL-TPACK, it is the comprehensive abilities and qualities of EFL teachers; it reflects a teacher's overall quality and foundational ability. In this research, personal literacy refers to EFL teachers' English language proficiency, self-efficacy, and attitudes.

English proficiency is crucial for TPACK development, enabling better integration of content and pedagogy (Faez et al., 2019; Richards, 2017). This English competence enhances teachers' confidence and effectiveness in implementing technological tools (Sulistiyo, 2016). Participant H2 noted a shift in her understanding of teaching English, from grammar and sentence structures to communication and cross-cultural interaction: "Over time, I realized teaching English is mainly for communication, specifically cross-cultural communication...". This shift indicates an evolving understanding of content knowledge and pedagogical methods, which is crucial for TPACK. Besides, Participant M2 highlighted challenges in oral English due to a lack of practice environment: "What troubles me is speaking because there's a lack of an environment for frequent practice." This barrier emphasizes the importance of oral skills in language teaching, impacting teachers' TPACK.

Self-efficacy, or belief in one's capabilities, is essential for adopting technology in education, as it encourages experimentation and persistence (Crossan, 2020; Kulviwat et al., 2014; Kwon et al., 2019). Participant L1 highlighted the importance of self-efficacy: "The biggest barrier still comes from one's inertia or weak learning capacity." This aligns with research showing that self-efficacy affects willingness to adopt new technologies and engage in professional development (Barton & Dexter, 2020; Fanni et al., 2013)

Participant M2 also emphasized the importance of an open attitude: "Internal factors are also significant... the

biggest barrier still comes from one's inertia or weak learning capacity". This suggests that self-motivation is crucial for TPACK development.

Teachers' attitudes towards technology significantly influence their TPACK development (Albirini, 2006; Canals & Al-Rawashdeh, 2019). Participant H1 described a shift from traditional grammar teaching to focusing on students' application abilities: "Recently, over the past semester, I've felt a significant shift... I place more emphasis on students' application". This attitude promotes TPACK by motivating the use of technological tools to enhance practical language skills.

Conversely, participant L2 expressed a negative attitude towards technology: "Regarding media technology... I don't think it's crucial... using existing courseware should have a greater impact". This negativity limits technology integration and innovation in teaching methods, affecting TPACK development.

Teaching Practice

Teaching practice is the fourth main theme that influences EFL-TPACK. It primarily refers to the practical implementation of knowledge in instructing and engaging students, mainly including student response, teachers' teaching methods, and teachers' teaching reflection after class in this research. Student response affects the participation and feedback in the classroom and the entire teaching process, along with teaching methods and teaching reflection; these factors deeply influence teachers' CK, PK, and TK, thereby affecting the whole TPACK framework.

Student response impacts TPACK by challenging teachers to integrate language learning with appropriate content and technology. Participant H1 highlighted these challenges: "The current level of students does not meet the achievement of your teaching goals... it is difficult for them to be brought into an English context". This requires continuous improvement in pedagogical strategies.

Teaching methods impact TPACK by requiring familiarity with various strategies to select and adjust appropriate technology and content. Participant H1 discussed the gap between theory and practice: "I used to think knowledge of teaching methods was just knowledge... actual application is another matter... Moving from theory to practice is difficult". This highlights the challenge of applying theoretical knowledge in natural teaching environments, which is crucial for TPACK.

Teaching reflection refers to critically examining one's teaching practices to enhance personal growth and student learning. Reflective practices are crucial for TPACK development, allowing teachers to integrate technology better, improve methods, and continuously adapt (Baran et al.,

2019; Chen & Jang, 2018). Participant M2 highlighted the importance of reflective teaching: "Basically, there is a certain amount of reflective teaching for every lesson or every week... reflection is firstly proactive, and secondly, the actual teaching results force me to reflect on why this is happening". Existing literature supports the role of reflective teaching in enhancing TPACK. Sari et al. "2021" point out that reflective teaching helps teachers integrate technology effectively, enhancing TPACK capabilities. M2 emphasizes reflecting on teaching effectiveness, while L1 focuses on classroom content and student engagement: "Whether this lesson is successful depends on whether the students' eyes are on you and how they react... sometimes the class is influenced by students' reactions. I will reflect more often on whether the class met a set of objective standards and adjust the content accordingly".

L1's reflection focuses on TPACK's content knowledge, considering student engagement and classroom dynamics, while H2 emphasizes personal feelings and student feedback: "I write whatever comes to my mind... capturing my feelings about the class... I think about the reasons and measures for improvement next time". H2's reflection underscores the impact of teacher emotions on the teaching process and how to enhance teaching effectiveness by recording and analyzing these emotions. Additionally, H2 discussed the pragmatic use of technology in response to reflective insights: "I would use platforms like Chaoxing to have them upload audio... Padlet is great, but if the user experience isn't good in China, then I just give it up". Teaching reflection is crucial for TPACK development. Reflecting on teaching practices, student feedback, and personal experiences helps teachers integrate technology, pedagogy, and content knowledge, improving teaching quality and student outcomes.

Motivation

Motivation is the fifth influencing theme on EFL-TPACK; it significantly influences EFL-TPACK development. Teachers' willingness to engage with technological advancements plays a crucial role in integrating technology into teaching practices. For instance, Participant M1 emphasized personal motivation: "Perhaps the motivation is very important... this is a very important influencing factor... if they do not embrace technology, then they cannot develop their skills". Then H1 further stressed the role of self-motivation: "I think for me, motivation is fundamental... self-motivation is the most important... If a teacher really likes teaching and wants to improve, this is self-motivation". Moreover, Participant M2 noted internal reasons hindering TPACK development: "I think internal reasons hinder my TPACK development... when I want to delve into a new field... you have to spend more time learning... you won't continue to improve rigorously

because you do have long-term motivation". Existing research (Dalal et al., 2017) also confirms the teachers' intrinsic motivation's crucial role in their TPACK development, and a lack of motivation may lead to difficulties in integrating TPACK. Therefore, these insights highlight the critical role of motivation.

Motivation plays a crucial role in TPACK development, as supported by research and participants' experiences (Dalal et al., 2017; Fernandes et al., 2020; Koh, 2018). M1 and H1 highlight personal motivation's importance, while M2's mention of self-laxity shows insufficient intrinsic motivation's negative impact. Enhancing teachers' motivation can promote their development within the TPACK framework.

IMPLICATIONS

Firstly, emphasizing the necessity of specialized training, this study found that teachers generally consider existing training opportunities to lack specificity and practicality. To enhance EFL teachers' TPACK, it is recommended that educational institutions design and offer more specialized training courses specifically for EFL teachers. These courses should focus on practical application and classroom implementation, helping teachers integrate technology, teaching methods, and content knowledge effectively.

Secondly, regarding the importance of social environment and support mechanisms, this study found that university management systems and peer interactions significantly influence teachers' TPACK development. Establishing a positive work environment and practical support mechanisms, such as providing the freedom to choose technological tools and strengthening peer interactions and knowledge sharing, can significantly enhance teachers' teaching innovation and technology integration capabilities.

Thirdly, in shaping motivation and self-efficacy, teachers' intrinsic motivation and self-efficacy are crucial to their TPACK development. Administrators should encourage teachers to maintain a positive learning attitude and enhance their intrinsic motivation and self-efficacy through incentive mechanisms and career development planning, thereby promoting continuous progress in teaching technology.

Fourthly, by combining teaching reflection with technological tools, teachers should maintain teaching reflection journals, recording the teaching process and the effectiveness of technology applications for each class. These specific measures help teachers optimize teaching strategies, enhance classroom interaction, and improve teaching effectiveness, thereby raising students' English proficiency while ensuring the organic integration of teaching reflection and technological tools.

STRENGTHS, WEAKNESSES, AND FUTURE RESEARCH

This study's strength lies in its systematic, multi-perspective analysis of factors influencing EFL teachers' TPACK development, offering comprehensive insights. The study employed Clarke and Braun's (2013) structured six-step thematic analysis method, ensuring scientific and rigorous data processing. Additionally, using NVivo 14 software enhanced the systematic and reliable extraction of themes, ensuring the accuracy and credibility of the research findings.

Despite its unique value, this study has certain limitations. Firstly, the research participants were limited to EFL teachers in Guizhou Province, which may restrict the findings' generalizability due to the sample's regional nature. Secondly, the qualitative thematic analysis method does not allow quantifying each factor's specific impact on TPACK development. Furthermore, relying solely on interview data means that some participants' subjectivity may affect the research results' objectivity.

Future research could expand to EFL teachers in other provinces of China to validate the generalizability of this study's findings. By incorporating quantitative research methods, such as surveys and experimental studies, the contribution of each influencing factor to TPACK development can be more accurately quantified. Additionally, although TPACK already encompasses the essential knowledge required by teachers, academic knowledge is also a crucial yet often lacking component for EFL teachers in higher education. Therefore, future research should enrich and expand the TPACK framework to include academic or other essential and related knowledge.

CONCLUSION

This paper identifies five major themes influencing EFL-TPACK development: social environment, personal literacy, teaching practice, professional development, and motivation, offering practical insights.

Firstly, regarding the need for specialized training, the study points out that targeted technology integration training should be strengthened to enhance teachers' practical skills and teaching effectiveness. Secondly, the support mechanisms within the social environment, especially management systems and peer interactions, significantly impact the development of TPACK and are worth actively promoting and improving in practice. Additionally, this study emphasizes the core role of motivation and self-efficacy in TPACK development, suggesting that education administrators enhance teachers' intrinsic motivation and confidence through incentive mechanisms and career development planning.

Finally, the effective combination of teaching reflection and media technology can further enhance teachers' teaching creativity and technology integration capabilities, providing students with a richer and more effective learning experience. Future research should incorporate quantitative analysis and cross-regional samples to explore the influencing factors of TPACK development from larger and broader perspectives, providing more comprehensive and detailed empirical evidence to promote the professional development and overall teaching quality of EFL teachers.

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