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ESP Teachers' perspectives on the TPACK framework

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ABSTRACT

In the rapidly growing landscape of language education, the integration of technology has become increasingly popular. This paper investigates the perspectives of English for Specific Purposes (ESP) teachers regarding the Technological Pedagogical Content Knowledge (TPACK) framework. TPACK, a theoretical construct that emphasizes the intersection of technological, pedagogical, and content knowledge, has gained attention as a guiding framework for effective technology integration in teaching. This study investigates how ESP teachers perceive and utilize the TPACK framework in their instructional practices. Through qualitative analysis of interviews with ESP educators, the research explores teachers' understanding of TPACK, its application in ESP contexts, challenges encountered, and perceived benefits. The findings shed light on the complexities of technology integration in ESP instruction, providing valuable insights for teacher training, curriculum development, and educational policy.

Keywords: TPACK framework; ESP teaching; technology integration

1. Introduction

The integration of technology in education has fundamentally transformed teaching and learning processes, necessitating new frameworks to effectively exploit its potential. Among these, the Technological Pedagogical Content Knowledge (TPACK) framework has emerged as a critical tool for understanding and implementing technology in educational settings. Originally developed by Mishra and Koehler (2006), TPACK emphasizes the interplay between technology, pedagogy, and content knowledge, providing a comprehensive approach to integrating technology in teaching. In the context of English for Specific Purposes (ESP), where language instruction is tailored to meet the specific needs of learners in professional or academic fields, the application of TPACK presents unique opportunities and challenges. ESP teachers are required not only to impart specialized language skills but also to incorporate relevant technological tools that enhance learning outcomes and prepare students for real-world professional scenarios. However, the effective implementation of TPACK in ESP instruction depends on teachers' understanding and perspectives on its applicability and impact.

This study aims to explore ESP teachers' perspectives on the implications of the TPACK framework within university settings. By examining their views on how TPACK influences their teaching practices, this paper seeks to identify the benefits and challenges associated with its implementation in ESP courses. Furthermore, it aims to provide insights into the professional development needs of ESP teachers to enhance their competency in integrating technology into their pedagogical practices. Through a comprehensive review of existing literature and empirical data, this paper will highlight the current state of TPACK implementation in ESP instruction, uncover gaps in knowledge and practice, and propose recommendations for effective integration. Understanding ESP teachers' perspectives on TPACK is crucial for informing curriculum design, teacher training programs, and policy decisions aimed at optimizing technology use in language education. Ultimately, this research will contribute to the broader discourse on the role of technology in specialized language instruction and its implications for teaching and learning in higher education.

2. An overview of the TPACK framework

2.1. The definition and development of the TPACK framework

The integration of technology in education has revolutionized the teaching and learning processes across various disciplines, including language teaching. Among the frameworks developed to facilitate effective

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technology integration is the Technological Pedagogical Content Knowledge (TPACK) framework. Initially conceptualized by Mishra and Koehler (2006), TPACK has been instrumental in providing a comprehensive approach to understanding the relationship between technology, pedagogy, and content knowledge.

The TPACK framework extends Shulman's (1986) concept of Pedagogical Content Knowledge (PCK) by incorporating technology as an essential component of teaching knowledge. According to Mishra and Koehler (2006), TPACK is the intersection of three primary forms of knowledge: Content Knowledge (CK), Pedagogical Knowledge (PK), and Technological Knowledge (TK). This intersection represents a teacher's ability to effectively integrate technology into their teaching practices in ways that enhance student learning.

Content Knowledge (CK): CK refers to the teacher's understanding of the subject matter that they are teaching. In language teaching, this includes knowledge of linguistic structures, vocabulary, grammar, and the specific content related to the language's use in various contexts (Mishra & Koehler, 2006).

Pedagogical Knowledge (PK): PK encompasses the methods and practices of teaching. This includes understanding how students learn, classroom management techniques, lesson planning, and assessment strategies. PK is crucial for designing effective instructional activities that facilitate learning (Shulman, 1986).

Technological Knowledge (TK): TK involves the understanding and application of various technological tools and resources. This includes digital literacy, familiarity with educational software, and the ability to integrate these tools into teaching practices (Mishra & Koehler, 2006).

Pedagogical Content Knowledge (PCK): The intersection of PK and CK, PCK represents the understanding of how to teach specific content effectively. This involves knowing what teaching approaches fit particular content areas and how to make the subject matter accessible to learners (Shulman, 1986).

Technological Content Knowledge (TCK): The intersection of TK and CK, TCK involves understanding how technology can support and enhance the learning of specific content. This includes using technology to represent and convey content in innovative ways (Mishra & Koehler, 2006).

Technological Pedagogical Knowledge (TPK): The intersection of TK and PK, TPK is the understanding of how teaching and learning can change when specific technologies are used. This involves knowing how to integrate technology into pedagogical strategies to enhance learning outcomes (Mishra & Koehler, 2006).

Technological Pedagogical Content Knowledge (TPACK): At the center of the framework, TPACK represents the comprehensive understanding of how to integrate technology into teaching in a way that enhances learning across all content areas. It requires a nuanced understanding of the complex relationships between technology, pedagogy, and content (Mishra & Koehler, 2006).

The development of TPACK in language teaching is a response to the evolving digital landscape, which necessitates that teachers are not only proficient in their subject matter and pedagogy but also in using technological tools to facilitate learning. Research by Graham (2011) indicates that successful integration of technology in language teaching requires teachers to develop an understanding of how technology interacts with pedagogy and content. This integration helps design learning experiences that are engaging, interactive, and relevant to the digital age. In general language teaching, tools such as language learning apps, online collaborative platforms, and multimedia resources have become integral in creating dynamic and interactive learning environments. Studies have shown that when teachers effectively integrate these tools using the TPACK framework, students benefit from improved language skills and greater motivation (Chai, Koh, & Tsai, 2013). The TPACK framework thus provides a structured approach for teachers to develop and refine their technological, pedagogical, and content knowledge, enabling them to design effective technology-enhanced language learning experiences.

The application of the TPACK framework in ESP teaching presents unique opportunities and challenges. ESP, which focuses on teaching English tailored to specific professional or academic contexts, requires a specialized approach to language instruction. The integration of TPACK in ESP teaching necessitates that teachers possess a deep understanding of the specific content areas, relevant pedagogical strategies, and the appropriate technological tools that can enhance learning in those contexts.

In ESP, technology can play a crucial role in simulating real-world professional environments and providing authentic language practice. For example, using industry-specific software, online simulations, and virtual collaboration tools can help ESP students develop the language skills needed for their specific fields. According to Fălăuș (2017), integrating technology in ESP teaching can significantly enhance the learning experience by making it more relevant and practical. However, the successful implementation of TPACK in ESP teaching also depends on teachers' ability to navigate the complexities of combining technological, pedagogical, and content knowledge. Studies by Kırkgöz and Dikilitaş (2018) highlight that

many ESP teachers face challenges in this regard due to a lack of professional development opportunities and insufficient resources tailored to specific contexts. Therefore, ongoing professional development and support are crucial for ESP teachers to effectively integrate TPACK in their teaching practices.

2.2. The TPACK framework in language teaching

The application of the TPACK framework in ESP teaching has gained attention as educators seek to tailor language instruction to specific professional and academic contexts. ESP teaching requires a specialized approach, as it focuses on language use in particular fields such as business, engineering, or medicine. Studies by different scholars have highlighted the benefits and challenges of integrating TPACK in ESP teaching. Research by Kırkgöz and Dikilitaş (2018) emphasizes that ESP teachers need to develop specific technological skills relevant to their fields to effectively integrate TPACK. They found that teachers often face challenges in aligning technological tools with the specific content and pedagogical needs of ESP courses. Chai, Koh, and Tsai (2013) reviewed 74 journal papers investigating ICT integration using the TPACK framework. They found that TPACK is a promising area of research, particularly in North America, yielding positive results in enhancing teachers' capability to integrate ICT for instructional practice. However, gaps remain in understanding how TPACK can facilitate deeper educational changes. In language teaching, TPACK provides a structured approach for teachers to integrate technology into their curriculum. For instance, language teachers can use multimedia tools to create interactive and engaging lessons that cater to diverse learning styles. The use of digital platforms for language practice, such as online discussion forums and language learning apps, exemplifies how TPACK can transform traditional teaching methods.

Studies on TPACK in ESP teaching highlight its potential to address the specific needs of ESP learners. Koh and Chai (2014) emphasize that TPACK enables ESP teachers to design a curriculum that incorporates industry-specific tools and technologies, preparing students for real-world applications. By aligning technological tools with pedagogical strategies and content requirements, ESP teachers can create more relevant and engaging learning experiences.

In Vietnam, the application of TPACK in ESP teaching is gaining momentum, although research remains limited. Nguyen and Le (2017) conducted a study on the integration of TPACK in ESP courses for business students at Vietnamese universities. Their findings indicate that while teachers recognize the importance of technology, there are significant challenges in implementation due to limited resources and training. Another study by Tran (2019) explored the perceptions of ESP teachers regarding TPACK in Vietnamese higher education. The research revealed that while teachers were generally positive about the potential of TPACK, they faced difficulties in aligning technological tools with pedagogical practices and content requirements. The study called for more comprehensive professional development programs to equip ESP teachers with the necessary skills and knowledge to implement TPACK effectively.

The TPACK framework represents a significant advancement in understanding how technology can be integrated into teaching and learning. Its application in general language teaching and ESP teaching offers numerous benefits, from enhancing student engagement to preparing learners for specific professional contexts. However, successful implementation requires addressing various challenges, including resource limitations and the need for ongoing professional development. Future research should focus on exploring innovative strategies to overcome these challenges and fully realize the potential of TPACK in diverse educational settings.

3. Findings and discussions on ESP teachers' perspectives on the TPACK framework

3.1. Data collection and procedure

To gain insights into ESP teachers' perspectives on the implementation of the TPACK framework in ESP teaching at universities, a qualitative research approach was adopted. Data were collected through semi-structured interviews with five ESP teachers from different faculties in a technical university. The interview protocol was designed to elicit detailed responses regarding their experiences, challenges, and views on integrating technology, pedagogy, and content knowledge in their teaching practices. Each interview lasted approximately 60 minutes and was conducted in a private setting to ensure confidentiality and encourage open communication. Participants were selected based on their extensive experience in ESP teaching and familiarity with the TPACK framework. The interviews were audio-recorded with participants' consent and later transcribed verbatim for analysis. The data collection procedure followed ethical guidelines, ensuring that participants were fully informed about the study's purpose and their rights, including the right to withdraw at any time. The transcriptions were analyzed thematically to identify common patterns and themes related to the teachers' perspectives on TPACK. This process involved coding

the data, categorizing the codes into themes, and interpreting the findings to provide a comprehensive understanding of the ESP teachers' views on the integration of technology, pedagogy, and content in their teaching contexts.

3.2. Findings and Discussions

The qualitative data analysis of the interviews with five ESP teachers from the technical university provides a rich understanding of their perspectives on ESP teaching, particularly concerning the TPACK framework. This analysis focuses on four main areas: their understanding of TPACK, its application in ESP contexts, the challenges encountered, and the perceived benefits.

3.2.1. Understanding of TPACK

All five ESP teachers demonstrated a clear understanding of the TPACK framework. They acknowledged that TPACK represents the intersection of Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK). This understanding underscores the necessity for teachers to integrate technology seamlessly with pedagogy and content to enhance the learning experience. One teacher remarked, "TPACK is about how we can use technology not just as an add-on but as an integral part of our teaching methods and content delivery." This viewpoint was echoed by others who emphasized the importance of balancing these three knowledge domains to create an effective teaching environment.

The teachers highlighted that their understanding of TPACK had evolved through professional development programs and practical teaching experiences. They noted that initial exposure to TPACK often came through workshops and seminars, but a deeper understanding was achieved through trial and error in the classroom. As Teacher 3 put it, "The more I experimented with different technologies in my classes, the better I understood how to integrate them with my teaching methods and subject matter."

3.2.2. Application of TPACK in ESP Contexts

The application of TPACK in ESP teaching at technical universities varied among the teachers, reflecting their teaching styles and the available resources. Most teachers reported using a range of digital tools to facilitate language learning specific to their students' professional and technical fields. For instance, one teacher described using simulation software to create realistic work scenarios that required students to use English in context. "By simulating real-world situations," the teacher explained, "students can practice their language skills in a setting that closely resembles their future workplace." (Teacher 4)

Another common application of TPACK was the use of online platforms and collaborative tools to enhance student engagement and interaction. Teachers used platforms like Moodle and Google Classroom to provide resources, assignments, and feedback, as well as to facilitate discussions and group projects. One teacher noted, "These platforms allow me to extend learning beyond the classroom and give students more opportunities to practice their English skills in a collaborative environment." (Teacher 2)

However, the teachers also pointed out that the application of TPACK was not without challenges. They highlighted issues such as limited access to technology, insufficient technical support, and the need for ongoing professional development to stay updated with the latest technological advancements.

3.2.3. Challenges Encountered

Despite their enthusiasm for integrating technology into ESP teaching, the teachers encountered several challenges. One major issue was the difference in students' technological proficiency. While some students were skillful at using digital tools, others struggled, which created a gap in the classroom. "It can be difficult to ensure that all students are on the same page when it comes to using technology," one teacher explained. "I often have to spend extra time helping those who are less familiar with the tools." (Teacher 1)

Another significant challenge was the lack of institutional support. Teachers reported that their universities often lacked the necessary infrastructure and resources to fully implement TPACK. This included outdated hardware, unreliable internet connections, and a lack of dedicated technical staff. One teacher said, "We are expected to use technology in our teaching, but the university doesn't provide us with the tools or support we need to do it effectively." (Teacher 4)

Furthermore, the teachers noted that integrating technology into their teaching required a considerable investment of time and effort. Preparing digital materials, learning new software, and troubleshooting technical issues all added to their workload. "It's a lot of extra work," one teacher admitted. "Sometimes it feels like I'm spending more time dealing with technology than actually teaching." (Teacher 2)

3.2.4. Perceived Benefits

Despite these challenges, the interviewed teachers agreed that the benefits of integrating TPACK into ESP teaching outweighed the difficulties. They identified several key advantages, including increased student engagement, enhanced learning outcomes, and better preparation for the professional world.

One of the most frequently mentioned benefits was the ability of technology to make learning more engaging and interactive. Teachers observed that students were more motivated and involved when they

could use digital tools to explore and apply language skills in dynamic ways. "Technology allows us to create interactive and immersive learning experiences," Teacher 1 explained. "Students are more engaged when they can participate actively rather than just passively listening to lectures."

Another significant benefit was the potential for personalized learning. Digital tools enabled teachers to tailor their instruction to meet the individual needs of their students. For instance, teachers could use online assessments to identify areas where students need additional support and provide targeted exercises to help them improve. "With technology, I can offer more personalized feedback and support. This helps students to progress at their own pace and address their specific weaknesses.", Teacher 4 noted.

The teachers also emphasized that integrating technology into ESP teaching helps students with a better professional world. Many technical fields require proficiency in both English and digital tools, and the use of technology in the classroom helped students develop these essential skills. "By using technology in our teaching," Teacher 3 explained, "we are preparing students for the realities of the modern workplace, where they will need to use both English and various digital tools."

The qualitative data analysis reveals that ESP teachers at the studied university have a nuanced understanding of the TPACK framework and its application in their teaching contexts. While they encounter significant challenges, including disparities in students' technological proficiency and a lack of institutional support, they also recognize substantial benefits. These include increased student engagement, personalized learning, and better preparation for the professional world. The findings suggest that with adequate support and resources, the integration of TPACK into ESP teaching has the potential to enhance the learning experience and outcomes for students. Future research could explore strategies to overcome the challenges identified by the teachers and further investigate the impact of TPACK on student learning in ESP contexts.

4. Conclusion

In conclusion, exploring ESP teachers' perspectives on the TPACK framework in language teaching reveals a nuanced landscape where technological, pedagogical, and content knowledge intersect dynamically. The insights gathered underscore the importance of integrating technology purposefully to enhance language instruction tailored to specific professional contexts. While acknowledging varying degrees of familiarity and comfort with digital tools among educators, the study suggests several actionable recommendations. First, targeted professional development programs can foster deeper TPACK integration, equipping teachers with the skills to leverage technology effectively. Second, collaborative platforms and communities of practice can provide ongoing support and resource sharing, enriching both teaching practices and student learning experiences. Finally, further research is encouraged to explore evolving technologies and their impact on ESP instruction, ensuring that educators remain adept and responsive to the evolving needs of learners in specialized domains.

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TÓM TẮT

Nhận thức của giáo viên dạy tiếng Anh chuyên ngành về khung tích hợp công nghệ trong giảng dạy (TPACK)

Dương Thuý Hường
Trường Đại học Mô - Địa chất

Trong bối cảnh giáo dục ngôn ngữ đang phát triển nhanh chóng, việc tích hợp công nghệ ngày càng trở nên phổ biến. Bài viết này tìm hiểu quan điểm của giáo viên dạy tiếng Anh chuyên ngành (ESP) về khung TPACK. TPACK là một mô hình giáo dục mô tả sự giao thoa giữa công nghệ, phương pháp sư phạm và nội dung để tích hợp hiệu quả công nghệ vào giảng dạy. Đây là một khung lý thuyết giúp các nhà giáo dục và quản lý thiết kế những hệ thống dạy-học và đào tạo hiệu quả hơn. Trước hết, mô hình TPACK chỉ ra sự kém hiệu quả của những mô hình đào tạo mà giáo viên chỉ đơn giản tập trung vào một loại năng lực nào đó. Mô hình này chính là cơ sở cho việc phân tích kiến thức, năng lực giáo viên và từ đó có những giải pháp đào tạo giáo viên đáp ứng yêu cầu dạy-học của thế kỉ. Bài viết này tìm hiểu về nhận thức và cách giáo viên TACN sử dụng khung TPACK trong thực tiễn giảng dạy của họ thông qua việc phân tích dữ liệu từ việc phỏng vấn với giáo viên dạy TACN, từ đó phát hiện ra những thách thức, khó khăn mà giáo viên dạy TACN phải đối mặt cũng như những mong muốn của họ. Kết quả nghiên cứu có thể làm rõ hơn sự phức tạp của việc tích hợp công nghệ trong giảng dạy TACN, cung cấp những thông tin hữu ích và thực tế cho các nhà quản lý, giảng viên, việc đào tạo giáo viên cũng như việc phát triển chương trình giảng dạy và chính sách giáo dục.

Từ khoá: Khung TPACK; dạy và học TACN; tích hợp công nghệ

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