



TEACHERS' TPACK DEVELOPMENT IN ENGLISH LANGUAGE TEACHING: A SYSTEMATIC REVIEW

by

Fidya Felinda Ilahude

Master of English Education Department, Universitas Ahmad Dahlan, Indonesia
fidyafelindailahude@gmail.com

Iin Inawati*

Master of English Education Department, Universitas Ahmad Dahlan, Indonesia
iin.inawati@mpbi.uad.ac.id

Bambang Widi Pratolo

Master of English Education Department, Universitas Ahmad Dahlan, Indonesia
bambang.pratolo@pbi.uad.ac.id

*corresponding author

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Abstract:

This study aims to analyze the characteristics and trends in 25 research articles published from 2018 to 2022 on English teachers' TPACK development issues and to find themes that emerge from the articles analyzed. The research articles reviewed in this study were based on the following criteria: (1) peer-reviewed studies, (2) TPACK-related studies in the ELT context, and (3) published within the last five years. These articles were searched electronically using search engine databases such as SpringerLink, Proquest, and ERIC indexed by SCOPUS. The research results showed that the research design employed by the articles reviewed were case study (55%), descriptive studies (15%), quasi-experiments (5%), collaborative action research (10%), mixed methods (5%), and exploratory survey research (10%). It was found also that there were five common themes of findings, including (1) comparisons of pre-service, in-service and teacher formation programs on TPACK in ELT, (2) reflections on overcoming the complexities of TPACK for EFL Teachers, (3) video projects in TPACK, (4) implementation of the TPACK Framework by English teachers due to the COVID-19 Pandemic, and (5) application of the TPACK framework by developing Indonesian EFL teachers' TPACK online. Based on the literature review analysis, this research's pedagogical implications are expected to increase technology readiness and the use of English language instructors in various teaching and learning contexts in the classroom.

Keywords: Technological Pedagogic Content Knowledge (TPACK), English Language Teaching, Teacher's TPACK

Abstrak:

Penelitian ini bertujuan untuk menganalisis karakteristik dan tren dalam 25 artikel penelitian yang diterbitkan pada tahun 2018 hingga 2022 tentang isu pengembangan TPACK guru bahasa Inggris dan

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untuk menemukan tema yang muncul dari artikel yang dianalisis. Artikel penelitian yang dianalisa dalam penelitian ini didasarkan pada kriteria berikut: (1) penelitian yang sudah mendapat peer-review, (2) penelitian yang terkait TPACK dalam konteks pengajaran Bahasa Inggris, dan (3) diterbitkan dalam lima tahun terakhir. Artikel-artikel ini dicari secara elektronik menggunakan database mesin pencari seperti SpringerLink, Proquest, dan ERIC, yang diindeks oleh SCOPUS. Hasil penelitian menunjukkan bahwa desain penelitian yang digunakan berdasarkan artikel yang diulas adalah studi kasus (55%), studi deskriptif (15%), eksperimen semu (5%), penelitian tindakan kolaboratif (10%), penelitian dengan metode campuran (5%) , dan penelitian survei eksplorasi (10%). Ditemukan pula lima tema umum, yaitu (1) perbandingan program pre-service, in-service dan pengembangan profesi guru dalam hal TPACK di pengajaran Bahasa Inggris, (2) refleksi mengatasi kompleksitas TPACK untuk guru Bahasa Inggris, (3) proyek video di TPACK, (4) penerapan framework TPACK oleh guru Bahasa Inggris saat Pandemi COVID-19, dan (5) penerapan framework TPACK oleh guru Bahasa Inggris Indonesia secara online. Berdasarkan analisis tinjauan literatur, implikasi pedagogi penelitian ini diharapkan dapat meningkatkan kesiapan teknologi dan pengajaran bahasa Inggris dalam berbagai konteks belajar mengajar di kelas.

Kata kunci: *Technological Pedagogic Content Knowledge (TPACK), Pengajaran Bahasa Inggris, pemahaman guru terhadap TPACK*

INTRODUCTION

Teachers today face challenges and questions regarding when and how to integrate new digital technologies with technologies developed for teaching and learning. One of the most challenging issues is the ideal use of technology in English language teaching for teachers with limited technology access and experience with free or commercial online learning platforms. In traditional teaching, teachers, and students of English as a Foreign Language, or the term further abbreviated as EFL (English as a Foreign Language), only face teaching content knowledge. The reality today is that competency in technological pedagogical content knowledge (TPACK) is required in technology-based environments. Studies on TPACK among pre-and in-service teachers, students, and other related fields are widely investigated in the EFL field. Studies on traditional and online-based platforms in global contexts have examined the pedagogical content knowledge and TPACK of in-service and pre-service teachers (Tai, 2015; Graziano K.J. et al., 2017; Koçoğlu, 2009; Schmid et al., 2020; Kurt et al., 2014; Limbong, 2017; Naaz & Khan, 2018; Tan et al., 2018; Tseng et al., 2011; Tseng, 2014) and EFL students (Arifani et al., 2020). Furthermore, scholars have focused on online and traditional collaboration (Bueno-Alastuey et al., 2018); theoretical framework (Archambault & Barnett, 2010); TPACK instrument (Schmid et al., 2020; Yurdakul et al, 2012); TPACK training among pre-service English teachers (Bugueño, 2013; Kurt et al., 2014; Limbong, 2017); development of TPACK components (Liu et al., 2015; Tseng, 2011). As discussed previously, TPACK studies for English teachers generally focus on TPACK

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development, TPACK components, instrument development and validation, strategies, collaboration, and teacher TPACK measurement.

Therefore, 21st-century learning requires teachers to have teaching skills that are always creative and innovative. One of the learning innovations that is developing rapidly is technology-based learning. This is based on technological developments, which are increasingly rapid daily. Education is one of the many industries competing to remain competitive and continue to improve so as not to be left behind by other sectors. The rise of digital technology has brought significant changes to traditional educational structures (Nurkamto & Drajati, 2021). As a result, the requirement for educators to acquire technology, pedagogy, and subject matter knowledge (abbreviated TPACK) is becoming an increasingly prevalent trend in the education system. The technology, content, and pedagogical knowledge (TPACK) framework helps educators develop an understanding of the relationships between technology, curriculum, and specific pedagogical approaches and also helps teachers adapt these three components to achieve successful discipline-based teaching using technology (Wang et al., 2017). Furthermore, teachers rely on TPACK as a framework for planning and implementing curriculum, teaching, and directing students to think and learn with technological advances in certain subjects (Agustina & Suryani, 2018).

In the field of English Language Teaching (ELT), technology offers numerous advantages, including expanding vocabulary (Kale, 2019), encouraging language output (Kazemi & Hubbard, 2020), and promoting language learning to share (Killion & Todnem, 2021). However, Mirna (2020) asserted that modernity can be stressful for students even though they can utilize technology outside the classroom. This circumstance could also be attributable to instructors' limited and inept use of technology (Su-Bergil & Erçevik, 2020). In addition, the inability of teachers to utilize technology and the lack of adequate facilities in schools to support course content have created obstacles for teachers' use of technological tools to provide competent instruction, particularly in ELT.

According to Krauskopf et al. (2019), for teachers to be successful in their field, they need to individually develop their areas of pedagogy, technology, and material. This is due to the fact that different teachers have various methods of instruction. In light of the preceding analysis, it should be noted that incorporating technology into English instruction necessitates that instructors be familiar with various forms of technology (Yerdelen-Damar et al., 2021).

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Therefore, it is essential to find ways of developing technology in teaching to facilitate teaching by integrating technology in teaching through investigating the reasons for the shortage of technological skills among teachers, particularly in ELT. It is because it is important to find ways of developing technology in teaching to facilitate teaching. Therefore, in this situation, although the model for incorporating technology into the curriculum appears to be a difficult task for educators (Mufta, 2021), Mishra and Koehler (2006) provided a Knowledge Content Technology Pedagogy (TPACK) framework for integrating technology into curriculum planning. Hughes (2020) also provided a model for incorporating technology into the curriculum. Xiaobin et al. (2020) stated that English instructors require this expanded version of TPACK to provide the appropriate learning environment for their students in a digital setting, lending credence to this idea. As a direct consequence of this viewpoint, an increasing number of researchers are investigating the growth of instructor TPACK in ELT as a concept that has been integrated into curricula in various countries.

There have been several previous systematic literature reviews found regarding teacher TPACK. The systematic review framework refocuses researchers' attention on investigating and connecting teachers' individual and collective TPACK and its development during the design-based learning process (Cui & Wang, 2008). This literature review examines the development of prospective teachers' TPACK based on five different research methods (self-report measures, open-ended questionnaires, performance assessments, interviews, and observations). Although several themes related to pre-service teachers' TPACK development were identified from the literature review, teacher educators and in-service teachers modeling pre-service teachers' use of technology and development of TPACK across seven knowledge domains were discussed in detail. Several systematic reviews have focused on several narrow TPACK specifications. Therefore, with this research, researchers can better understand the development and trends of teacher TPACK with the various themes found.

The empirical research trends in the development of teacher TPACK in ELT will be synthesized and critically analyzed in this study. Teacher technology pedagogical content knowledge (TPACK) is a valuable framework for measuring knowledge requirements to facilitate technology integration into educational practice (Tseng, 2019). General competencies of teachers in technology integration cover using appropriate digital tools in learning, using technology in student projects, directing students to access the correct

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information on the Internet, switching to the use of multimedia in learning, being open to innovation for learning, and, how to use appropriate technology effectively (Ilgaz & Usluel, 2011). Therefore, researchers believe that a teacher with a high level of TPACK has mastered the knowledge necessary to integrate technology into the teaching and learning process. In other words, a technology-focused model aims for teachers to acquire knowledge and skills in using technology. In contrast, a pedagogy-focused model is a model that aims to connect teachers' knowledge about the use of technology with pedagogical knowledge throughout their learning (Kabakçı Yurdakul, 2011; Koh et al., 2015).

The Technological Pedagogical Content Knowledge Framework (TPACK) is one integration process model focusing on pedagogy. Therefore, the researcher believes it is important to analyze current trends in teacher TPACK research in this study. This is supported by Haviz et al. (2020), who state that students will only be able to create these skills if the teachers themselves can prepare these skills for students (Shafie et al., 2019). With this literature review, researchers will be able to understand the current state of TPACK research among ELT teachers by providing insight into current trends in TPACK studies, particularly in English language education. Researchers can then identify the shortcomings of TPACK's research in English education. However, there needs to be more systematic literature reviews of recent studies on TPACK in the English language teaching field, at least to the researchers' awareness. Consequently, this research aims to see what has been written about TPACK in teaching English in recent years.

From these problems, the following research questions emerge, which will serve as a framework for this systematic literature review including:

1. What are the characteristics and emerging trends in research published from 2018 to 2022 in TPACK in English Language Education?
2. What themes have emerged over the last five years to identify common themes and new directions in TPACK studies related to ESL?
- 3.

METHOD

Design

This research employed a literature review method since the analysis was to

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synthesize, criticize, and interpret empirical research on trends in the development of TPACK teachers in ELT over the last five years. Relevant journal articles published between 2018 and 2022 were searched electronically and through reference list checks. For electronic searches, the central databases are Google Scholar, Proquest, and Eric (Center for Educational Research Information), in addition to the webpages of various journal publishers (e.g., tandfonline.com, link.springer.com). This database was chosen because it is known to include high-impact and high-quality journals indexed in the Science Citation Index and Social Sciences Citation Index. Many keywords were selected based on research objectives. This research refers to a literature review conducted by (Wu & Wang, 2021). The search for research articles was carried out methodically in two stages: first, the inclusion criteria for the review were determined, then a literature search and analysis was carried out. The focus is mainly on research examining Teacher TPACK Trends in ELT.

Literature search

The articles reviewed were relevant journals published between 2018 and 2022, searched electronically, and through checking reference lists. The search was conducted electronically using the primary databases SpringerLink, Proquest, and ERIC (Educational Research Information Center) indexed by SCOPUS. This database was chosen because it is known to include high-impact and high-quality journals indexed in the Science Citation Index and Social Sciences Citation Index. The keywords used in database and journal searches include TPACK integration, TPACK development, and TPACK in EFL teaching. This study aims to identify and understand the literature on the rapid development and integrity of TPACK. For this reason, each research article is read regarding the research focus, theoretical framework, research design, participants, and research context. Next, key findings were identified to generate emerging themes and patterns.

Selection of articles

This study used multiple inclusion criteria to limit the number of search results for a reliable review. The inclusion criteria used were as follows: (1) peer-reviewed research; (2) studies related to Teacher TPACK Trends in ELT; and (3) research published within the last five years.

First, titles and abstracts are reviewed to select papers that meet the following criteria: (a) published between 2018 and 2022; (b) articles in English; (c) in complete text form; and

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(d) empirical studies. This section is selected because each database has different search tools, and the number of articles retrieved could be bigger and more readable. Therefore, different filtering techniques are applied between databases. For example, too many research papers are taken when the keywords "Technological Pedagogical Content Knowledge" and "English Language Learning" are used. In SpringerLink, as many as 1,869 papers appeared as search results. To reduce this number, search results are filtered with more specific keywords in the following way: Content Type – Articles, Disciplines – Teacher TPACK and Education and Language. This resulted in 58 papers. Within Proquest, the initial search results of 8,460 papers were reduced to a shortlist of 72 when "article" was selected as the document type. Furthermore, ERIC's search yielded 1,030 articles, filtered by several more specific keywords for 40. The final search results collected using the above strategy were 170 articles (SpringerLink 58; Proquest 72, ERIC 40).

Second, each article title is reviewed and analyzed to determine whether the title contains empirical evidence regarding the development and trends of teacher TPACK in English language learning, especially the limitations, challenges, and implementation of TPACK for teachers or pre-service teachers. The number of papers at the end of this stage is 130.

Third, in this part of the selection, researchers selected from the last five years, from 2018 to 2022, by looking at general trends in teacher TPACK. Finally, from the selection results, 25 articles were selected, which would be synthesized by the researcher, as shown in Table 1.

Table 1. Database of article selection

<i>Database</i>	<i>First Selection</i>	<i>Second Selection</i>	<i>Third Selection</i>	<i>Result</i>
<i>Springer Link</i>	58	50	10	10
<i>Proquest</i>	72	50	10	10
<i>ERIC</i>	40	30	5	5

Classification of article content

Selected papers were reviewed, and results were classified based on research questions:

- (1) What are the characteristics and emerging trends in research published from 2018 to 2022 TPACK in English Language Education?
- (2) What themes have emerged over the last five years to identify common themes and new directions in TPACK studies related to English Language Education?

RESULT AND DISCUSSION

The characteristics and emerging trends in research published (2018-2022) in TPACK in English language education

A total of 25 research publications were published in the previous five years and were examined in great detail, beginning in 2018 and continuing through 2022. As can be seen in Table I, 2019 was the year in which the majority of research on integrating TPACK into the English classroom was conducted (30%). 2020 saw the second-highest percentage of total scientific activities (20.5%). The vast majority of the empirical studies, which account for sixty percent of all of them, are presented in the form of case studies and center their attention on the setting of the implementation of TPACK in EFL classrooms. The second most common type of Integration of TPACK study is descriptive studies (15%), followed by quasi-experimental (12.5%). The types of research designs that are preferred in the Integration of TPACK in the EFL class are Collaborative Action Research (10%), mixed methods (5%), and exploratory survey research (10%). Most (74.5%) of the studies reviewed involved teachers as research participants, with very few studies focusing on students (25.5%). Studies on the Integration of TPACK are more dominant in schools (95%) than learning outside of schools (5%).

Table 2. Summary of research studies of the trend of teachers' track development in ELT (n=25)

Characteristic	N	%
2018	4	16,5%
2019	8	30%
2020	6	20,5%
2021	5	19,5 %
2022	2	13,5%
Research Design		
Qualitative		
Descriptive	8	15%
Collaborative Action Research	2	10%
Case study	11	55%
Quantitative		
Quasi-experimental	1	5%
Exploratory survey	2	10%
Mixed methods	1	5%
Participant		
Teacher	21	74,5%
Student	4	25,5%
Context		
In school	23	95%
School outside	2	5%

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The themes have emerged over the last five years to identify common themes and new directions in TPACK studies related to ELT.

There were 25 studies on the integration of TPACK in the ELT discussed and synthesized. In order of prevalence, the themes are presented with the most extensive findings discussed earlier.

First Theme: Comparison of pre-service, in-service, and formation programs for teacher perception of pedagogical content knowledge technologies (TPACK) in English language teaching (ELT).

The comparison of pre-service, in-service, and program development for teachers' perceptions of pedagogical content knowledge technology is the most significant theme coming from the review of studies on TPACK integration (TPACK). Most 35% of the studies reviewed describe how TPACK compares among prospective teachers, pre-service and in-service English as a foreign language (Alim & Gonong, 2020)—technology's ability to support learning educational materials led to its increased adoption in some developing nations. Also, technology needs to be used in EFL environments like Indonesian, where English is taught as a foreign language, to improve students' language proficiency. The findings of this study strongly suggest that developing PCK and TCK is an important factor in overall technology integration; teachers should prioritize this before integrating technology. In addition, development must be supported by actual teaching experience, and prospective teachers must be directed to reflect on their TPACK regarding the use of technology and the incorporation of higher-order thinking skills (Drajati et al., 2021; Hasir & Divarahan, 2021; Krauskopf et al., 2019), with an ELT focus.

Furthermore, similar to other studies as well (Lee, 2022; Nurkamto & Drajati, 2021), this study shows that the lack or limited experience of teaching directly limits prospective teachers in using or integrating technology effectively into teaching (Xiaobin et al., 2020). Therefore, as supported by previous research (Yeh & Tseng, 2019) for teacher candidates in certificate programs, the practicum period should be extended to cover one or two semesters. There may be several reasons for this result, as training is often conducted as a seminar, short-term and off-site, which is beyond the scope of this study. However, the data reveals

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continuous in-service training must be designed among faculty members, school teachers, technology specialists, and PT.

This theme concerns teacher candidates who may devote professional development time to improve their teaching and assessment with technology. During that time, organized in a collaborative learning environment, they can observe each other (teachers, lecturers, and PTs) and then discuss their observations. Meanwhile, teacher educators can emphasize the positive experiences teachers have in transitioning to new modes of teaching with technology that can help teachers to re-conceptualize their instructional beliefs and refine the design of technology-enhanced learning practices in the future, where if teachers are taught explicitly in various ways to understand their TPACK and reflect on it, they will see what their TPACK is missing.

Second theme: Reflection as a way to grapple TPACK complexity for EFL teachers.

The next theme in this literature review was teacher integrity during the TPACK tenure, indicating that teachers must realize that teaching students is not just teaching materials. Teachers must also know several aspects, not only technology, without considering many things. This statement relates to the criteria of openness as a reflective teacher. By applying candor, in-service teachers understand that they must first know what aspects need improvement. This statement is in line with research by Murphy's (2021) study Metacognitive assistance for reflective questions supports teacher candidates in tracking and assessing their problem-solving process; in addition, this encouragement allows them to consider different viewpoints and principles for moving information from basic to high-level design skills, reflecting the development of PCK participants. The findings also indicated that meditation in their prospective class encouraged participants to talk about how to apply everything they had learned. From the recorded interviews, in this case, the reflections mentioned by the participants helped their learning. In line with research by Nguyen and D. (2020), the reflections carried out by the participants mainly described descriptive reflections. To plan the following lecture, it is important to practice reflective practice as Ersanli's (2021) crucial topic in reflective practice (Lee, 2022; Krauskopf et al., 2019; Turgut, 2020): as improvements in education.

As Alim and Gonong (2020) stated, reflection helps teachers remember what happened in class until the following days. It feels fresh daily, helping teachers realize

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problems or possibilities in integrating technology and materials. For example, students look back and study the portfolio that the teacher made. In addition, the teacher can avoid repeating problems faced in the last semester because the teacher can learn them from reflective journals. For example, "The teacher has a problem with this material to combine with this application," or when a student forgot to bring a charger for his class last week, the teacher can remember it by reading a reflection journal. Then, if there is a change of teacher when another teacher cannot teach in class, it is worthwhile. In addition, it was reported that reflective practice showed that the teacher must face any challenge and be able to evaluate whether he has made a significant change or learning by reading reflective journals. Yeh and Tseng (2019) stated that reading is the center of the learning process. Therefore, in connection with reading and reflecting on important things, the teacher must convey what is not conveyed in class. Readers are active participants with an important interpretive function in the reading process.

Third theme: Video-making projects for TPACK development of pre-service EFL teachers.

In the future education system, the learning paradigm may change. Research from Hasir and Divarahan (2021) states that involvement and collaboration are two aspects that teacher educators must emphasize in the 21st century because these are the realities of the times. This argument is in line with research from Turgut (2020), where individuals must work together with others to survive in the technology forest, which is full of tools and technological advances. Consequently, classroom practice must align with this proposition, and meaningful assignments are one way of achieving this. The video-as-task initiative can enhance teachers' TPACK competencies in the classroom by designing assignments incorporating the TBLT paradigm and access to authentic technology. There are 16% who do research with this theme.

As shown by Kale (2019) in his research as a way to anticipate a shift in learning mode from offline to online amid a pandemic, it has become commonplace in universities to appoint video production students. The same thing was expressed by Alim and Gonong (2020), namely, that this form of assignment could potentially develop the TPACK skills of future English teachers. Similar to the results from Yeh and Tseng (2019), the voice samples of prospective teachers show that this activity supports a student-centered paradigm by encouraging students to investigate and discover new technological features, fostering

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collaboration with other students in designing video presentations and increasing student competency. Able to operate video editing tools with confidence and produce videos of the highest quality. However, the students need help completing the mission. The factors are the poor quality of the equipment and the lecturer's support for the material.

Providing comments and responses to student-generated videos and introducing collaborative work in video production are recommended for teacher educators. Because creating videos for assignments provides aspiring educators with valuable experience with technology, there is much room for improvement in this area. Ersanli (2021) suggests that English majors must consider the TBLT framework in instructional design. What assignments should be about the original experiential and relational perspectives relevant to outreach to teacher educators? There are TPACK topics that scholars have extensively documented in this theme, although some parts, such as different settings, concepts, and perceptions, still need to be studied. TPACK pre-service teachers will catalyze the success of teaching Indonesian English in the digital era.

Fourth theme: Implementing the TPACK framework by English teachers due to the COVID-19 Pandemic.

Based on several studies on TPACK applied by English teachers, participants show that they have studied TPACK and applied it practically. In early 2020, the spread of the COVID-19 virus was declared by WHO to be a global pandemic. Research by Draijati et al. (2021) states that in face-to-face learning, teachers can convey learning material directly in class using books, modules, and teaching materials. They can also directly monitor students' understanding of the material presented. Students can directly ask the teacher if there is material that needs to be understood. However, in online learning, the learning process is carried out virtually face-to-face using applications, Learning Management Systems (LMS), and social media, so many teachers experience difficulties monitoring student learning progress. This is caused by differences in interaction patterns separated by distance and time. Therefore, Murni (2020) in his research argues that professional teachers must, of course, quickly adapt to these circumstances and try to continue to facilitate students with transformative and constructive learning models. Research from Lee (2022) states that some teachers have never taught online before and have to redesign their material and adapt it to the principles of distance learning mode. First, they need to provide meaningful learning

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experiences for students. Second, they must give assignments that vary according to local interests and conditions and support students to continue learning happily and comfortably in a 100% online learning environment. Third, the need to facilitate students to become lifelong learners who do not only focus on developing cognitive abilities but also global competencies and behavior by the values of Pancasila, namely having a noble character, being independent, thinking critically, global diversity, cooperation, and creative personality. Fourth, there is a need to create positive interaction and communication patterns with students and parents. This was also revealed by research from (Alim & Gonong, 2020 Su-Bergil & Erçevik, 2020 Xiaobin et al., 2020 Ersanli, 2021; Yerdelen-Damar et al., 2021), which concluded that the integration of technology in skills-based language teaching could improve learning outcomes, activeness, motivation, and student learning independence.

Teachers need help with integrating new digital technologies with instructional tools. One of the most challenging difficulties is making the best use of technology in the English classroom by teachers who need more access to technology and familiarity with free or commercial online learning platforms. Teachers and students of English as a Foreign Language, or EFL (English as a Foreign Language; henceforth abbreviated as EFL), must only have content-specific expertise in traditional instruction. However, technological pedagogical content knowledge (TPACK) is now necessary in a technology-based environment. Studies of TPACK among pre- and in-service instructors, students, and other relevant sectors have been extensively explored in the field of EFL. "Studies on traditional and online-based platforms in a global context have examined content, pedagogical knowledge, and TPACK of in-service and pre-service teachers (Nurkamto & Drajadi, 2021; Yeh & Tseng, 2019; Krauskopf et al., 2019) and EFL students (Arifani et al., 2020). Furthermore, scholars have focused on online and traditional collaboration (Hasir & Divarahan, 2021), theoretical framework (Turgut, 2020), TPACK instrument (Hong, 2020), TPACK training among pre-service English teachers (Lee, 2022), development of TPACK components (Alim & Gonong, 2020). For this reason, it was concluded that TPACK studies for English teachers generally focused on developing TPACK, TPACK components, developing and validating instruments, strategies, collaboration, and measuring teacher TPACK. Notably, previous research has not theorized about the application of online classes in teaching."

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Fifth theme: The Indonesian EFL teachers' TPACK development in the online community of practice.

Based on the TPACK Integration study, (although OCP activities did not help teachers fully develop their TPACK (recognize, accept, adapt, explore, and advance) skills, Drajadi et al. (2021) showed their TPACK improved slightly after they took part in OCP. The main points of this theme are: (1) teachers who participate in discussions and all OCP activities are better. The development of TPACK depends on teachers applying OCP principles in their daily lives and (2) reification of teachers by sharing problems in classroom practice with other members and exchanging experiences and solutions.

However, creating TPACK is optional during the learning process at OCP. As a result, it is crucial to craft teacher professional development programs that can help teachers learn more. OCP must be considered to get instructors to actively participate in conversations and provide teachers with a more critical learning process. Teachers must develop knowledge and skills to increase students' capacity, including using technology in learning and teaching. The digital revolution has changed schools' teaching and learning processes (Azhar, 2020).

A study from Lee (2022) attempted to investigate the development of teachers' TPACK levels after participating in WhatsApp-based online practice communities (OCP) in Indonesia. This study addresses the problem of teachers being mandated to integrate technology into teaching. However, in various contexts, it is known that teachers need more confidence and competence in integrating technology. This aligns with a study from Alim and Gonong (2020), which states that programs for teachers emphasizing theory and practice are one of the best solutions for increasing their TPACK.

A case study was adopted in this research. It is similar to research from Turgut (2020), which explores the practice process that takes place in OCP by utilizing the notion of community of practice (CoP) by Wenger (1998) and the TPACK level to find out the development of teachers' TPACK levels. Ersanli (2021), in his study, shows that teachers still need to develop the TPACK levels fully. This theme recommends that future researchers who will design research on OCP carefully find the best way to enable teachers to experience meaningful learning and achieve significant progress on their TPACK.

CONCLUSION AND IMPLICATION

Conclusion

This systematic literature review, researchers have investigated the development of teacher TPACK to synthesize empirical research focusing on trends in teacher TPACK in a developmental context to see current trends and point out new research directions. Twenty-five articles in this study have been selected inclusively by following several existing criteria. The empirical studies published in the last five years were carefully evaluated for patterns and themes, considering the research focus, theoretical framework, participant characteristics, research design, and setting. The findings of the 25 research shows that most of the empirical investigations are provided in research studies that took place in educational environments with teachers as the most prevalent goal participants. Research on teacher TPACK development trends also includes five overarching themes that inform comparisons of teacher perceptions of teacher pedagogical content knowledge technology (TPACK) development in English language teaching (ELT).

There are many studies related to TPACK in the field of ELT, and researchers are expected to be able to find the latest trending research related to TPACK for English teachers so that later, it is hoped that prospective teachers and teachers can see the development of the TPACK and can be implemented in the teaching and learning process.

Limitation

The TPACK approach was developed from the Pedagogy Content Knowledge (PCK) approach, first introduced by Shulman in 1986. As the name suggests, TPACK is a learning approach that integrates technological and pedagogical developments to develop educational content. In this study, the researcher determined that the problem was limited to several things. Namely, the problem was only limited to the development trend of TPACK for English teachers in 25 articles selected in the last five years with five trending themes.

Therefore, the researcher hopes that future researchers can find this TPACK trend with more than 25 articles and find and discuss more than five general themes that have been discussed in this study and can be developed further.

Implication

The implications of the results of this study are a logical consequence of the

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development of ELT teacher TPACK to find out what trends have emerged in the last five years regarding ELT teacher TPACK. These implications can be divided into two categories: theoretical and practical.

Theoretical implications can be explained as follows:

First, teacher TPACK is effective for increasing the creative thinking of teachers or prospective teachers if they integrate content into the teaching and learning process. The effectiveness of this model is in line with the principles of curriculum development by Oliva and Gordon (2012), which integrate content and learning processes. The series of curriculum development processes, such as experimental education and didactic (Seel & Didjstra, 2008), which combine contents, learning, and interactions, are the principles used in developing this model.

Second, teacher TPACK improves the development of critical analysis of teacher through technology, which can solve the students' problems; for example, complex or easy subject matter concepts can be understood by students and can build student knowledge by developing learning methods or strengthening old knowledge. Using technology in language teaching can make complex material or concepts easy to understand and can overcome, help, and improve problems faced by teachers, prospective teachers, and students. TPACK provides a teacher's understanding of how technology can be used and exploited to develop new methods, creating effective teaching. In line with the statement from Feladi and Puspitasari (2018), TPACK is a concept needed by teachers that can integrate technology, pedagogy, and content that is applied according to the context so that the learning process reaches its maximum.

The practical implications of the results of this study can be stated as follows:

First, the teacher TPACK trend increases creative thinking and enriches efforts to improve the quality of English learning. Besides, TPACK also makes it easier for teachers to involve students in achieving learning goals. Another factor that makes it easier for teachers is the main component of TPACK integration in the teaching and learning process of English.

Second, the TPACK trend enriches the investigation of EFL teacher skills related to integrating technology and ICT-based learning systems that EFL teachers are developing that are trying to divert the direction of skills-oriented development to get maximum results during the implementation of ELT teacher TPACK. The ability of this model to be disseminated on several topics makes the English teaching material model an accessible model for teachers to use in the praxis of learning in the classroom.

Third, the TPACK trend enhances the development of a further research model that

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will focus on the TPACK trend of ELT teachers.

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BIO-PROFILE:

Fidya Felinda Ilahude is a master's program student who earned a Bachelor's degree in English Education at Universitas Negeri Gorontalo and is pursuing a Masters in English Education at Universitas Ahmad Dahlan, Yogyakarta. Her research interests are Mobile-Assisted Language Learning and ELT. Her corresponding email: fidyafelindailahude@gmail.com

Iin Inawati is Ahmad Dahlan University Yogyakarta's English Education Study Program lecturer. She obtained her master's and doctorate from Universitas Pendidikan Indonesia (UPI). Her research interests are English teaching materials development and methods of TEFL. Her corresponding email: iin.inawati@mpbi.uad.ac.id

Bambang Widi Pratolo is a lecturer of Master of English Education Study Program of Universitas Ahmad Dahlan. His research interests are English teaching materials development, qualitative research in ELT, and academic writing. His corresponding email: bambang.pratolo@pbi.uad.ac.id

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