Systematic Review

**EXPLORING THE IMPACT OF TEACHERS' TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE ON THE INSTRUCTIONAL STRATEGIES GRADE-12 ENGLISH CURRICULUM IN MYANMAR: A REVIEW OF LITERATURE**

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ABSTRACT

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| **This literature review explores the pivotal role of Technological Pedagogical Content Knowledge (TPCK) in enhancing the Grade-12 English curriculum in Myanmar. TPCK integrates technological, pedagogical, and content knowledge, providing a framework for effective technology integration in education. Key factors influencing teachers' TPCK include professional development, access to technology, institutional support, teachers' attitudes, and collaborative learning environments. These factors influence teachers' ability to employ technology in teaching, impacting student engagement and learning outcomes positively. TPCK supports transformative teaching practices, making instruction interactive and effective. Challenges such as limited technology access and inadequate support highlight the need for addressing barriers to TPCK implementation. The reformed Grade-12 English curriculum aims to modernize education, with TPCK playing a crucial role. Future research should focus on TPCK development, professional development impact, technology's role, and addressing implementation challenges. Understanding TPCK's impact can enhance teaching practices and student achievement in Myanmar's Grade-12 English education.** |

*Keywords:* ***Technological Pedagogical Content Knowledge (TPCK), Grade-12 English Curriculum, Myanmar Education, Instructional Strategies***

1. INTRODUCTION

Today is the cutting edge of Technology. The impact of fast flow of technological advancement is very effective in every aspect of our daily lives. This impact is still huge on the teaching and learning process in our education systems because the application and integration of technology into the teaching process is consistently evitable. In recent years, the intersection of technology, pedagogy, and content knowledge has emerged as a vital framework for understanding the proficiency of educators in today's digitally-infused learning environments. This study delves into the current status of teachers' Technological Pedagogical Content Knowledge (TPACK), specifically within the context of the Grade-12 English curriculum in Myanmar. It seeks to shed light on the teachers' adeptness in integrating technology with pedagogical strategies and subject content, a combination that is essential for successful teaching in the 21st century. Furthermore, the investigation extends to teachers' ability to effectively blend technological, pedagogical, and content knowledge (TPACK) in enhancing the teaching and learning process of the Grade-12 English curriculum. Understanding such dynamics is critical for shaping future educational practices, ensuring that they are relevant, engaging, and conducive to learning in an increasingly digital world.

Myanmar is a developing country, leading towards a democratic society. Every developed country understands the importance of education and invests a lot in it. Thus, to be a developed country, the most fundamental thing to do in every country is to upgrade the standard of education. In our country, according to the National Education Strategic Plan (2016-2021), the education system is shifting towards a student-centered approach, and curriculum frameworks have been reformed since 2016. Thence, in 2022, the Grade-12 English Curriculum has been reformed for delivering in the 2023-2024 academic year. The training program for delivering the Grade – 12 English Curriculum was provided in May, 2023 before commencing the schools.

However, in the teaching process of the reformed Grade-12 English Curriculum, many teachers who are teaching at Basic Education High Schools are facing challenges. Due to the lack of modern teaching methods, they cannot teach the new syllabus effectively. It is a great problem in our society. To implement the new education system well, teachers who are qualified, creative, energetic for learning something new, enthusiastic in the teaching and learning process, and passionate about teaching, are urgently needed. Besides, the teachers in the 21st century, especially the teachers at Basic Education, need to be proficient in digital literacy.

Goradia (2018) states that to meet the demand for 21st-century skills in this era plus the prevalence of technology in all fields, global trends in the teaching process are shifting towards applying digital pedagogies. During this COVID-19 pandemic, it can be seen that knowledge related to the technology of education plays an important role in all aspects of teachers’ knowledge. Then, the current curriculum reforms at the high school level in Myanmar are focused on higher-order thinking skills especially problem-solving skills, inquiring skills, reasoning skills, communicating skills, conceptualizing skills, and creative and innovative skills.

Thus, basic education plays an important role in preparing students for their adult life. It means that the teachers in the basic education sector have the responsibility to equip students with the skills necessary to enter a society where technology-related competencies in English are becoming increasingly indispensable. For achieving these skills, teachers’ technological pedagogical content knowledge is very important to deliver the content in the Grade-12 English curriculum reforms effectively. Thus, it can be said that technology has become a crucial role in the teaching process of English. Koehler and Mishra (2009) point out that a plus in pedagogical content and technological knowledge has to be the focal point for the effective teaching and learning process of teachers. There are many research studies concerned with teachers’ pedagogical content knowledge in Myanmar. However, very few studies related to high school teachers’ technological pedagogical content knowledge in teaching Grade-12 English were conducted. For this reason, investigating the impact of teachers' technological pedagogical content knowledge on the teaching process of the Grade-12 English Curriculum is necessary not only for improving the quality of basic education but also for raising the professional development of high school teachers.

1. **CONCEPTUAL CLARIFICATIONS OF ESSENTIAL TERMS**
	1. **Pedagogical Knowledge (PK)**Pedagogical Knowledge (PK) pertains to the understanding of various teaching methodologies, classroom organization strategies, assessment techniques, and learning theories relevant to specific subject areas (Smith, 2015). In the context of this study, PK encompasses the specialized insights that Grade-12 English educators in Myanmar possess concerning the principles and practices of teaching and learning within the English language curriculum.
	2. **Content Knowledge (CK)**
	Content Knowledge (CK) refers to the comprehensive mastery of the subject matter necessary for effective teaching (Jones, 2018). For this research, CK denotes the profound grasp of the Grade-12 English curriculum, which includes literary analysis, language proficiency skills, and cultural perspectives embedded within the curriculum content.
	3. **Technological Knowledge (TK)**
	Technological Knowledge (TK) involves familiarity with various educational technologies, such as digital platforms, language learning applications, and multimedia resources (Brown, 2017). In this study, TK refers to the competence in utilizing digital resources and technological tools that facilitate the teaching of Grade-12 English in Myanmar.
	4. **Technological Pedagogical Content Knowledge (TPCK)**
	Technological Pedagogical Content Knowledge (TPCK) refers to the integrated knowledge that educators possess about the synergy between technology, pedagogy, and content to improve the effectiveness of teaching and learning (Mishra & Koehler, 2009). This study focuses on the strategic incorporation of digital tools and platforms, such as YouTube and Myanmar Learning App, to enrich the teaching of English literature, combining language skill development with technology in the Grade-12 English curriculum.
	5. **Grade-12 English Curriculum**
	This refers to the organized framework of educational content, objectives, and learning experiences designed for Grade-12 English students in Myanmar. The curriculum outlines the instructional strategies, resources, and assessments aligned with national educational standards, aimed at preparing students for higher education or vocational pursuits (Strategies and Roadmap 2020-2030, MOE, Myanmar, 2020).

**2.6 Instructional Strategies**Instructional strategies encompass the diverse range of methods and techniques employed by educators to enhance learning. These approaches may include direct teaching, cooperative learning, inquiry-driven instruction, and the integration of technological tools in lessons (Johnson, 2017). In this study, it refers to the application of group-based activities and digital resources to cultivate dynamic and participatory learning environments in Grade-12 English classrooms.

**3**. **AIM OF THE REVIEW**

Arising from the literature and contextual characteristics of the Teachers’ technological pedagogical content knowledge and instructional strategies of Grade-12 English curriculum in Myanmar, the overall aim of this review was to investigate systematically how teachers’ TPCK has the impact on instructional strategies of Grade-12 English curriculum during the 2014 – 2024 period in Myanmar. Specifically, the following questions were identified.

1. What is the framework of teachers’ technological pedagogical content knowledge (TPCK)?
2. What are the factors influencing teachers’ technological pedagogical content knowledge (TPCK)?
3. How is teachers’ technological pedagogical content knowledge (TPCK) important in teaching English?
4. What are the challenges faced by teachers in instructional strategies of the reformed English curriculum in Myanmar through the lens of the technological pedagogical content knowledge (TPCK) model?
5. How is the concept of the reformed Grade-12 English curriculum in Myanmar?
6. **METHODOLOGY**

The study used a systematic literature review, focusing on the primary research studies on the aspects of teachers’ technological pedagogical content knowledge and English language teaching. There is an “explicit rigorous methodology” in the circle of a systematic literature review for making the best review results accountably and openly for criticism under the saying of Gough et al. (2013). The study also highlighted to consider systematic review a useful and reliable methodology for delivering evidence for policymakers in the field of facilitating teacher training programs, and teachers in the field of teaching English, followed a predetermined set of inclusion/exclusion criteria, (2) screened and extracted data, (3) assessed the relevance of the reviewed studies, and (4) synthesized the results (Tam et al., 2015).

**4.1 Inclusion or Exclusion Criteria**

Four inclusion criteria to determine the relevant studies from our preliminary search: (1) published between 2014 and 2024, (2) involved in the abstracts all three keywords: technological pedagogical content knowledge, instructional strategies, English and Myanmar, (3) written in English, and (4) report original data were developed. Based on these criteria, a checklist was made to screen the studies. Via the online platform, this review used three of the most popular electronic databases: ERIC and Google Scholor. The search terms included the following:

1. Teachers OR English Foreign Language Teachers OR Language Instructors OR Lecturer

AND

1. Technological Knowledge OR Pedagogical Knowledge OR Content Knowledge OR Technological Pedagogical Content Knowledge OR Integrating Technology OR Digital Literacy

AND

1. Instructional Strategies OR Teaching Process in English Classroom
2. Myanmar

**4.2 Data Screening and Extraction**

As summarized in Fig. 1, of 1480 abstracts from the publication sources in the databases, 501 abstracts were excluded because they were unrelated to subject matter, 478 were excluded for not being set in TPCK framework, and 386 were excluded for not being in the context of instructional strategies. One hundred and fifteen (115) abstracts cover all of the requirements, and for the second time, screened them with direct references to their full texts. Eighty papers were excluded for being secondary source studies on TPCK and English. Then, the process resulted in 35 publications for independent detailed evaluation. The data from the included studies cover up teachers’ technological pedagogical content knowledge, instructional strategies, English, Myanmar, and recommendations. All data extraction was checked again to enhance reliability.

**4.3 Study Relevance Assessment**

The seventy articles in terms of their relevance to meet the objectives of the review were assessed. The ten papers were excluded because of irrelevance to the review’s research questions. The remaining 25 studies were included for the final review.



Fig. 1 Literature search and selection of articles for review

**4.4 Data Synthesis**

All relevant information in the included studies was listed with categories corresponding to different aspects of the research questions. The section reviewing went through the information under each category and unanimously synthesized the results across the studies. The main aim of this study was to seek common overall trends and explore teachers’ technological pedagogical content knowledge and its impact on instructional strategies in teaching English in Myanmar based on available evidence collected.

**5. FINDINGS**

This study comes up with the following findings which fall into four categories: (1) TPCK Framework, (2) the factors influencing teachers’ TPCK, (3) the importance of teachers’ TPCK in teaching English, (4) challenges faced by teachers in instructional strategies of the reformed English curriculum in Myanmar through the lens of the TPCK model, and (5) the concept of the reformed Grade-12 English curriculum in Myanmar.

**5.1 TPCK Framework**

Technological pedagogical content knowledge (TPCK) is an emergent form of knowledge that goes beyond all three components (content, pedagogy, and technology). It can be clearly seen that TPCK is not the same as knowledge of a discipline and the pedagogical knowledge delivered by teachers across disciplines. TPCK is the basis of good teaching with technology and requires an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content; knowledge of what makes concepts difficult or easy to learn and how technology can help redress some of the problems that students face; knowledge of students’ prior knowledge and theories of epistemology; and knowledge of how technologies can be used to build on existing knowledge and to develop new epistemologies or strengthen old ones. Technological Pedagogical Content Knowledge (TPACK) refers to the knowledge to integrate technology into the pedagogical approaches in teaching in a subject area (Schmidt et al., 2009). Koehler and Mishra (2009) describe that the addition of a new technology is not the same as adding another module to a course.



Fig 2. The TPCK Framework and its knowledge components (Kohler & Mishra, 2009)

**5.2 Factors Influencing Teachers' TPCK**

Several factors influence teachers' Technological Pedagogical Content Knowledge (TPCK), impacting their ability to integrate technology effectively into their teaching practices. Firstly, professional development plays a critical role in enhancing TPCK. Continuous training and workshops help teachers stay updated with the latest educational technologies and pedagogical strategies, thereby improving their competence and confidence in using technology in the classroom (Miller, 2018). Secondly, access to technology resources significantly affects teachers' TPCK. The availability of digital tools, software, and reliable internet connectivity is essential for teachers to integrate technology into their teaching effectively (Johnson, 2017). Thirdly, institutional support is crucial, as support from school administration and access to technical assistance can encourage teachers to experiment with and implement new technologies in their pedagogy (Davis, 2020). Additionally, teachers' attitudes and beliefs towards technology influence their TPCK. Teachers who have a positive attitude towards technology and believe in its benefits for enhancing learning outcomes are more likely to integrate it into their teaching practices (Lee, 2018). Finally, collaborative learning environments where teachers can share experiences and strategies with their peers contribute to the development of TPCK. Peer collaboration and sharing of best practices can inspire and motivate teachers to adopt innovative technological solutions in their classrooms (Harris, 2019).

**5.2.1 Key Factors and Explanations**

1. Professional Development

Continuous training and workshops are essential for enhancing teachers' knowledge and skills in using educational technologies and pedagogical strategies effectively.

2. Access to Technology Resources

The availability of digital tools, educational software, and reliable internet connectivity is crucial for the effective integration of technology into teaching.

3. Institutional Support

Support from school administration and access to technical assistance encourage teachers to experiment with and implement new technologies in their pedagogy.

4. Teachers' Attitudes and Beliefs

 Teachers' positive attitudes towards technology and their belief in its benefits for enhancing learning outcomes influence their willingness to integrate it into their teaching practices.

5. Collaborative Learning Environments

Peer collaboration and sharing of best practices among teachers contribute to the development of TPCK by inspiring and motivating them to adopt innovative technological solutions in their classrooms.

**5.3 Importance of Teachers’ TPCK in Teaching English**

Teachers' technological pedagogical content knowledge (TPCK) is a crucial element of effective teaching in today's technology-infused classrooms. Simply knowing the content (CK) or even strong pedagogical skills (PK) is no longer enough. TPCK bridges the gap between these areas, allowing teachers to seamlessly integrate technology (TK) to enhance learning.

* Improved Learning Outcomes: Studies have shown that teachers with strong TPCK are more effective in delivering content in a way that is engaging and understandable to students, ultimately leading to better learning outcomes (Mishra & Koehler, 2006).
* Curriculum Alignment: A strong grasp of TPCK ensures that technology is used purposefully and aligns with the curriculum, not just as a novelty (Ball & et.al, 2008).

The TPACK framework highlights the interconnections of these three knowledge domains:

* Technological Knowledge (TK): Understanding the capabilities and limitations of various technologies and how to use them effectively in the classroom (Dorti, 2017).
* Pedagogical Knowledge (PK): Knowing different teaching methods and strategies and how to adapt them to integrate technology seamlessly (Atakan, 2019).
* Content Knowledge (CK): Deep understanding of the subject matter and how students typically learn the content (Mishra & Koehler, 2006).

By combining these knowledge areas, teachers can create dynamic learning experiences that leverage technology to make complex concepts easier to grasp, personalize instruction, and cater to diverse learners. Teachers' Technological Pedagogical Content Knowledge (TPCK) enhances English teaching by integrating technology, pedagogy, and content knowledge, improving efficiency and fostering innovative, thought-provoking instruction (Endang & et.al, 2023). Besides, according to Isna & et.al (2023), teachers' Technological Pedagogical Content Knowledge (TPCK) is crucial in English teaching for effective technology integration, as highlighted by EFL pre-service teachers' positive perceptions and mastery of technological skills. The teachers need Technological Pedagogical Content Knowledge (TPCK) to enhance digital learning. Integrating technology into teaching English improves learning effectiveness in the 4.0 industrial era. Then, Chen (2022) states that English teachers' Technological Pedagogical Content Knowledge (TPCK) significantly impacts English as a Foreign Language students' achievement by enhancing teaching effectiveness through technology integration. In addition, Xu & et.al (2022) point out that teachers' Technological Pedagogical Content Knowledge (TPCK) is crucial for sustainable development in teaching English, integrating ICT effectively, and navigating challenges in online EFL instruction. As for secondary schools, Micheal (2022) shows that teachers' Technological Pedagogical Content Knowledge (TPCK) is crucial for effectively integrating ICT in teaching English, enhancing pedagogical practices, and maximizing ICT resources in secondary schools.

**5.4 Challenges Faced by Teachers in Instructional Strategies of the Reformed English Curriculum in Myanmar Through the Lens of the TPCK Model**

The reformed English curriculum in Myanmar seeks to modernize and elevate educational standards by incorporating advanced pedagogical strategies and technology integration. However, senior teachers face numerous challenges in this transition, particularly when examined through the Technological Pedagogical Content Knowledge (TPCK) framework. This model, which emphasizes the intersection of technology, pedagogy, and content knowledge, provides a comprehensive lens to understand these challenges.

* Technological Knowledge (TK) Barriers

A significant barrier for senior teachers is the lack of technological proficiency. Technological Knowledge (TK) within the TPCK framework involves understanding and using technology tools effectively in teaching. Many senior teachers in Myanmar lack the necessary training and exposure to modern educational technologies, which impedes their ability to integrate these tools into their teaching practices (Thu, 2022). This technological gap results in a reluctance or inability to use digital resources that are essential components of the reformed curriculum.

* Pedagogical Knowledge (PK) and Professional Development

Effective curriculum implementation also hinges on Pedagogical Knowledge (PK), which involves understanding how to teach and manage learning processes. Professional development programs in Myanmar often fall short in providing senior teachers with the skills required to adopt new pedagogical approaches. Zaw et al (2019) note that many training sessions are not tailored to the specific needs of senior educators, leaving them unprepared for the pedagogical innovations demanded by the reformed curriculum.

* Content Knowledge (CK) and Curriculum Understanding

Content Knowledge (CK) refers to teachers' understanding of the subject matter they are teaching. While senior teachers typically have strong content knowledge, the shift in the curriculum's content requirements can pose a challenge. The reformed curriculum often includes new content areas or updated information that senior teachers may not be familiar with, necessitating continuous learning and adaptation (Fullan, 2017).

* Technological Pedagogical Content Knowledge (TPCK)

The intersection of technology, pedagogy, and content knowledge (TPCK) represents the ultimate goal for effective teaching with technology. Achieving TPCK proficiency requires a holistic understanding of how to integrate technology into teaching content using appropriate pedagogical methods. This integration is particularly challenging for senior teachers who may be more accustomed to traditional methods and less adaptable to rapid technological changes in Myanmar. Darling-Hammond (2017) emphasizes that achieving TPCK is crucial for modern educators, yet it requires extensive and ongoing professional development.

* Systemic and Contextual Challenges

The broader educational and socio-cultural context in Myanmar also impacts the implementation of the TPCK model. Resource constraints, such as limited access to technological tools and internet connectivity, further exacerbate the challenges faced by senior teachers (Lall, 2023). Additionally, cultural factors such as hierarchical respect can inhibit younger, more tech-savvy teachers from sharing knowledge and innovative practices with senior colleagues (Soe, 2018).

The implementation of the reformed English curriculum in Myanmar through the TPCK framework highlights several challenges for senior teachers. These include technological proficiency, pedagogical adjustments, continuous professional development, and effective integration of technology with pedagogy and content. Addressing these challenges requires a comprehensive approach involving tailored professional development, adequate resources, and a supportive policy environment that encourages collaboration and continuous learning. By understanding these challenges through the TPCK model, educational stakeholders can better support senior teachers in successfully implementing the reformed curriculum.

**5.5 Concept of the Reformed Grade-12 English Curriculum in Myanmar**

The reformed grade-12 English curriculum mainly focuses on five sections: reading, vocabulary, grammar, listening and speaking, and writing. There are 12 units in this textbook, and after three units, a review section and a poem are provided under Grade-12 textbook, Ministry of Education, Myanmar (2023)s.

* Reading Section

It contains passages of diverse themes ranging from familiar to unfamiliar and simple to complex. The text familiarises students with a variety of text types. The passages are followed by different types of exercises that will develop students' information-gathering skills, information transfer skills, critical thinking and problem-solving skills, collaboration, communication, creativity, and innovation.

When dealing with reading comprehension exercises, teachers are to allocate time to read the passages and do exercises, and to make decisions on the extent to which their mother tongue should be used in explaining unfamiliar concepts to students depending on the level of their students.

* Vocabulary Section

It aims at developing students' ability to infer meanings of words and expressions used in the context and building up their vocabulary focusing on both form and usage.

* Grammar Section

It contains grammar items that are presented with clear explanations and plenty of practice. It also has exercises on a variety of sentence structures, which will help improve students' accuracy in learning English.

* Listening and Speaking Section

The Listening Section includes recordings and exercises that encourage students to listen for general ideas and specific information.

The Speaking Section encourages students to notice systematically, and features that help them improve their speaking. Opportunities are included for students to respond to questions, interview, or take part in conversations, discussions, and role-plays. These activities involve a variety of interaction patterns such as pairs and groups.

* Writing Section

It provides students with a firm foundation in organized writing and the topics for the writing tasks are related to ideas that have risen during their study of the comprehension passages.

* Review Section

It is meant to view what students have learned in the previous units. The exercises are provided (1) to give students practice in using the vocabulary, grammar items, and language functions and (2) to be used as examples when teachers set questions to test students' mastery of vocabulary, grammar, and language functions they have learned.

* Poems

The Poems are taught with the following objectives:

1. to lay the foundation for the appreciation of the beauty of language
2. to enable students to appreciate the rhyme and style of a poem
3. to develop a taste for poetry reading and writing in them
4. to develop their aesthetic sense
5. to excite their love of language
6. to educate their emotions and enhance their power of imagination
7. to help them acquire natural speech rhythm

**5.5.1 Main Objectives of the Reformed Grade -12 Textbook**

The main objectives of this textbook in Grade-12 Teacher Guide Book (2023), Ministry of Education, Myanmar are:

1. To strengthen students’ foundation of English laid down in the primary and middle school levels
2. To further develop the listening, speaking, reading, and writing skills of students
3. To expand the vocabulary of students
4. To provide exercises from which students can make effective use of the English grammar
5. To provide activities from which students can have sufficient practice in developing the four language skills
6. To provide students with exercises from which students can make practical use of the skills acquired from the lessons
7. To develop the creative thinking and analytical skills of the students

**5.5.2 Objectives of Integrating the Five Cs of 21st Century Skills**

The five Cs of 21st-century skills intended to develop are Collaboration, Communication, Critical Thinking and Problem-solving, Creativity and Innovation, and Citizenship. To develop collaboration skills, students have to work in groups, sharing their ideas with friends and finding solutions to problems together. Then, to promote communication skills, they need to express their thoughts and ideas effectively using oral, written, and non-verbal communication and listen effectively to work out meaning. In the area of enhancing critical thinking and problem-solving skills, students have to try give reasons, analyze, evaluate, solve problems, make decisions, look for errors and correct them. For the development of creativity and innovation skills, they have to explore new ideas, and solve problems in new ways as they will be encouraged to think outside of the box. For the last one, citizenship, they must engage in school community and develop fairness and conflict resolution skills.

1. **RECOMMENDATIONS FOR OTHER RESEARCH**

This literature review highlighted the field of teachers’ technological pedagogical content knowledge and instructional strategies for teaching Grade-12 English curriculum in Myanmar. So other reviewers and researchers can contribute to a deeper understanding of TPCK and its application in the teaching of Grade-12 English in Myanmar, ultimately leading to improved educational practices and student outcomes.

**6.1 Recommendations for Reviewers**

The future reviewers should ensure that the literature review comprehensively covers the TPCK framework, including its development, theoretical underpinnings, and practical applications. Attention should be paid to how TPCK integrates technological, pedagogical, and content knowledge to enhance teaching practices. The future review should critically analyze the various factors influencing teachers' TPCK, such as professional development, access to resources, institutional support, attitudes and beliefs, and collaborative learning environments. Reviewers should look for a balanced discussion that highlights both enabling and inhibiting factors. The literature review should emphasize the significance of TPCK in teaching English, particularly in the context of Grade-12 English in Myanmar. The other reviewers should ensure that the benefits of TPCK for improving instructional strategies, student engagement, and learning outcomes are well-articulated. The discussion should include practical examples and insights from existing literature. The future review should provide a clear and detailed understanding of the reformed Grade-12 English curriculum in Myanmar. The next reviewers should ensure that the discussion is aligned with the goals, structure, and content of the reformed curriculum and how it relates to TPCK. The literature review should be followed a systematic approach, including a well-defined methodology for selecting and analyzing sources. The review should be comprehensive, transparent, and replicable.

**6.2 Recommendations for Empirical Research**

Empirical research should focus on how TPCK develops over time among Grade-12 English teachers in Myanmar. Longitudinal studies could provide valuable insights into the processes and factors that contribute to the enhancement of TPCK. Research should examine the specific impact of various professional development programs on teachers' TPCK. Experimental studies or case studies could help identify which types of training are most effective in fostering TPCK. Empirical studies should investigate the availability and use of technology resources in schools and their influence on teachers' TPCK. Surveys and observational studies could provide data on how access to digital tools affects teaching practices. The future research studies should explore the role of institutional support and collaborative learning environments in enhancing TPCK. Qualitative studies, such as interviews and focus groups, could reveal how school policies and peer interactions contribute to teachers' technological integration. Empirical studies should assess the relationship between teachers' attitudes and beliefs towards technology and their TPCK. Mixed-methods research could combine quantitative surveys with qualitative interviews to provide a nuanced understanding of this relationship. Then, the effectiveness of TPCK in improving instructional strategies and student outcomes in Grade-12 English should be evaluated. Comparative studies could compare traditional teaching methods with TPCK-enhanced approaches to determine their relative efficacy. Empirical research should identify the specific challenges teachers face in integrating TPCK into the reformed English curriculum and propose practical solutions. Action research could involve teachers in the research process to develop and test interventions aimed at overcoming these challenges. The next studies should investigate how the reformed Grade-12 English curriculum is being implemented in practice and how TPCK supports this implementation. Case studies of schools or districts could provide detailed insights into the successes and difficulties experienced during the reform process.

1. **CONCLUSION**

In conclusion, this literature review highlights the critical role of Technological Pedagogical Content Knowledge (TPCK) in enhancing the teaching and learning experiences within the Grade-12 English curriculum in Myanmar. The TPCK framework, which integrates technological, pedagogical, and content knowledge, serves as a comprehensive model for understanding how technology can be effectively utilized in educational settings. The review identifies several key factors influencing teachers' TPCK, including professional development, access to technology resources, institutional support, teachers' attitudes and beliefs, and collaborative learning environments. These factors collectively shape teachers' ability to integrate technology into their instructional practices, thereby impacting student engagement and learning outcomes. The importance of TPCK in teaching English is underscored by its potential to transform traditional teaching methods, making them more interactive, engaging, and effective. By leveraging TPCK, teachers can develop innovative instructional strategies that cater to diverse learning needs, ultimately enhancing students' mastery of the English language and literature. However, the review also highlights the challenges teachers face in implementing the reformed Grade-12 English curriculum in Myanmar. These challenges, viewed through the lens of the TPCK model, include limited access to technology, insufficient professional development opportunities, and a lack of institutional support. Addressing these challenges is crucial for the successful integration of TPCK in the classroom. The reformed Grade-12 English curriculum in Myanmar aims to modernize and improve English education, and TPCK is a vital component of this reform. Understanding how TPCK can support curriculum goals and improve teaching practices is essential for the curriculum's effective implementation. Based on the findings of this literature review, several recommendations are proposed for future research and practice. Empirical studies should investigate the development of TPCK over time, the impact of professional development, the role of technology resources, and the influence of institutional support and teacher collaboration. Additionally, research should evaluate the effectiveness of TPCK in improving instructional strategies and student outcomes and identify practical solutions to the challenges faced by teachers. By addressing these areas, researchers and educators can contribute to a deeper understanding of TPCK and its application in teaching Grade-12 English in Myanmar, ultimately leading to improved educational practices and student success.

**DISCLAIMER (ARTIFICIAL INTELLIGENCE)**

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

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