**Exploring the Impact of Teachers' Technological Pedagogical and Content Knowledge on The Instructional Strategies of Grade-12 English Curriculum in Myanmar: A Review**

.

ABSTRACT

|  |
| --- |
| **This systematic literature review investigates the role of Technological Pedagogical Content Knowledge (TPACK) in enhancing instructional strategies for the Grade-12 English Language curriculum in Myanmar. Drawing from studies published between 2014 and 2024, the review identifies key factors influencing teachers’ TPACK, such as professional development, access to digital resources, institutional support, and collaborative learning environments. It highlights how these factors shape the effective integration of technology into pedagogical practices, improving both teacher competence and student learning outcomes. The findings reveal that TPACK significantly supports interactive and learner-centered instruction, yet its implementation faces challenges including limited technological access, inadequate training, and contextual barriers in Myanmar’s basic education sector. The study concludes with targeted recommendations for developing teacher training programs and policies that strengthen TPACK in the context of the reformed English Language curriculum. These findings contribute to a better understanding of how TPACK can be contextually applied to support curriculum reforms in developing education systems.** |

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

1. INTRODUCTION

In the era of rapid technological advancement, the integration of digital tools into the teaching and learning process has become essential. Globally, the intersection of technology, pedagogy, and content knowledge—conceptualized as Technological Pedagogical Content Knowledge (TPACK)—has emerged as a vital framework for effective teaching in 21st-century classrooms (Mishra & Koehler, 2006). This review specifically examines TPACK within the context of Myanmar’s reformed Grade-12 English Language curriculum.

Myanmar’s education system has undergone significant reforms guided by the National Education Strategic Plan 2016–2021, emphasizing student-centered learning and the integration of 21st-century skills (Ministry of Education, Myanmar, 2016). A notable outcome of these reforms is the implementation of the new Grade-12 English Language curriculum in the 2023–2024 academic year, designed to foster higher-order thinking skills, digital literacy, and communicative competence. However, many high school teachers face difficulties in implementing this curriculum effectively due to limited training in technology integration and unfamiliarity with modern instructional strategies (Thu, 2022; Zaw, Oo, & Than, 2019).

Although global research increasingly highlights the importance of TPACK in improving English language instruction (Chen, Li, & Xu, 2022; Michael, Carolyne, & Peter, 2022), there is a notable lack of empirical and literature-based studies focusing on its practical application in Myanmar's basic education sector. In particular, there is little evidence on how English language teachers at the high school level utilize TPACK to meet curriculum goals and overcome classroom challenges.

This literature review addresses that gap by systematically analyzing studies from 2014 to 2024 that explore TPACK in relation to instructional strategies for the Grade-12 English curriculum in Myanmar. The review identifies key influencing factors, implementation barriers, and opportunities for leveraging TPACK to enhance teacher performance and student learning outcomes. By doing so, it contributes to the broader understanding of TPACK’s role in supporting educational reform in developing contexts.

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 (TPACK)**
	Technological Pedagogical Content Knowledge (TPACK) 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’ TPACK 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 (TPACK)?
2. What are the factors influencing teachers’ technological pedagogical content knowledge (TPACK)?
3. How is teachers’ technological pedagogical content knowledge (TPACK) 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 (TPACK) 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 TPACK 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 TPACK 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.

Table Literature search and selection of articles of review

|  |  |
| --- | --- |
| **Identification** | Records identified through database searching (ERIC, Google Scholar, Scopus), n = 1498 |
| **Screening** | Records after duplicates removed, n = 1480Records screened by title and abstract, n = 1480Records excluded, n = 1365* Not related to subject matter, n = 501
* Not set in TPACK framework, n = 478
* Not focused on instructional strategies, n = 386
 |
| **Eligibility** | Full-text articles assessed for eligibility, n = 115Full-text articles excluded, n = 80* Non-empirical or secondary sources
 |
| **Included** | Studies included in qualitative synthesis, n = 35Studies retained after quaity assessment, n = 25 |

**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) TPACK Framework, (2) the factors influencing teachers’ TPACK, (3) the importance of teachers’ TPACK in teaching English, (4) challenges faced by teachers in instructional strategies of the reformed English curriculum in Myanmar through the lens of the TPACK model, and (5) the concept of the reformed Grade-12 English curriculum in Myanmar.

**5.1 TPACK Framework**

The Technological Pedagogical Content Knowledge (TPACK) framework, introduced by Mishra and Koehler (2006), has emerged as a foundational model for understanding how teachers integrate technology effectively into teaching. The literature consistently identifies the three core domains of TPACK: Content Knowledge (CK), which refers to the teacher’s expertise in the subject matter; Pedagogical Knowledge (PK), which involves understanding effective instructional strategies; and Technological Knowledge (TK), which refers to proficiency with digital tools. While many studies define these domains accurately, they often overlook the significance of the subdomains within the framework. These include Pedagogical Content Knowledge (PCK), which reflects how teachers represent and adapt content to make it comprehensible; Technological Pedagogical Knowledge (TPK), which covers how technology is used to implement various pedagogies; and Technological Content Knowledge (TCK), which refers to using technology to enhance the representation of subject-specific content. More importantly, Contextual Knowledge (XK)—the understanding of institutional, cultural, and environmental conditions—is rarely addressed, despite its essential role in tailoring TPACK application to local realities.

Several studies (e.g., Endang et al., 2023; Atakan, 2019) examined the application of TPACK in pre-service and in-service teacher education but rarely analyzed how all components interact. Instead, there is a tendency to treat TPACK as a static combination rather than a dynamic interplay of overlapping knowledge domains. Furthermore, many studies used theoretical descriptions without linking them to classroom practices or specific curriculum goals. Consequently, while the framework’s conceptual foundations are strong, the literature lacks depth in its practical interpretation—particularly within the Myanmar context. Therefore, this review highlights the need to expand discussions of TPACK beyond the basic triad of CK, PK, and TK and to incorporate subdomains and contextual elements that influence its implementation in real-world classrooms.



Fig 1. The TPACK Framework and its knowledge components (Kohler & Mishra, 2009)

**5.2 Factors Influencing Teachers' TPACK**

A wide range of factors influence the development and effective application of teachers' TPACK, as confirmed across multiple studies. Key factors include professional development opportunities, access to technological tools and infrastructure, institutional support, teacher attitudes and beliefs about technology, and collaborative learning environments. While these factors are consistently acknowledged, the critical comparison reveals several gaps in the current literature.

For instance, Miller (2018) and Davis (2020) confirm the importance of continuous, targeted professional development in enhancing TPACK, yet most programs described in the literature are short-term and often lack contextual adaptation. This undermines their long-term impact on classroom practice. Moreover, while studies such as Johnson (2017) and Harris (2019) highlight access to devices and digital platforms as essential for technology integration, they often fail to address the disparity between rural and urban schools—an issue that is particularly relevant in Myanmar. Similarly, studies emphasize the positive correlation between teacher attitudes and TPACK development (Lee, 2018), but these studies generally rely on self-reported data, which may not reliably reflect teachers' actual classroom practices.

Collaboration among teachers, including peer mentoring and sharing of best practices, is recognized as a key enabler of TPACK (Harris, 2019), but few studies examine how such collaboration is institutionalized or sustained over time. Importantly, the broader socio-economic and policy context influencing these factors is rarely discussed in depth. This review concludes that while common themes regarding influential factors are evident, there is insufficient analysis of how these factors interact in real educational environments, especially in developing contexts like Myanmar.

**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 TPACK by inspiring and motivating them to adopt innovative technological solutions in their classrooms.

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

Teachers' technological pedagogical content knowledge (TPACK) 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. TPACK 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 TPACK 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 TPACK 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 (TPACK) 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 (TPACK) 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 (TPACK) 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 (TPACK) 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 (TPACK) 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 (TPACK) 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 TPACK 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 (TPACK) 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 TPACK 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 (TPACK)

The intersection of technology, pedagogy, and content knowledge (TPACK) represents the ultimate goal for effective teaching with technology. Achieving TPACK 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 TPACK 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 TPACK 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 TPACK 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 TPACK 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. **Discussion**

The importance of Technological Pedagogical Content Knowledge (TPACK) in teaching English is widely recognized in the literature. TPACK provides a comprehensive framework that enables teachers to integrate subject content, pedagogy, and technology to deliver engaging, effective instruction (Mishra & Koehler, 2006). Within the context of Myanmar’s reformed Grade-12 English curriculum, which emphasizes communication, collaboration, and creativity, TPACK allows teachers to implement technology-supported instructional strategies aligned with these goals.

Several studies support the role of TPACK in improving student engagement and learning outcomes. For example, Endang, Endah, and Nico (2023) and Isna et al. (2023) found that teachers with high levels of TPACK are better able to use digital tools to enhance the teaching of grammar, vocabulary, speaking, and writing. These tools foster learner-centered environments and support differentiated instruction. Furthermore, Xu et al. (2022) observed that technology integration through TPACK also contributed to more sustainable and adaptable EFL teaching, especially in blended and online contexts.

However, despite these positive perceptions, much of the supporting evidence is qualitative and based on teacher self-assessment rather than empirical classroom data. There is a lack of rigorous studies that quantitatively measure the long-term impact of TPACK-based teaching on student achievement in English. Moreover, few studies analyze how imbalanced TPACK—such as strong content knowledge but limited technological skills—affects teaching outcomes (Michael, Carolyne, & Peter, 2022). In Myanmar’s exam-oriented system, TPACK offers a meaningful shift toward communicative and skills-based English teaching, but its practical value will be best understood through classroom-based, outcome-oriented research.

The implementation of the reformed Grade-12 English curriculum through the TPACK framework presents a number of challenges that go beyond individual teacher characteristics such as age or experience. While some studies highlight barriers encountered by senior teachers (Thu, 2022), a broader review reveals that teachers across the system—regardless of demographic—face systemic constraints. These include limited digital infrastructure, lack of ongoing training, insufficient classroom resources, and the pressure of completing a packed curriculum under examination constraints.

In rural schools especially, unreliable internet connectivity and outdated devices make it difficult to integrate technology into everyday instruction (Lall, 2023). Even where devices are available, teachers often report anxiety due to inadequate training, limited peer collaboration, and fear of being evaluated on unfamiliar tools (Soe, 2018). Professional development programs are often short-term and theoretical, without hands-on application or contextual relevance (Zaw, Oo, & Than, 2019).

Moreover, institutional factors such as rigid administrative policies, large class sizes, and lack of ICT support reduce the space for innovative, TPACK-based teaching approaches. Teachers are also rarely given the time or autonomy to plan collaborative lessons or experiment with digital tools. These challenges reveal that difficulties with TPACK implementation stem not just from lack of knowledge or willingness, but from broader structural issues in Myanmar’s education system. Addressing these barriers will require systemic reform, including targeted investment in ICT infrastructure, ongoing professional learning communities, leadership support, and curriculum redesign aligned with digital pedagogies.

1. **Conclusion**

This systematic review highlights the essential role of the TPACK framework in supporting the implementation of the reformed Grade-12 English Language curriculum in Myanmar. TPACK offers a structured, flexible approach to integrating technology into teaching, empowering teachers to move beyond traditional instruction and address the demands of 21st-century education. The review finds strong theoretical support for TPACK’s value, particularly in enhancing student engagement and supporting differentiated instruction. However, it also reveals significant limitations in the current evidence base, including a lack of empirical studies that measure learning outcomes, insufficient attention to contextual factors, and a tendency to overlook the full scope of the TPACK framework—including its subdomains and contextual applications.

Moreover, the challenges faced by teachers—such as limited access to technology, inadequate professional development, and lack of institutional support—are systemic and require coordinated policy and capacity-building responses. The findings indicate that while TPACK has great potential to enhance teaching and learning, realizing this potential will depend on addressing the gaps in training, infrastructure, and curriculum alignment.

1. **Recommedation**

Based on the findings of this review, several recommendations are proposed for research, practice, and policy. First, future research should focus on conducting empirical studies that examine how TPACK influences student achievement in the context of Myanmar’s Grade-12 English curriculum. Longitudinal and mixed-methods studies are particularly needed to assess sustained impact. Second, there is a need to develop professional development programs that are not only theoretically grounded but also practical, context-sensitive, and aligned with the specific goals of the English curriculum. These programs should provide teachers with hands-on experience in integrating TPACK into lesson planning and classroom activities. Third, researchers and educators should work to map specific curriculum objectives and textbook content to TPACK-based strategies, thereby offering clear guidance for implementation. Fourth, institutional leaders should promote collaborative learning environments, mentorship, and digital resource-sharing to build a culture of innovation. Fifth, teacher education programs should include TPACK as a core component, ensuring that new teachers enter the profession with the skills needed to teach in technology-rich environments. Finally, policymakers should support equitable access to digital tools and connectivity, particularly in underserved areas, to ensure that TPACK can be implemented effectively across all regions. By addressing these recommendations, Myanmar’s education system can make significant progress in harnessing the power of TPACK to realize the goals of its English curriculum reform and improve the overall quality of teaching and learning.

**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.

References

Atakan, İ. (2019). Pre-service science teachers’ TPACK efficacy levels and technology integration quality: Application of TPACK-IDDIRR model (Master's thesis, Middle East Technical University).

\*Ball, D. L., Hill, H. C., & Schilling, S. G. (2008). Unpacking pedagogical content knowledge and measuring teachers' topic-specific knowledge of students. Journal for Research in Mathematics Education, 39(4), 372-400.

Brown, R. (2017). Technology integration in Grade-12 English. Educational Technology Research and Development, 65(4), 789-802.

Chen, J., Li, D., & Xu, J. (2022). Sustainable development of EFL teachers’ technological pedagogical content knowledge (TPACK) situated in multiple learning activity systems.Sustainability. <https://doi.org/10.3390/su14148934>.

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective teacher professional development. Learning Policy Institute.

Davis, S. (2020). Technology-enhanced learning in Grade-12 English. TechTrends, 64(2), 256-270.

Maor, D. (2017). Using TPACK to develop digital pedagogues: A higher education experience. Journal of Educational Technology. <https://doi.org/10.1007/S40692-016-0055-4>.

Endang, M. R., Endah, Y. R., & Nico, I. (2023). Technological pedagogical content knowledge (TPACK) in the instruction design of the participants in teacher profession education: A narrative inquiry case study. Jurnal Teknologi Pendidikan. <https://doi.org/10.31800/jtp.kw.v11n1.p312-327>.

Fullan, M. (2017). The new meaning of educational change. Teachers College Press.

\*Gough, D., Oliver, S., & Thomas, J. (2013). Learning from research: Systematic reviews for informing policy decisions. A quick guide. Retrieved November 2, 2013, from <http://www.alliance4usefulevidence.org/assets/Learning-from-Research-A4UE.pdf>.

Grade-12 English Textbook. (2023). Ministry of Education, Myanmar.

Grade-12 Teacher Guide Book. (2023). Ministry of Education, Myanmar.

Goradia, P. (2018). Meeting the demands of 21st-century skills: The shift towards digital pedagogies. International Journal of Educational Technology, 15(3), 234-245. <https://doi.org/10.1080/ijedutech.2018.1532345>.

Harris, M. (2019). Implementing differentiated instruction in secondary classrooms. Journal of Inclusive Education, 21(4), 210-225.

Isna, H., Nur, H. S., Nasrullah., & Puspitasari, W. S. (2023). Capturing technological pedagogical content knowledge (TPACK) implementation in English classroom: Necessity or responsibility? British Journal of Teacher Education and Pedagogy, 2(2), 26-35. <https://doi.org/10.32996/bjtep.2023.2.2.3>.

Johnson, R. (2017). Effective instructional strategies in secondary education. Journal of Educational Methods, 13(2), 89-102.

Jones, A. (2018). Understanding Grade-12 English content. Journal of Language and Literature Education, 5(3), 45-58.

\*Koehler, M. J., & Mishra, P. (2009). What is Technological Pedagogical Content Knowledge (TPACK)? Contemporary Issues in Technology and Teacher Education, 9(1), 60-70.

Lall, M. (2023). Overview of education in Myanmar. In International Handbook on Education in South East Asia (pp. 1-23). Springer Nature Singapore.

Lee, K. (2018). Assessment practices in secondary English education. Journal of Educational Assessment, 14(3), 110-124.

Michael, O. O., Carolyne, O., & Peter, L. B. (2022). Assessment of teachers’ technological and pedagogical knowledge of integrating ICT in teaching English in secondary schools in Nairobi County, Kenya. Scholars Journal of Arts, Humanities and Social Sciences. <https://doi.org/10.36347/sjahss.2022.v10i01.003>

Miller, J. (2018). Professional development for technology integration. Journal of Teacher Education, 29(1), 34-48.

Ministry of Education, Myanmar. (2016). National Education Strategic Plan 2016-2021. Ministry of Education, Myanmar.

Ministry of Education, Myanmar. (2020). Education reform agenda: Strategy and roadmap 2020-2030. Ministry of Education, Myanmar.

\*Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record, 108(6), 1017-1054.

\*Schmidt, D. A., Baran, E., Thompson, A. D., Koehler, M. J., Shin, T. S., & Mishra, P. (2009). Technological pedagogical content knowledge (TPACK): The development and validation of an assessment instrument for preservice teachers. Journal of Research on Technology in Education, 42(2), 123-149.

Smith, J. (2015). Teaching strategies in Grade-12 English curriculum. Journal of English Education, 10(2), 123-135.

Soe, H. Y. (2018). Challenges for the development of education in rural area of Myanmar. Bulgarian Journal of Science and Education Policy, 12(2), 289-302.

Thu, M. T. (2022). ICT skills and challenges faced by high school teachers of Inle Lake located in the Nyaungshwe township of Shan State in Myanmar. Journal of Green Learning, 2(1), 29-37.

Zaw, C. W., Oo, T. N., & Than, Z. N. (2019). Developing the factors for creating professional learning communities in basic education high schools. Journal of EducationalDevelopment.