

# Review of the Importance of Technological Pedagogical Content Knowledge in Teaching Reading Skills

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**Abstract** Malay Language subject is a medium of instruction at primary, secondary and tertiary levels in Malaysia education system. In learning and teaching of Malay Language as a formal language, students need to master the four skills of listening, speaking, reading and writing since elementary school. Though reading is an important skill that is able to improve learning motivation as well as language competency, the teaching approach for this skill is always far behind interactive and effective move. In order to facilitate the reading skills according to the need and interests of the present generation, the Malay Language teacher need to master (TPCK). To create an effective learning environment which is more fun and engaging or to enhance the creativity, innovation and stimulation of students related to reading skills it is essential and necessary for teachers to master the Technology Pedagogical Content Knowledge (TPCK) in order to create an effective learning environment which is more fun and engaging to enhance the creativity, innovation and stimulation of students. Therefore, review of information and disclosure of experiences related to TPCK in reading skills is essential and necessary as a reference material for the relevant parties.

**Keywords** Technological Pedagogical Content Knowledge (TPCK), Effective Learning, Reading Skills and Education

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## 1. Introduction

Reading skills are one of the components in teaching and learning of Malay Language as stated in the curriculums of schools in Malaysia. Reading is very important in the process of enhancing knowledge and improving the quality of one's learning. The minds and knowledge of people who are constantly reading will grow, be more open and understanding. According to Tamam, Zamri, Nik Mohd.

Rahimi, & Jamaluddin (2010); Yahya & Maszuraimah (2013), a study on reading processes is important to help students in increasing their knowledge. Reading also can develop knowledgeable and insightful generation. Therefore, literate society can make knowledge as a living platform.

Technological Pedagogical Content Knowledge (TPCK) is a theory design which has been introduced by (Koehler & Mishra, 2009). Basically, TPCK is knowledge of technology-related technology integration that must be balanced between content knowledge, pedagogical knowledge, and technology knowledge. The idea is derived from the concept of Content Pedagogical Knowledge (PCK) by Lee Shulman in year 1986 (Hashweh, 2014). Knowledge Relations Content pedagogy technology is also best used in language teaching because of its uniqueness.

## 2. Reading Skills in Education

Reading is a power to interpret and translate letters, words, and sentences into meaning (Serravallo, 2015). Meanwhile, Beers & Probst, (2012) and Beltramo & Stillman, (2015) have stated that there is a difference between speaking and reading, which means that speaking is the ability to hear words and reading is the ability to understand words. If reader only says the word, it is not considered to read completely until he or she understands what it is. Once a reader can translate the word into meaning, it is considered reading (Nelson, 2019).

Implementation of teaching under the Primary School Curriculum (KSSR) is a benchmark of 21<sup>st</sup> century education effectiveness as envisaged by the Ministry of Education since 2014, which is in line with the transformation of national education stated in the Malaysia Education Development Plan (2014-2025). The Education Ministry has positioned internet as important medium to aid knowledge exploration in the era of information-based information explosion.

Hence, teachers play a huge role to improve students' language skills. According to Wong & Nur Ain Elzira, (2018) language skills are fundamental and must be emphasized during the process of learning and facilitating (PdPc) in the classroom. As curriculum implementation agents, teachers need to be concerned with the objectives of current curriculum to enable the ministry of education to achieve its goals in educating the students with technology. This is line with The National Education Philosophy (FPK) that aims to develop students' individual potential of students as a whole and integrated physically, emotionally, spiritually and intellectually.

In language teaching and learning, listening, speaking, reading, and writing are skills that must be practiced (Kern, 2006). But, cross-curricular skills also have been emphasized in the Primary School Curriculum (KSSR) to enhance students' knowledge and self-esteem. The use of information technology is one of the cross-curricular skills that has been applied in the teaching of Malay language (Ministry of Education, 2015). In order to finish that, Malaysia Education Development Plan 2015-2025 has outlined three waves of Information and Communications Technology (ICT) in education. The First Wave (2013-2015) is to enhance the ICT base, where efforts are made to ensure that the basic ICT infrastructure and competencies are always available throughout the system, and not tied to any specific technology platform. This is to ensure that students and teachers have adequate access to ICT equipment, providing education system with sufficient learning platforms, and broadband networks and all teachers are competent in ICT (Radha, Noorizah, Kemboja, & Shahirah, 2017). Meanwhile, the Second Wave (2016-2020) is introduction of innovation in ICT.

The basis of innovation in education must be emphasized in shaping a progressive and innovative education system to drive change and progress (Noraini, Hani, Mahizer, Mohd, & Norazilawati, 2013). Innovation in education only succeeds if teachers are skilled and able to use the application in the teaching and learning process (PdPc). ICT is important to support teaching innovation. This issue has been explained through several other studies, so more attention is given to the role of teachers in technology integration, but technological knowledge alone is not sufficient to enable a teacher to master technology integration in the learning environment (Abbitt, 2011; Eady & Lockyer, 2013; Ozudogru, 2019). The 2013-2025 PPPM clearly states that Malaysia Ministry of Education (KPM) is exploring a range of innovations, particularly in terms of distance learning and self-directed learning that can be used to expand access to high quality teaching irrespective of the skill level or location of students. To address innovation in teaching and learning, teachers need to master the ever-changing technology and improve their knowledge. Teachers also need to practice culture such as reading and thinking during the PdPc proces (Yahya & Lailinanita, 2012).

### 3. Technological Pedagogical Content Knowledge (TPCK)

Technological Pedagogical Content Knowledge (TPCK) has been introduced by Mishra and Koehler (2006) based on the idea of content pedagogical content knowledge (PPK) by Shulman (1986). The PPK model introduced by Shulman (1986) has a component of content pedagogy and he stated that the content of a subject cannot be separated from pedagogy. Shulman, (1986) also emphasized that teachers need to master knowledge related to the subject matter and have pedagogical skills. Pedagogical components are the process and method of teaching and learning, while content component is the content of the subject in the syllabus which is being taught or learned (Eady & Lockyer, 2013).

Mishra and Matthew J. Koehler are the developers of TPCK framework (Mishra & Koehler, 2006). This theoretical framework involves three types of knowledge namely technology, pedagogy and content. All three knowledges are combined and form a new knowledge which is content technological pedagogical knowledge (TPCK). The basis for effective teaching by using technology requires the teacher's understanding to use appropriate technology, approaches and teaching techniques to convey the content of the lesson as well as students' existing knowledge. Researchers such as Aguinaldo, (2012); Atasoy & Aygun, (2016); Cherner & Smith, (2017); Norhiza, Zamri, & Wan Muna Razana, (2016) and; Papanikolaou, Makri, & Roussos, (2017) have argued that TPCK strives to address the complex nature, form, and knowledge of teachers involving content knowledge, pedagogy, and technology.

As a conclusion, there are seven constructs in the TPCK framework resulting from the complex interaction between three main knowledge constructs namely Content Knowledge (PK), Pedagogical Knowledge (PP) and Technology Knowledge (PT). The interaction of these three knowledges forms the other knowledge within the framework of the TPCK, namely Content Pedagogical Content (CPC), Pedagogical Technological Knowledge (PTK), Content Technological Knowledge (CTK) and Technological Pedagogical Content Knowledge (TPCK).

### 4. The Importance of TPCK in Teaching the Reading Skills

Koehler, Mishra, & Cain, (2013) defined technology knowledge as a wide range of technologies from low level such as pencil and paper, to digital technologies such as internet, interactive whiteboards, digital video, and program software. Furthermore, technology integration in teaching can enhance cooperative learning, curriculum integration, diversify learning strategies and styles, and improve teacher communication, community relations and

global learning (Aguinaldo, 2017; Blackwell, Lauricella & Wartella, 2016; Koehler & Mishra, 2009; Whitehead, Jensen & Boschee 2003; Bates, 2000). In the context of school education, the integration of technology in teaching will foster children's learning and facilitate teacher's teaching (Mourlam & Herring 2016; Sandra, Abu Bakr & Norlidah, 2013).

Studies on mobile learning also have received much attention and debate from many researchers. Most studies are conducted at the tertiary and secondary levels, and more focused on perceptions (Hwang & Tsai, 2011). Saipunizam et al, (2012) conducted a study which focused on application design for teaching Malay Language, but the application is still a temporary concept. While, study by Nuraihan and Zamnah (2012) showed that reading comprehension exercises delivered to mobile phones can improve student reading performance in Malay Language. The results of pre and post tests showed that overall student performance was better than others (Rosnani & Nor Mashila, 2017).

In addition to mobile learning facilities, the internet also allows users to access more reading material without needs to spend a lot of money to buy printed material. Access to unlimited information enables extensive reading. According to Tanaka & Stapleton (2007), widespread reading refers to large numbers of casual language readings by focusing on quantity rather than quality. This means that the method focuses more on the meaning of language rather than on language (Tran, 2006). These activities can help to improve the vocabulary and structure of one's language (Shen, 2008).

Knowledge of pedagogy is an in-depth knowledge of the process of teaching and learning including the purpose and value of education (Harris et.al.2007). Shulman (1987) pedagogical knowledge refers to knowledge of teaching principles and methods, which includes of classroom teaching and learning such as approaches, methods and techniques, strategies, curriculums and syllabus, testing and assessment, and recovery and enrichment. While Koehler and Mishra (2009) defined pedagogical knowledge about teaching methods and processes and involved the knowledge of classroom management, assessment, lesson plan development, and student learning environment.

Today's education demands that all teachers need to possess a wide range of pedagogical knowledge, skills, and attitudes. Whoever entitled as a teacher needs to provide themselves with knowledge, positive personality and effective teaching methods or pedagogical skills to attract students to learn. Every teacher must experience the most difficult part of the learning and preparation process (PdPc). A successful and effective teacher is a teacher with deep expertise in the field or subject taught (Zamri Mahamod, 2014).

Mishra and Koehler (2006); and Bonner (2001) have stated that pedagogical knowledge is a belief and

perception that influence the implementation of the curriculum, and reflect the teaching strategies used by teachers to implement the teaching. Teachers who do not have pedagogical knowledge may not be satisfied with their career because some of the factors that contribute to success teaching depend on pedagogical knowledge (Padmavathi, 2017; Blackwell, Lauricella & Wartella, 2016; Abdul Halim, 2014; Abd. Shatar, 2007; Schempp, Manross & Tan, 1998). Therefore, teachers are said to be more comfortable and enthusiastic in teaching the students their specialty because they are able to tailor the pedagogical knowledge by the variety of students' abilities and interests in related subject or to teacher teaching (Shulman, 1986).

Shulman, (1986) also argued that content knowledge is an understanding of subject as a discipline. He explained that content knowledge is a knowledge structure that incorporates the theories, concepts, and principles of a learning discipline or subject. Theories, concepts and principles are different from the elementary learning discipline, or the discipline of mathematics subjects is different from the language learning discipline. Therefore, to teach a subject, teachers need to have good and up-to-dated content knowledge (Koehler, Greenhalgh, Rosenberg & Keenan, 2017; Cherner & Smith, 2016; Abd Shatar, 2007; Yusminah, 2004).

Besides, content knowledge is a construct which represents an element that describes the aspects of teacher's understanding on the teaching subject before translating it into a classroom teaching and learning activity (Muhammad Hafizan & Anuar, 2017). Based on this statement, mastery of content knowledge also means that teachers need to master and have a good grasp of the topics to be taught before devising methods to present them to students (Hlas & Hildebrandf, 2010) to ensure accuracy of facts and clarity of content delivered on objective built-in learning.

According to Norashilah et al. (2013), the PCK approach requires teachers to deeply understand the concept of the subject's content which is taught. Shulman (1986) also emphasized that a teacher must clearly understand what he or she is teaching, and comprehend the reasons and facts behind what he or she is teaching. Teachers' understanding towards teaching knowledge areas is the most important aspect (Magdeline & Zamri, 2014) in teaching and learning process because mastery of content knowledge is a reflection of how a teacher influences the content of lesson in a way that students can easily understand (Muhammad Hafizan & Anuar, 2017).

Therefore, it can be concluded that content knowledge is the knowledge, information or mastery of the subject's content that he or she is teaching. The degree of mastery or depth of knowledge about the content of a subject is the most valuable and fundamental asset that every teacher in the teaching profession shall possess. The success of a teacher in producing quality teaching can be measured by

the possessed content knowledge because the mastery level of content knowledge is often distinguished by the effectiveness of teaching although similar teaching methods and strategies are used.

TPCK is a very important knowledge that requires all teachers to master it to teach effectively. This is because the TPCK is often linked to the ability and effectiveness of teachers in delivering the teaching content to students, and can be comprehended easily. Furthermore, teaching reading skills will be fun, engaging, enhance student creativity and innovation, and stimulate student learning. This is similar to Mishra and Koehler's (2006, 2008) opinion who stated that content technology knowledge is a pedagogical understanding of technology assisted teaching and teaching effectiveness based on a good understanding of the content of the subject.

## 5. Conclusions

Teachers with high level of knowledge are asset to the country in fulfilling the Ministry of Education's desire to strengthen the national education system into world class education. By mastering the teacher pedagogical content technology will determine the quality of teaching and directly influence the outcome of teaching. It can be concluded that teachers who master the content of Content Pedagogy Technology will be able to teach reading skills more effectively as the government suggests compared to teachers who do not have content pedagogical technology. Teacher exploration in Technological Pedagogical Content Knowledge (TPCK) consists of Technology Knowledge (TK), Pedagogical Knowledge (PK), Content Knowledge (CK), Content Pedagogical Knowledge (CPK), Content of Technology Knowledge (CTK), and Pedagogical Technology Knowledge (PTK). These elements will contribute in enhancing teacher's innovation and creativity.

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