THE TECHNOLOGICAL, PEDAGOGICAL AND CONTENT KNOWLEDGE (TPACK) OF TERTIARY LEVEL ENGLISH LANGUAGE INSTRUCTORS IN INTEGRATING TECHNOLOGY IN LANGUAGE CLASSROOMS

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ABSTRACT

Technology is now an integral part of education. It offers much potential to enhance teaching and learning not only in the classroom but beyond it, making education accessible via cyberspace. The significance of technology to education has been also recognised an integral part of the 10 shifts outlined by the Malaysian government in the National Education Blueprint 2015 – 2025 (Higher Education). The powerful potential of technology however, can only be realised through informed and purposeful use of it by teachers. Integrating technology in the language classroom requires that teachers not only have knowledge about the Technology but also the subject matter (Content), and how the subject matter needs to be purposefully delivered (Pedagogy). The interplay between these three components of knowledge – Technology, Pedagogy, and Content Knowledge (TPACK) determines the essential qualities of teacher knowledge that are required when teachers integrate technology in their classroom practices. This study is therefore designed to identify the TPACK bases of tertiary level English language teachers and determine their confidence levels in integrating technology. Data were collected through the use of questionnaire and interviews. Findings from this study inform pedagogical practices in integrating technology in English language programmes and enable language teachers to reflect on their classroom based instructional practices. The implications of these findings for classroom pedagogy are also discussed.

Field of Research: *technology integration, teacher education, TPACK, tertiary.*

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1. Introduction

The integration of technology in classroom activities has been considered important in transforming teaching and learning, and teachers play a vital role in its realisation. The emphasis on incorporating technology is an essential part of the 10 shifts outlined by the Malaysian government in the National Education Blueprint 2015 – 2025. In the field of English language teaching (ELT), technology integration offers much potential in supporting vocabulary development (Bytheway, 2015; Hitosugi, Schmidt, & Hayashi, 2014; Wilkinson, 2015), stimulating interaction to encourage language output (Dourda, Bratitsis, Griva, & Papadopoulou, 2014; Lockley & Yoshida, 2016), promoting collaboration in language learning to share, adapt, and create meaning (Bikowski, & Vithanage, 2016; Dooly & Sadler, 2016), and enhancing the learning of grammar for writing (Cornillie, Van den Noortgate, Van den Branden, & Desmet, 2017; Feng, Saricaoglu, & Chukharev-Hudilainen, 2016).

2. Teachers and Technology

Teachers play an indispensable role in leveraging the powerful potential of technology in classroom language learning particularly as they determine the learning needs of the students and how these needs can be approached through instructional activities. With rapid developments in technological innovations and the increasing potential of technology to enhance learning, teachers are increasingly expected to use it in their classroom teaching (Blake, 2016; Chun, Smith, & Kern, 2016; Godwin-Jones,

2016). However, language teachers have not always used technology in ways that can transform classroom pedagogy (Balchin & Wild, 2016). Their use of technology is often described as uneven or limited, largely used on the periphery or on ad hoc basis (Guichon & Hauck, 2011; Sarhandi, Khan, Buledi, & Asghar, 2016). Such use also indicates that while teachers have knowledge about the technology, they have limited understanding of how to integrate it in the classroom to transform pedagogy (Howard & Mozejko, 2015; Toetenel, 2014). This limitation prompted this study to investigate the knowledge of English language teachers and determine their confidence levels in integrating technology.

3. Teacher Knowledge Bases - TPACK

Integrating technology in the English language classroom requires that teachers not only have knowledge about the technology. This knowledge needs to relate to knowledge in the areas of pedagogy and content too which are important aspects of effective pedagogy. The interplay between these three components of knowledge – Technology, Pedagogy and Content Knowledge (TPACK) are thus, essential to enable teachers to integrate technology meaningfully in their pedagogical practices (Koehler & Mishra, 2009; Mishra & Koehler, 2006). This TPACK framework consists of seven components - Technology Knowledge (TK), Pedagogy Knowledge (PK), Content Knowledge (CK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), Pedagogical Content Knowledge (PCK), and Technological Pedagogical Content Knowledge (TPACK). The TPACK framework is illustrated in Figure 1.
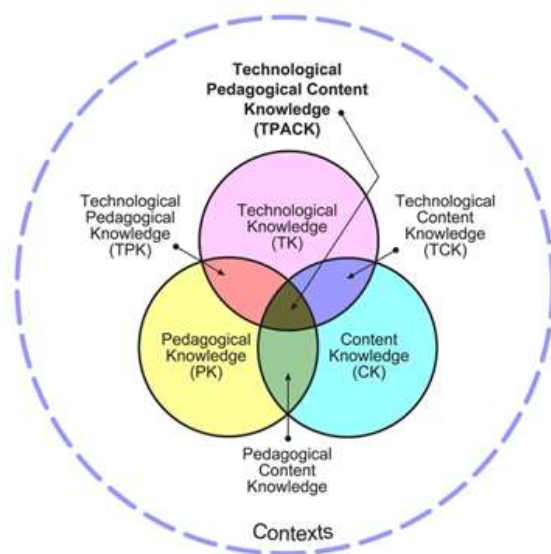

Figure 1 Technological Pedagogical Content Knowledge (Reproduced by permission of the publisher, © 2012 by tpack.org)

Since its inception, TPACK has been a burgeoning focus of research to explore how teachers' knowledge bases interact and relate to guide them to integrate technology in the classroom. A number of research studies have explored teachers' integration of technology using the TPACK framework.
Most recently, Reyes, Reading, Doyle, and Gregory (2017) investigated how lecturers on teacher education programmes at an Australian university perceived the impact of TPACK in their teaching practice. Koh and Chai (2017) conducted a study involving 27 primary school teachers in Singapore to investigate their TPACK in relation to the Design Knowledge (DK). The study was designed to identify aspects of TPACK they considered and the kinds of frame they used, and adopted when considering various features of the framework. Further, Anderson, Griffith, and Crawford (2017) explored preservice teachers' use of iPad apps based on the TPACK framework. The study which was participated by 14 teachers pursuing early childhood education in the area of special education, investigated the decisions they made and the combinations of knowledge they utilised in their decision-

making. The TPACK is thus, an important framework that that can indicate knowledge bases of teachers and determine areas in which teachers' knowledge bases can be further developed professionally.

4. Methodology

4.1 Sample and data collection method

A total of 83 tertiary level English language teachers from higher institutions of learning in Malaysia volunteered to participate in this study. Data were collected using an online questionnaire which was piloted. The instrument consisted of two sections – A and B. Section A elicited participants' demographic information -age, gender, academic qualifications, employment status, and years of teaching English language. Section B consisted of statements representing the TPACK components in the teacher knowledge bases. Participants were required to indicate their level of agreement to each statement based on a five-point Likert scale. The questionnaire was made available online and distributed to English language instructors at various institutions of higher learning in Malaysia.

4.2 Instrumentation

The research team surveyed a number of research articles related to this study that used the TPACK framework to investigate the knowledge based of various levels of teachers using technology, to identify a suitable research instrument. One study by Hosseini and Kamal (2012) which not only reviewed studies using TPACK- based questionnaire but also thoroughly reviewed commonly used items in the questionnaire from each component of the framework, was identified. The items for each TPACK component were selected based on their respective overall alpha readings as shown in Hossein and Kamal (2012). An item if deleted from the component caused a drop in the overall alpha value is deemed crucial for the component and was retained. Once the relevant items for each component were identified and compiled to be part of the instrumentation, the research team carried further analyses of the items to ensure that they fit the requirements a good item. A pilot study of the questionnaire was also conducted and the data derived from it were analysed. These findings indicated that further revisions of the items in Section A and B were unnecessary.

5. Findings and Discussion

Data obtained from this study was analysed descriptively and for validity and reliability. A total of 83 tertiary level English language teachers participated in this study. The mean age of participants was 40.60 (sd=9.23) while their mean years of teaching experience was 15.07 (sd=8.80).

5.1 Validity and Reliability Analysis

As for the seven components of TPACK (Section B), the items were assessed for validity and reliability of the scores obtained. The results indicated that the TPACK items were normally distributed. The correlations among the components revealed acceptable divergent validity with no coefficients reaching .90 or above similar to Hosseini and Kamal's (2012) study. All correlations are positive indicating that there is convergent validity towards the main construct being studied which is the knowledge bases of the teacher participants with regards to the use of technology in teaching. Also, the results from the analysis conducted also revealed that these teacher participants on average had low scores on the components involving technology. These components are TK, TCK, TPK, and TPACK.

6. Conclusion and Future Recommendation

While the findings showed that these teacher participants had the knowledge in the seven components of the TPACK, their confidence level with regards to technology were low. These findings were however, self-reported and as such further study is required to investigate their classroom practices in integrating technology. The findings also suggest that these teachers need further professional development specifically to increase their level of confidence in using technology for purposes of integration.

Acknowledgement

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