The Technological Pedagogical Content Knowledge (TPACK) of Foreign Language Teachers Who Teach IELTS

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Abstract: This paper describes a framework for teacher knowledge for technology integration called technological pedagogical content knowledge (originally TPCK, now known as TPACK, or technology, pedagogy, and content knowledge). The development of TPACK by teachers is critical to effective teaching with technology. The paper first introduces the seven components of TPACK and its framework, then designs a TPACK-level questionnaire for IELTS teachers and conducts a related data analysis. Finally, the article proposes strategies for the development of the TPACK level of IELTS teachers in China to provide a reference for the development of TPACK and teacher training for university teachers.

1. Introduction

Technological pedagogical and content knowledge (TPACK) presents a dynamic framework for describing teachers' knowledge required for designing, implementing, and evaluating curriculum and instruction with technology. TPACK strategic thinking involves knowing when, where, and how to use domain-specific knowledge and strategies to guide student learning with appropriate information and communication technologies. The TPACK model includes the three core components of pedagogical knowledge (PK), content knowledge (CK), and technological knowledge (TK). In addition, there are three first level hybrid components formed at their intersections, namely pedagogical content knowledge (PCK), technological pedagogical knowledge (TPK), and technological content knowledge (TCK). These combine into the second level hybrid component, technological pedagogical content knowledge (TPCK), which is the most complex type of knowledge. It relies on a creative combination and alignment of all the other previously mentioned knowledge domains.

2. Framework of TPACK

TPACK for IELTS Teachers is a dynamically evolving knowledge competency framework that integrates subject content knowledge, pedagogical knowledge, and specific technical knowledge based on the context of the discipline and IELTS teaching practices. Teachers should take into

account the characteristics of the students, the classroom environment (online or traditional classroom), the cross-cultural context, and other contextual content, as shown in Figure 1.
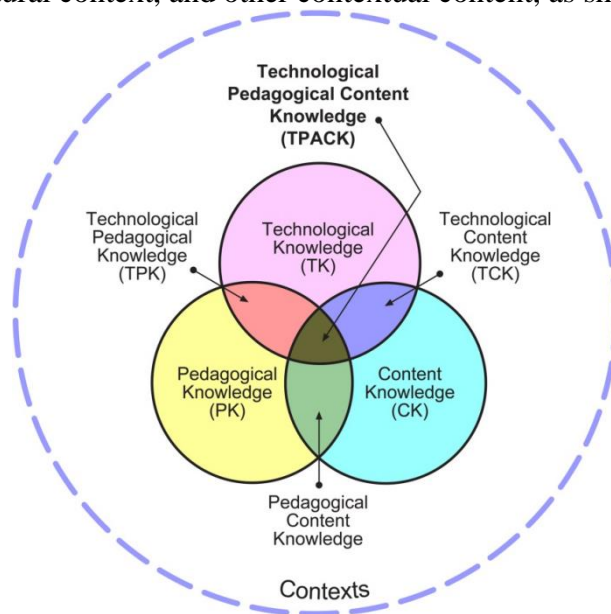

Figure 1: Framework of technological pedagogical and content knowledge

3. Purpose of the Research

Since the introduction of TPACK, numerous studies on TPACK have been implemented in teacher training programs worldwide. However, little research has been done on TPACK for IELTS teachers. This study contributes to this desideratum. Specifcally, a mixed-method research design is developed to examine the following research questions (RQ):

(RQ 1) What are the levels of IELTS English teachers' perceived TPACK, focusing on the technology dimensions (T-dimensions)?

(RQ 2) What are the challenges of teaching with technology faced by IELTS English teachers?

(RQ 3) How can IELTS English teachers better intergrate technology into teaching?

4. Research Context and Participants

The research team is interested in examining how IELTS teachers develop and apply technological pedagogical content knowledge (TPACK) in IELTS classrooms. As part of this research program, we constructed the IELTS Teacher Knowledge of Teaching and Technology survey to collect data on the level of IELTS teachers in seven knowledge domains within the TPACK framework.

Following the sampling norm of the case study, which is based on convenience sampling and maximum variation, we selected IELTS English teachers with different educational backgrounds and teaching experiences to be the subjects of the study, so that we can gain a more comprehensive understanding of the TPACK of IELTS teachers. Of the 10 teachers who completed the survey, seven were female and three were male..Four respondents have been teaching the IELTS for three years (1 - 3 years of service), three for 4 - 6 years, two for 7 - 9 years, one for more than ten years. The majority of teachers (60%) have a postgraduate degree, while 20% have PhDs, and the remainder have an undergraduate degree. The majority of the participants (80%) teach the IELTS in public or private universities or colleges and 20% tutor privately or teach in private tutorial centres. Pseudonyms were used in the study instead of the real names of all teachers and their basic

information is given in Table 1.

Table 1: Basic information of the Participants

NAME	GENDER	DEGREE	Years of teaching experience	Graduated from the school	Subject taught
Xin Jiang	Female	postgraduate	1–3 years	University of Leeds	IELTS LISTENING
Teng Li	Male	PhD	1–3 years	Wuhan University	IELTS WRITTING
Yan Wang	Female	postgraduate	more than ten years	University of Edinburgh	IELTS SPEAKING
Jiaming Zhang	Male	postgraduate	1–3 years	University of Leeds	IELTS READING
Meng Hu	Female	undergraduate	4–6 years	Jiangxi Normal University	IELTS LISTENING
Liyang Cao	Female	postgraduate	4–6 years	University of Edinburgh	IELTS WRITTING
Ruoyao Zeng	Female	undergraduate	7–9 years	Nanchang University	IELTS SPEAKING
Yongyue Gu	Female	postgraduate	1–3 years	University of Leeds	IELTS READING
Ying Cai	Female	PhD	4–6 years	Fujian Normal university	IELTS READING
Haoming Zhong	Male	postgraduate	7–9 years	Monash University	IELTS SPEAKING

We conducted a quantitative survey using a questionnaire with closed-ended questions. The survey used a sample of 10 teachers who had taught IELTS. The questionnaire consisted of 25 questions about TPACK and is based on the survey instrument developed by Schmidt et al. (2009). All questions are related to the three key domains as described by the TPACK framework (technology, pedagogy, content and the combination of each of these areas). The 25 questions in the questionnaire are divided into questions about CK (4 questions), TK (4 questions), PK (4 questions), PCK (2 questions), TCK (4 questions), TPK (4 questions) and TPACK (3 questions). In addition to the survey instrument, participants filled out a questionnaire with 16 questions, all concerning the specific subject (IELTS). Some of these responses were evaluated and used in this study.

5. Results

5.1. IELTS Teachers TPACK Level Analysis

The study data was derived from questionnaires, semi-structured interviews with participants, classroom observations, and analysis of teaching materials. The team performed a descriptive analysis of the data. The results of the analysis showed that the mean values of the dimensions of IELTS teachers' TPACK were ranked from highest to lowest as TCK>CK > PCK > PK > TPK > TK > TPACK (Table 3), the levels of PK and TCK were higher, and the levels of TK and TPACK were lower. As most of the teachers in this study were short-tenured and inexperienced, PK levels were lower overall. While high levels of TCK indicate that IELTS English teachers are able to use IT to better represent subject content knowledge, low levels of TK and TPACK suggest that IELTS English teachers are weak in technical knowledge and unable to integrate IT and ELT effectively.

5.2. The Challenges of Teaching With Technology

According to the study, many IELTS English teachers find integrating technology into their teaching quite challenging. Teaching, as educators know, is a complex practice that requires the interweaving of many kinds of specialized knowledge. Teachers practice their craft in highly complex, dynamic classroom contexts that require them constantly to shift and evolve their understanding [1]. Thus, effective teaching depends on flexible access to rich, well-organized and integrated knowledge from different domains [2]-[5], including knowledge of student thinking and learning, knowledge of subject matter, and increasingly, knowledge of technology. The truth is that teachers face a variety of challenges in real practice. Teaching with technology is further complicated by the challenges presented to teachers by newer technologies.

5.2.1. Lack of Professional Training

Increasingly, new and advanced educational technologies are emerging every day. Teachers need to be able to know not only how to get the most out of each new tool themselves, but also how to train their students in its use. Teachers need opportunities to learn about more than the right boxes to click on. They need help to integrate these new tools into the curriculum in ways that will improve outcomes. According to the study, 65 percent of teachers reported that they only knew how to use the basic parts of the program. Eighty percent of teachers reported that they did not receive adequate training before incorporating new technologies into their classrooms. While professionally training teachers, staff and support staff may require time and money, it is necessary if students are expected to derive desired effects from their technical experience.

5.2.2. Resistance To Change

According to the study, 4 out of 10 teachers demonstrated resistance to change and unwillingness to adopt educational techniques. However, the study has also shown that this resistance is not due to teachers' dislike of technology. Rather, it is partly because teachers see learning a new teaching tool as a risky approach for which they are not adequately trained. This is also partly because their school administrators have not presented a united front by highlighting which specific tools can have a positive outcome for their students. While such resistance to change can be difficult to overcome, working with teachers to support them in adopting new educational technology can help make them more likely to embrace it.

5.2.3. The Failure of Personalized Learning

Education technology was supposed to make it easy to identify each student's learning style and pace and then match it to appropriate content. The unfortunate truth is that nearly 90 percent of the teachers in the study advised that they had not found the right tools to accomplish that vision. Moving away from a one-size-fits-all approach to teaching requires a change in perception and practice. How to find the right tools, and how to make the best out of the tools to maximize the learning efficiency of each student, is something worth exploring.

5.2.4. No Systems In Place To Utilize Technology In Curriculum

Although granting teachers access to tablets and smartboards may help boost their comfort with education technology, three participants admitted that they simply don't have a clear clue about how they can best utilize technology in their curriculum. Indeed, the way a foreign language teacher utilizes laptops in the classroom may be very different than the way a math teacher utilizes a

smartboard. It will most likely take a lot of trial and error and experimentation to bring their lesson plans up to date. A major challenge in the adoption of new tools is to provide teachers with the guidance they need to make educational technology work for them in their particular classrooms.

6. How do IELTS teachers intergrate technology into teaching?

Faced with these challenges, how can teachers integrate technology into their teaching? Utilizing technology and implementing technology into lesson plans can ensure a more interactive classroom experience. Technology helps transform the student/teacher role and relationship: students take responsibility for their learning outcomes, while teachers become guides and facilitators. Integrating technology into the classroom, however, can seem challenging for some educators. Based on the findings, this paper proposes three ways to integrate technology into the classroom to enhance TPACK for teachers.

6.1. Making Use of the Gamify Learning Experience

Gaming has become a huge part of students' lives. Gamification of learning is a valuable strategy to pursue, both at home and in the classroom. Why? Students want to engage in learning in new and exciting ways, and a gamified learning experience can do just that. For example, teachers can conduct digital scavenger hunts in the classroom by challenging students with fact-finding questions that they need to complete online. This is an excellent way to incorporate technology into the learning experience by making a game out of it. Not only do students learn how to research material online, they also stay engaged.

6.2. Develop a Class Website

There are many fun ways to incorporate technology into the classroom, but none are as exciting for students as developing a class website. Students are often mystified by the power of the Internet, and being online can be a serious eye-opener for them. The aim is to do this as a class in order to engage everyone, so that everyone is involved from start to finish. A class Web site is also valuable for parents and education administrators to see what's going on in the classroom and how each student is developing. This is another technology-inspired learning asset.

6.3. Create a Classroom Blog

Creating a classroom blog is an excellent way to inspire students and keep them engaged in classroom activities. For example, a teacher could start a blog with a title, topic, and introductory paragraph. Then each student will add a section while staying on topic and true to the overall blog story. Once published, students can read it all, listen to it and share it with their parents. It is interactive in the classroom and also takes the learning experience home.

7. Conclusion

Technology is increasingly taking center stage in today's classrooms. More and more teachers and students are embracing it and using it almost on a daily basis. This is definitely good news, the power of technology is being leveraged to advance education. But rather than using technology for its own sake, we want to turn it into a transformative force, a catalyst for profound learning experiences in and out of the classroom. To do so, teachers need to familiarize themselves with technical knowledge, subject content knowledge, and pedagogical knowledge to maximize learning

outcomes in the classroom.

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