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Exploring the TPACK of Chinese EFL teachers: the effects of multicultural teaching experiences

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Abstract: *In this study, we adopted a quantitative method to explore EFL teachers' TPACK through the mediation of different teaching experience. Results suggest a statistically significant superiority of EFL teachers with multicultural teaching experience in terms of overall TPACK as well as TK. Second, teachers who have multicultural teaching experience tend to rate their TPK, TCK, PCK positively compared to their counterparts. This study sheds light on how diverse teaching experiences mediate EFL teachers' TPACK, and also adds to the existing literature by viewing teachers' TPACK and experience in a contextually as well as culturally oriented means.*

Keywords: *EFL,teaches, TPACK, knowledge,technology*

1. Introduction

Technological pedagogical content knowledge is a significant predictor of the success of EFL teachers' technology implementation [1], which is grounded in the interplay of the three components: technology, pedagogy, and content [2]. One problem faced by teachers is the lack of support where they can be equipped with the proper knowledge for domain-specific decision-making in technological integration by engaging with when, where, and how [3]. It is argued that competent technology integration is predicated on the considerate aligning of content, pedagogy, and technology [4]. As noted by Koehler et al. [5], TPACK is concerned with the dynamic transactional engagement with content, pedagogy, and technology. And good teaching with technology lies in the mutually-reinforcing alignment of all three elements that construed altogether to craft contextualized strategies and representative solutions. Thus, TPACK is believed to be critical to the effective technology implementation as it addresses the alignment of three domains' knowledge by providing a framework [6].

2. Literature review

2.1 Technological Pedagogical Content Knowledge (TPACK)

Technological Pedagogical Content Knowledge (TPACK) prescribes the knowledge needed for effective teaching mediated by technology [7], which further develops the PCK framework of Shulman [8] [9]. Differing from previous educational technology frameworks, TPACK pioneers a contextualized lens through which to view how the effective implementation of technology diversifies under different circumstances [10].

As explicated by Figure 1, TPACK framework refers teaching with technology to the engagement of multiple elements: Technology Knowledge (TK), Pedagogy Knowledge (PK), and Content Knowledge (CK), with four further-developed components drawing on the prior elements: Pedagogical Content Knowledge (PCK), Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and Technological Pedagogical Content Knowledge [7]. TK is concerned with teachers' technological implementation; PK pertains to knowledge related to approaches and processes in teaching; CK involves subject-specific and content-related knowledge. Moreover, PCK posits the effort of delivering content-specific instructions effectively; TCK addresses the presentation of content through technology implementation; TPK concerns the ability to employ technology in pedagogical activities for the stimulation of learning; TPACK refers to the employment of technology for crafting effective representation of subject-specific content by taking into consideration the transactional relationships between technological, pedagogical, and content knowledge [7].

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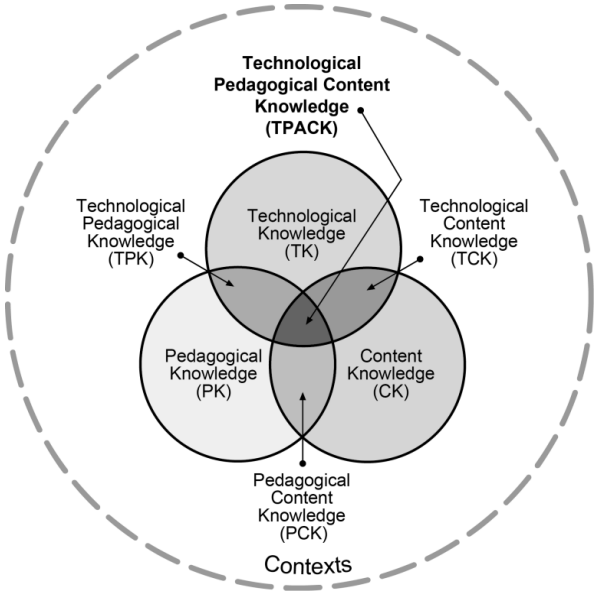

Figure 1. TPACK framework (source: http://tpack.org/).

Continuing the line of research that explores EFL teachers' TPACK, a number of research has been concerned with the relationship between EFL teachers' TPACK and their technology integration under various context. According to the findings of a study conducted in Taiwan [11], knowing more about TPACK, especially TK, contributes greatly to the utilization of technology. Moreover, it was reported that EFL teachers' TPACK was more concerned with its motivational effects on students, and less engaged with constructing meaningful and authentic language learning experience for students. Similarly, Kwangsawad [12] explored Thai English teachers' TPACK in his study, in which levels of TPACK were reported to be high, suggesting a rather high competency of teachers in practicing technical skills and knowledge. Regardless of the self-reported level of ability to teach with technology, EFL teachers were generally uniform in agreeing that TPACK is important as it carries great potential in promoting their professional development and enhancing their language teaching process [13].

Despite the significance of context in the TPACK framework, it is often ignored or sidelined in research that concern TPACK [14]. In addition, it seems that the meaning of context vary considerably according to previous description, ranging from teachers' epistemological beliefs, classroom to institutional resources (Porras-Hern andez & SalinasAmescua, 2013). Among contextual factors that have a bearing on TPACK, research concerns teaching experience has yielded mixed results. Investigating in-service teachers' TPACK associated with web-based knowledge, Lee and Tsai[15]'s research reported that less experienced teachers rated their TPACK higher than more experienced teachers. On the other hand, Jang and Tsai [16] conducted a study among elementary science and mathematics teachers, and revealed an opposite result, that there was a positive relationship between teachers' experience and their perceived TPACK. However, this line of research has been mostly concerned with the comparison between experienced teachers and novice teacher. Equating experienced teachers to teachers with longer teaching period and referring teaching experience to monolithic component that is subject to tangible measurement, these research posit a rather superficial perspective on teachers' TPACK in which teacher's complex and multifaceted experience is only viewed longitudinally in terms of length of time.

Given the discussion above, this study has formulated our research questions as stated below:

1) Does the TPACK of EFL teachers differ according to teaching experience?

2) How does an EFL teacher's TPACK level mediate by their multicultural teaching experiences?

3. Instrument and data collection

In this current study, quantitative method was employed to address the research questions. To the end of evaluating EFL teachers' TPACK with different teaching experience, we developed a survey drawing upon the questionnaire that originally invented by Ali Bostancıoğlu & Zoe HandleyCheng [17] because it conforms to the EFL background. All survey items were measured by implementing a

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five-point Likert scale (1 for strongly disagree to 6 strongly agree), including 14 TK items, 15 PK items, 9 CK items, 9 TCK items, 8TPK items, 11 PCK items, 9 TPACK items. Meanwhile, we conducted independent t-tests with the help of SPSS 25.0 to examine the difference between the TPACK of two groups of EFL teachers.

4. Participant

A small sample of six EFL teachers was selected for this study. All of participants graduated from Tianjin Normal University in China and majored in teaching English as a foreign language(TESOL). While choosing participants, we took their teaching experience into consideration and categorized them into two groups of participants: one group with multicultural teaching experience, and the other one with rather single language teaching back ground.

5. Results

Table 1. Descriptive statistics for EFL teachers' TPACK Means, standard deviation

Component	Number of items
TK	14
PK	15
CK	9
TCK	9
TPK	8
PCK	11
TPACK	9

Table 2. Means, standard deviation, and t-test on TPACK by teaching experience

	Means±standard deviation		t	p
	A(n=3)	B(n=3)		
TK	5.13±0.23	3.33±0.29	8.433	0 .001**
PK	4.87±0.81	4.83±0.96	0.046	0.966
CK	4.87±0.06	4.77±0.46	2.605	0.817
TCK	5.57±0.51	4.00±1.00	2.414	0.073
TPK	4.00±1.00	3.33±0.58	1.000	0.374
PCK	4.73±0.64	3.97±0.06	2.057	0.174
TPACK	5.30±0.36	3.67±0.58	4.156	0.014*
* p<0.05 ** p<0.01				

The figure presented in Table 2 shows the results of an independent T-test comparing the TPACK of EFL teachers with multicultural teaching experience and EFL teachers with single teaching experience. It can be seen that, the results indicated statistical significance in overall TPACK according to teaching experience, and EFL teachers with multicultural teaching experience tend to rate their overall TPACK higher than teachers with single teaching context. As regards each sub-component, teachers with multicultural teaching experience rate their TK significantly higher than teachers with a single teaching experience. In addition, teachers with less teaching experience engaging with multiple contexts tend to rate their TPK, TCK, PCK lower than teachers with more diversified teaching experience, while the difference was not statistically significant. When it comes to CK and PK, the two groups of teachers exhibited nearly the same level of self-rating.

6. Discussion and conclusion

Overall, this current research yielded the following major findings: (i) there was a statistically significant superiority of EFL teachers with multicultural teaching experience in terms of overall TPACK as well as TK. A possible interpretation for this may be the argument of Friedrichsen et al. [18], that experienced teachers often perform better in combining knowledge of content and pedagogy due to

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their opportunities to acquire knowledge through practical teaching experience, while novice teachers are still working on their skills and knowledge. In this case, in spite of the similar length of teaching profession of the two groups of teachers, the teachers with rich multicultural teaching experience boast more breadth by engaging with more diversified environments and objects. They can be considered as more experienced from this special angle. (ii) teachers who have multicultural teaching experience tend to rate their TPK, TCK, PCK positively compared to their counterparts. Although the differences were not that significant. (iii) There were no difference between two groups of teacher in terms of their CK and PK.

This study contributes to the research on TPACK by lending new insights into the relationship between EFL teachers' TPACK and teaching experience. Instead of limiting the understanding of teaching experience to the length of time, we strive to allow for a more critical analysis of teachers' TPACK by teasing out the dimension of multicultural teaching experience.

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