A Study on the Correlation Between TPACK and Teaching Belief of Middle School English Teachers in Lhasa

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Abstract: This paper adopts a combination of quantitative and qualitative research methods, mainly discussing the current situation of TPACK and teaching beliefs of English teachers in Lhasa middle schools, and the correlation between them. The results show that the overall level of TPACK and teaching beliefs of middle school English teachers in Lhasa is relatively reasonable, but the development of each dimension is not balanced. Middle school English teachers' TPACK is moderately correlated with teaching beliefs.

Keywords: TPACK; Teaching Belief; Correlation

1. Introduction

With the gradual development of information technology education, the topic of teacher TPACK has been increasingly concerned. On the one hand, informatization enriches English teaching resources and improves teaching efficiency, on the other hand, it also puts forward new requirements for English teachers' informatization teaching ability. The English Curriculum Standards for Senior High School (2017 Edition) clearly puts forward the idea of "paying attention to the application of modern information technology and enriching the learning resources of English curriculum", requiring teachers to use modern information technology in the teaching process, and give full play to the support and service functions of modern education technology for teaching. For individual English teachers, the rational application of modern scientific and technological means in language teaching is not only a response to the higher requirements of the information society on subject teaching, but also an effective way to achieve student-centered education, which is of great significance for career development and teaching promotion.

Although many schools are equipped with multimedia equipment, teachers' teaching beliefs are still limited by tradition and lack the integration ability of information technology knowledge and subject teaching knowledge. In addition, the research shows that teachers' beliefs are the key factor affecting teachers' teaching behavior, and teachers' beliefs about the application of information technology in teaching are likely to affect their TPACK level. Therefore, it is necessary to reveal the correlation between the two, and consider specific strategies to improve teachers' TPACK level from the perspective of teaching beliefs.

2. Literature Review

TPACK is a knowledge framework proposed by Koehler and Mishra on the basis of Shulman's pedagogical knowledge (PCK) and combined with technical knowledge to describe teachers' understanding of the interaction between technology, content and pedagogical methods, and guide them to choose appropriate technical means to teach the content of the subject. Its knowledge framework mainly covers three single elements: content knowledge (CK), pedagogical knowledge (PK), technical knowledge (TK). There are four composite elements, namely, pedagogical content knowledge (PCK), Technological Pedagogical Knowledge(TPK) technical content knowledge (TCK) and technical pedagogical content knowledge (TPACK), which are characterized by comprehensiveness, situational and dynamic.

The academic community has not yet formed a unified definition of teachers' teaching beliefs. But they all involve

teachers' cognition, opinions and judgments of curriculum, teachers, students and other elements. This study is mainly based on Pajares' definition of teaching beliefs, that is, teachers' views on curriculum, teaching, teachers and students and other factors formed in educational practice and educational situation. On this basis, combined with the current research issues, form the teaching beliefs of English teachers, whose connotation is the understanding of English language, English curriculum, English teaching, teacher-student relationship and classroom technical means generated by English teachers based on their own English teaching experience and working situation. English teachers' teaching beliefs include English language beliefs, English learning beliefs, English textbook beliefs, English teaching beliefs, teacher-student role beliefs and teaching environment beliefs.

3. Research Design

This study aims to answer the following three questions: (1) What is the current situation of TPACK for middle school English teachers in Lhasa? (2) What is the current situation of teaching beliefs of English teachers in middle schools in Lhasa? (3) What is the correlation between TPACK dimensions and teachers' teaching beliefs as a whole?

This study adopts a combination of quantitative and qualitative research methods, and uses the "TPACK Questionnaire for Middle School English Teachers" and the "Teaching Belief Questionnaire for Middle School English Teachers" (Zheng Xiaoying, 2021), taking the middle school English teachers in Lhasa as the research object.

4. Research Result

It can be seen from Table 4-1 below that the average TPACK-G of middle school English teachers is about 3.56. In all dimensions, teachers reach the highest TK level, about 3.81. The level of TPK and TPACK-S is the lowest, only 3.25 and 3.34 respectively. Knowledge dimensions that exceed the total TPACK-G mean include TK, PK, CK and PCK. In addition, compared with the composite knowledge dimension, teachers'   level of the individual knowledge dimension is relatively higher. TK is the single knowledge dimension that teachers master best, and PCK is the composite knowledge dimension that teachers master best.

Table 4-1 Total and average value of TPACK of English teachers in Lhasa

	N	M	Std.error	Std.Deviation	Var
TK	125	3.8053	0.7498	.83835	.703
PK	125	3.6920	.06781	.75911	.575
CK	125	3.6500	.07715	.86253	.744
TPK	125	3.2480	.07951	.88890	.790
TCK	125	3.5067	.07260	.81165	.659
PCK	125	3.7060	.07389	.82615	.683
TPACK-S	125	3.3360	.06968	.77908	.607
TPACK-G	125	3.5634	.06079	.67971	.462

The above table shows that the information technology used by teachers in English classes is rich and varied, including text, charts, videos, etc. However, the relationship between information technology and subject content knowledge is not close enough. It often pays attention to the form and ignores the content, and turns the classroom into a simple information technology display.   The educational purpose and effect of information technology in the classroom are single, and the role of technology in the field of education is not fully played.

It can be seen from Table 4-2 below that the average value of the overall teaching beliefs of English teachers in Lhasa middle schools is 3.93. Among all the dimensions of teaching beliefs, the teachers' English textbook belief is the highest, about 4.12, and the English learning belief is the lowest, only 3.49. The average value of the other dimensions is around 4.00, which is basically the same.

Table 4-2 Overall and average values of teaching beliefs of English teachers

	N	M	Std.Deviation	Var
English language	125	3.9120	.71234	.507

beliefs				
English learning beliefs	125	3.4880	.82663	.683
English teaching beliefs	125	4.0640	.98164	.964
English textbook beliefs	125	4.1227	.73022	.533
teacher-student role beliefs	125	4.0680	.80908	.655
teaching environment beliefs	125	3.9413	.65728	.432
GTB	125	3.9327	.60276	.363

As shown in Table 4-3, the P value is 0.000, which is lower than the standard value of 0.01, so there is a significant correlation between the two. The correlation coefficient between TPACK and teaching belief is 0.677, which is between 0.4 and 0.7, it shows that TPACK is positively and moderately correlated with teaching belief as a whole.

Table 4-3 Correlation between TPACK and teaching belief

		TPACK-G	GTB
TPACK-G	Pearson Correlation	1	.677**
	Sig. （2-tailed）		.000
GTB	Pearson Correlation	.677**	1
	Sig. （2-tailed）	.000	

5. Discussion

The overall level of TPACK of middle school English teachers in Lhasa is relatively good, but the development of various dimensions of knowledge is uneven, and the composite knowledge is weaker than the single knowledge. Compared with compound knowledge TPACK-S, TCK and TPK, TK, CK and PK knowledge dimensions develop better. Among them, the most prominent single knowledge dimension is TK, and the level of PCK is higher than other composite knowledge dimensions.

The overall level of teaching beliefs of English teachers in Lhasa Middle School is reasonable as well, and teachers have a correct understanding of themselves and elements such as language, curriculum, students, teaching and teaching materials. However, the development of each dimension is uneven, among which the belief in English textbooks is the best, while the belief in English language, English teaching, teachers and students' role and teaching environment are basically the same. English learning beliefs are the weakest, which shows that teachers seldom consider problems from the perspective of students and lack thinking about "what to learn", "how to learn" and "why to learn".

The TPACK of English teachers in middle schools in Lhasa has a moderate positive correlation with their teaching beliefs as a whole.Teachers with good teaching beliefs tend to improve their teaching skills more actively and develop their TPACK knowledge in teaching practice. On the other hand, the improvement of teachers' information-based teaching skills will also promote the improvement of teachers' teaching beliefs. Therefore, teachers need to effectively combine technical knowledge and teaching content knowledge, and effectively play the educational auxiliary role of information technology.

6. Implication

The opening of information technology courses in pre-service training institutions is conducive to the preparation of pre-service teachers to adapt to information teaching and help to improve teachers' in-service information teaching ability. In the pre-service training course, pre-service teachers should learn how to use and choose information technology, and should combine with the actual teaching situation and educational theory.

Providing opportunities for teachers' in-service training, and guiding teachers to pay attention to the value of new problem situations in the process of technology and teaching integration is great important. The problem situation is an opportunity to promote teachers' learning and TPACK development, which can help teachers to deeply reflect on their own thinking and behavior habits, and achieve cross-border learning and even "double-loop learning" through various ways, thus forming new understanding about education and teaching.

Schools should create a good teaching and learning atmosphere, encourage teachers to improve their teaching beliefs in the process of teaching, and at the same time, schools should actively adapt to the educational form brought by information technology. Schools need to fully and deeply integrate information technology into the whole process of talent training, improve the talent training system as a whole, systematically promote in-depth reform in teaching environment, teaching resources, teaching methods, evaluation methods, management services, teaching culture and other aspects, help teachers clarify the relationship between teaching and technology, establish correct education concepts, and form the internal driving force of TPACK's self-development.

In the process of teaching practice, teachers should form their own unique information-based teaching concept, encourage teachers to share information-based teaching experience, and carry out various activities to give teachers a platform and opportunity to study teaching together. Through this method, teachers can participate in excellent teaching case demonstration, expert on-site evaluation and other activities that are conducive to in-depth learning of TPACK.

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