# Investigation on Current TPACK of English Teachers in Private Universities Against the Background of "Internet plus"

Xiaoru Gou

College of Education

Xi'an FanYi University

Xi'an, China 710105

*Abstract*—**With Xi'an FanYi University as an example, this paper explores the status quo of TPACK knowledge structure of English teachers in private universities in combination with qualitative and quantitative analysis, based on questionnaire survey and supplemented by interviews and classroom observations; and it also analyses the deficiencies in their knowledge structure, so as to optimize the knowledge structure of English teachers in private colleges and universities, promote the development of information-based teaching ability against the background of "Internet plus", and to further realize the vocational sustainable development of English teachers in private colleges.**

*Keywords—against the background of "Internet plus"; English teachers in private university; TPACK knowledge structure*

## I. INTRODUCTION

In the 1980s, a teacher only equipped with the pedagogical content knowledge (PCK) was qualified to serve as an excellent educator.. But after entering the 21st Century, with the increasing connection between information technology and educational field, mobile network and online courses and so on constitute the modern information teaching ecosystem with "Internet plus" as the core. The traditional PCK framework has been unable to fully elucidate the professional knowledge and literacy that teachers should possess in their implementation of effective teaching under the information-based education environment. Many scholars have put forward new theories and ideas to integrate information technology and subject teaching. In 2005, Professors Punya Mishra and Matthew J. Koehler of the University of Michigan put forward the technological pedagogical content knowledge (TPCK) on the basis of Schulman's pedagogical content knowledge (PCK) and pointed out that attention should be paid in the teaching process to not only the three knowledge elements of subject content (CK), pedagogy (PK) and technology (TK), but also the interaction among them. Such interaction will form four kinds of new knowledge, namely pedagogical content knowledge (PCK), technological content knowledge (TCK), technological pedagogical knowledge (TPK) and technological pedagogical content knowledge (TPCK). They think that TPCK framework includes the above-mentioned seven elements. Later they rename it as TPACK, meaning Total PACKage.

Against the background of "Internet plus", college English teachers cannot satisfy the demands of classroom teaching if they have only simple English knowledge. In order to meet the needs of the current society and teaching reform, college English teachers should timely adjust, constantly improve and develop their knowledge structure, so as to better meet the new development requirements. However, currently the introduction of talents in colleges and universities is mainly based on the investigation of three aspects: education background, scientific research and specialties. Taking private colleges in Shaanxi Province as an example, most English teachers are English majors who either have a bachelor's degree or a master's degree. They lack knowledge of education and teaching because they have not been specifically trained for teachers. Moreover, the graduates of English major have too single knowledge to meet the diverse learning needs of learners in the "Internet plus" era. In addition, some English teachers cannot effectively integrate information technology with English teaching, but only simply add information technology in the process of English teaching. It is common to see that teachers depend too much on multimedia, e.g. they change the teaching method from "chalk plus blackboard" into "computer plus large screen projection", and change teachers' "oral-type instillation" into technical "multimedia-type instillation"; and network teaching platform is only the place where teachers arrange courseware; mixed teaching is only formal, teachers do not give full play to the advantages of mixed teaching, and the desired effect cannot be achieved..

Faced with the problems existing in the teaching process of college English teachers and the challenges faced by college English teachers against the background of "Internet plus", that is, how to make use of various forms of educational technology to promote students' learning, teachers must acquire and develop the teaching knowledge of subject integrated with technology. Therefore, it is imperative to explore current TPACK of college English teachers. In view of this, this paper chooses the foreign-language-characterized private university — Xi'an FanYi University as an example; according to Professor Mishra and Koehler's definition of the

concept of TPACK, that is, the TPACK framework includes seven elements: PK, CK, TK, PCK, TPK, TCK and TPACK. This paper explores the structure of TPACK of English teachers in private universities by means of qualitative and quantitative analysis, based on questionnaire survey and supplemented by interviews and classroom observations, and analyses the deficiencies in their knowledge structure, enhancing strengths and circumventing weaknesses, and further explores the ways to optimize the knowledge structure of English teachers in private universities, providing a feasible reference for private college English teachers who consciously make up relevant knowledge in teaching life, and guiding their future teaching, so as to promote teachers' professional development, especially the development of information-based teaching ability against the background of "Internet plus".

## II. CURRENT DOMESTIC AND FOREIGN TPACK RESEARCH

Foreign researches on TPACK mainly focus on macroscopic problems in the early phase, but as the research is gradually deepening, the research turns to the definition of microscopic concepts under the TPACK framework and the settlement of microscopic teaching problems based on the TPACK framework. As far as the research contents are concerned, they mainly focus on five aspects: TPACK ontology research, TPACK cultivation strategy research, TPACK measurement method research, teacher cultivation research based on TPACK framework, and information technology and course integration research based on TPACK framework. Generally speaking, there are relatively few discipline-institutionalized researches on TPACK theory abroad.

Domestic research on TPACK is relatively late, which is mainly reflected in three aspects: the review of current domestic and foreign TPACK research and the discussion of its development trend, the empirical research on TPACK, and the development of teachers' professional literacy and the training mode based on TPACK framework. Empirical research on a subject mainly focuses on the science and mathematics courses at the stage of basic education, but the research on TPACK of English teachers is relatively few.

From the collation of the above-mentioned domestic and foreign relevant research, a few TPACK researches take college teachers as the research object and even fewer TPACK researches are directed at college English teachers. The existing relevant research samples are much smaller and the methods are single. Therefore, this paper attempts to analyze and realize the current structure of TPACK of English teachers in private university, and analyzes their deficiencies in the knowledge structure of TPACK. The reason for choosing Xi'an FanYi University is that the research on TPACK of English teachers in private university has certain representativeness as it is characterized by foreign languages and has a relatively large proportion of English teachers.

## III. RESEARCH DESIGN AND RESULT ANALYSIS

### A. Research Objects and Tools

This research chooses the full-time English teachers of Xi'an FanYi University as the subjects, sends out a total of 150 questionnaires, collects 123 valid questionnaires, and randomly selects 100 questionnaires as the subjects. The questionnaire draws Professor Wang Qi's five-level scale (this questionnaire has good reliability and validity after testing). On this basis, this questionnaire has been slightly revised. There are 32 items in the questionnaire, among which the first six items are the basic information about teachers, including teachers' gender, age, title, teaching age, and their educational background of teaching training. The remaining 26 items cover seven elements of the TPACK framework.

### B. Research Results and Analysis

*1) Basic information of English teachers:* The author carries out statistics on the basic information of teachers in the questionnaire and lists the higher proportion of options in each question, as shown in "Table I":

TABLE I.    BASIC INFORMATION TABLE FOR ENGLISH TEACHERS

| Gender | Age | Title | Teaching Age | Educational Background | Teaching Training Background |
|---|---|---|---|---|---|
| 84% (Female) | 86% (30-40 years old) | 78% (Lecturer) | 97% (Over 5 years) | 87% (Postgraduate) | 60% (Non) |

From the "Table I" above, it can be seen that female English teachers account for a large proportion in private colleges and universities. From the perspective of age, teaching age and educational background structure, 86% of teachers are in the age range of 30-40 years, 97% of teachers have worked for more than five years, 87% of teachers have got postgraduate degree. These data reflect the results of the enlargement of postgraduate enrollment ten years ago to some extent, and also reflect the changes in the structure of teaching staff in private colleges and universities in the past ten years. Ten years ago, most of the course teachers in private universities were part-time teachers. mainly from public universities and they just taught in their spare time; besides that, there were some retired teachers from public universities. However, with the enlargement of postgraduate enrollment, a large number of post-graduates swarm into the job market and become the main force of teaching staff in private universities. Postgraduates can be promoted to the title of lecturer in two years after being employed, which is also the reason for the high proportion of lecturer titles in the "Table I" above, reaching 78%. In addition, it can be seen from the above "Table I" that 60% of teachers do not have the background of normal education, which is because private colleges in the past few years only consider the educational background, but pay little attention to whether the applicants have the relevant background knowledge of education, in order to highlight the

advantages of teaching team in student enrollment. This is also the reason why the subject education background of teachers in private colleges is relatively complex.

*2)  Current situation of TPACK of English teachers:* The last 26 items in the questionnaire cover seven elements of TPACK framework. The author designs a five-level scale of these items. In the 100 questionnaires, the total score of each element is divided by the total number of questionnaires to get the mean value, as shown in "Table II":

TABLE II.         ENGLISH TEACHERS' TPACK KNOWLEDGE STRUCTURE

| Project | TK | CK | PK | PCK | TCK | TPK | TPACK |
|---------|------|------|------|------|------|------|-------|
| Average Value | 2.67 | 2.88 | 2.98 | 2.94 | 2.85 | 2.70 | 2.52 |

The average values in the above table are arranged from high to low: PK > PCK > CK > TCK > TPK > TK > TPACK. It can be seen that English teachers' technological knowledge (TK) and technological content knowledge (TCK) integrated with technological knowledge, technological pedagogical knowledge (TPK), and technological pedagogical and content knowledge (TPACK) are all lower, among which the average value of TPACK is the lowest, reaching 2.52. This shows that English teachers lack technological knowledge, and the influence of technological knowledge on the matched integrated knowledge is obvious.

TABLE III.         THE APPLICATION OF INFORMATION TECHNOLOGY IN ENGLISH TEACHING

| Information Technology Type | Multimedia Courseware | Micro-class and Micro-video | Mooc | QQ, WeChat | Rain Classroom | Superstar Learning Platform | Other Information Technology |
|---|---|---|---|---|---|---|---|
| Proportion | 96% | 71% | 21% | 67% | 4% | 48% | 4% |

Through further investigation (as shown in "Table III"), the author finds that 96% of English teachers use multimedia courseware as the main information technology in their teaching, which is still a relatively common and traditional teaching tool in modern teaching methods. Through interviews and classroom observations, the author finds that 7% of teachers play PPT in class only to meet school requirements, and the use of technology is only a formality. But it can also be found from "Table III" that the use of micro-lessons and micro-videos are relatively more in English teaching, reaching 71%. This may be related to various levels of micro-lesson contests held in recent years, and it is a manifestation of competition to promote teaching. 67% of English teachers use such network communication tools as QQ and WeChat to arrange homework, submit homework and share learning materials in teaching, which shows that teachers cater to the contemporary college students' love of mobile phones to stimulate their interest in English learning. 48% of English teachers build classes on Superstar Learning Platform to push learning materials and assign homework to students. The application rate of this platform is higher than that of rain classroom, which is because Superstar Platform regularly organizes special training at different levels in schools to help teachers get started and settle various problems encountered in use. Only 21% of teachers use Mooc in English teaching. In further interviews, the author learns that the main application of Mooc in teaching is school-based Mooc and SPOC course. Most teachers reflect that it is difficult to find a Mooc course that is in line with the students' level on the common Mooc platform, which is also the reason why the application of Mooc in English teaching in private colleges and universities is relatively low. On account of this, private colleges and universities should encourage English teachers to build more Mooc that is suitable for students' level in private colleges and universities and compatible with the offered courses.

"Table II" shows that English teachers' technological pedagogical and content knowledge (TPACK) is the lowest, which indicates that it is difficult for teachers to use information technology to carry out the re-representation of teaching content in English teaching and to reconstruct teaching methods. From further interviews, the author knows that the difficulties most teachers encounter are technical problems, because most English teachers in private colleges and universities are women. Generally speaking, the use of information technology by female teachers is relatively weak. They also don't know how to use technology to represent the content so that students cannot better understand the content knowledge. In fact, against the background of "Internet plus" teaching, the lack of information technology will have an impact on the teaching of teachers, but it is not the biggest obstacle because professionals and technicians will provide assistance, and more and more teaching platforms have realized the intelligent assistance of students' learning and teachers' teaching, thus making teaching and learning more intelligent and convenient. It can be said that the use and operation of these technologies are not obstacles for English teachers. The difficulty is how to use information technology to settle problems in English teaching and realize the deep integration with teaching process against the background of "Internet plus", that is, to develop English teachers' in-depth integration ability of information technology and English teaching, namely, teachers' TPACK knowledge. Such kind of integration ability is expressed by English teachers' ability on carrying out the reconstruction of teaching content and teaching objectives based on modern information technology and ability on making innovation of teaching. This innovation is guided by problems in teaching and learning, to achieve problem-oriented and task-driven teaching.

From "Table II", it can also be seen that among the seven elements of TPACK structure, the level of pedagogical knowledge (PK) of English teachers is highest with an

average value of 2.98, which indicates that English teachers can adjust their teaching according to students' understanding and know how to organize and manage classrooms. This may because 97% of the respondents have more than five years of teaching age; although 60% of the teachers have no normal education background, they have much richer teaching experience and can effectively organize and control the classroom. English teachers' pedagogical content knowledge (PCK) is second only to pedagogical knowledge (PK), with an average value of 2.94, which shows that in general, English teachers in private colleges and universities can choose effective teaching methods to guide students to think and learn English, stimulate students' interest in English learning through reasonable teaching design, and evaluate students' English learning in a comprehensive way. This may be related to the following factors: teaching age, age and quality of students. Because students in private colleges have poor autonomy in learning and poor English foundation, teachers should try every means to arouse students' interest in English learning, otherwise it will be difficult to carry out classroom teaching. Fortunately, most of the respondents have more than five years' teaching experience and 86% of the teachers are between 30 and 40 years old. They have the energy and willingness to try to make the classroom active, which seems to be a good integration of pedagogical knowledge and English subject knowledge. However, in the actual interview, most of the teachers indicate that they have no normal education background, and their pedagogical knowledge is acquired only by taking part in some induction training, advanced studies training and teaching seminars, which shows that private colleges and universities should increase the popularization of pedagogical knowledge towards teachers, so that they can be more proficient in teaching. In addition, English teachers' content knowledge (CK) ranks the third with an average of 2.88, likely because 87% of the respondents have graduate degrees and the overall level of English content knowledge is relatively high.

## IV. CONCLUSION

Generally speaking, the findings of this research are as follows: first, English teachers' pedagogical knowledge (PK), content knowledge (CK) and pedagogical content knowledge (PCK) are relatively high, which is related to the expansion of full-time teaching staffs for enrolling a large number of graduate students in private colleges and universities in recent years, but more than half of the teachers have no normal education background, and their educational psychology and pedagogy and other knowledge are relatively poor. They can effectively organize and control the classroom, but only relying on the experience in some teaching, they often get half the result with twice the effort. Schools can encourage teachers to study by themselves, or invite experts and scholars in pedagogy to make academic reports or give short-term training for full-time teachers, and carry out some teaching case seminars to make up for their vacancies in the aspect of pedagogical knowledge. As a result, they can adjust teaching strategies according to different students, and flexibly use various teaching methods to promote the teaching ability.

Second, in private colleges and universities, English teachers' TK is limited, so that their TPACK is relatively low, which affects the improvement of teachers' information-based teaching ability. Schools should systematically arrange teachers to participate in the training of the relevant information technology competence development projects, or organize school-based training at different levels according to the actual situation of English teachers, and develop information-based teaching seminars, teaching observation and so on. While helping teachers to improve their information technology ability, school should also enhance their rational comprehension of information-based teaching ability; as a result, they can realize that the integration of technology, teaching and English subject knowledge is not a simple addition of the three. It is not a mere formality of technology, but a re-representation of English knowledge through information technology to achieve the integration of technology and subject knowledge, that is, to improve teachers' TCK knowledge. By reconstructing teaching methods and evaluation methods can they realize the deep integration of technology and teaching process, that is, to improve teachers' TPK knowledge. Against the background of "Internet plus" education, students can very conveniently get information and resources, but these information and resources cannot be changed into knowledge immediately, and cannot immediately improve students' thinking and ability. Such kind of change requires students change their cognitive structure accordingly. This requires teachers to rationally make use of information technology based on the modern information teaching environment, take the development of students' knowledge, thinking and ability as the goal to carry out the reconstruction of the teaching content and carry out effective teaching design, that is, to improve teachers' TPACK knowledge. In addition, schools should not only pay attention to the evaluation of English subject knowledge or English teaching method knowledge, but also create an atmosphere to promote the development of information-based teaching ability, such as the launch of classroom teaching innovative contest, so as to promote the development of information technology teaching ability of English teachers in private college against the background of "Internet plus", thus realizing the sustainable development of English teaching profession in private universities.

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