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The Development Status and Enhancement Strategies of Teachers' Global Competence: Evidences from TALIS 2018 Survey in Shanghai

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Abstract: *With the advancement of globalization, global competence has become a necessary qualification for teachers. In conjunction with TALIS conducted by OECD in2018 and the structure of teachers' global competence, the teachers' global competence is divided into three dimensions: understanding, preparation and practice. Based on the data from TALIS 2018 survey in Shanghai, the analysis was conducted by SPSS software to present the performance and influencing factors of teachers' global competence in China, and finally proposed strategies to improve teachers' global competence. The study found that teachers in Shanghai performed well on the understanding and preparation dimensions of global competence, but were inadequate on the practice dimension. The gender, teaching age and study abroad factors had significant effects on the understanding dimension of teachers' global competence; the gender, education and teaching experience factors had significant effects on the preparation dimension of teachers' global competence. Accordingly, it is recommended to encourage teachers to go abroad for further training, to pay attention to post-service teacher education and the guiding role of expert teachers, and to deepen the practice orientation of teachers' global competence.*

Keywords: *global competence; TALIS2018; teacher professional development*

1. Introduction

With the continuous advancement of globalization, global competence has become a necessary quality for contemporary talents, and the cultivation of global competence should be the core mission of education[1]. Under the influence of globalization and digitalization, how to improve students' international awareness and international competence is an important issue of general concern for education in all countries, which puts forward new requirements for the professional development of teachers who are responsible for cultivating students' global competence. The Teaching and Learning International Survey (TALIS) project, conducted by the Organization for Economic Co-operation and Development (OECD), is based on teachers' perspectives and close to their teaching practices, with a broad scope, large scale and representative and internationally recognized findings[2]. The TAILS report, *Teachers and School Leaders as Lifelong Learners* (OECD, 2019), released in June, provides an important reference for measuring teacher professional development in an international perspective[3].

At present, scholars' research on teachers' global competence focuses its connotation and development path, with most theoretical studies and fewer empirical studies. Therefore, this paper will explore the conceptual connotation of teachers' global competence, and by analyzing the results of TALIS 2018 teachers' global competence survey, explore the overall situation of teachers' global competence and the factors affecting teachers' global competence in Shanghai, China, and finally put forward the paths and suggestions for improvement.

2. Definition of Main Concepts

2.1 Global Competence

In 1974, UNESCO adopted the recommendation concerning Education for International Understanding, Cooperation and Peace and the Linkage between Education and Human Rights and Fundamental Freedoms[4], which proposed education for international understanding and laid the

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ideological foundation for the introduction of global competence. In 1983, American scholar Hayden put forward the concept of global competence in his book The Beginning: Developing Global Competence[5]. Since then, "global competence" has begun to enter the vision of experts and scholars. Until 2018, OCED officially released a measure of global competence for students in the Programme for International Student Assessment (PISA), which introduced global competence, the ability to examine global affairs, understand different views and positions, be culturally compatible and interactive, and take practical action[6]. Global competence has been a hot topic of discussion for some time. The development of students' global competence has also led to a focus on teachers' global competence (Kirkwood-Tucker, 1990) [7].

In summary, this paper believes that global competence refers to the ability to have certain international knowledge and general competence, as well as a global vision and a flexible way of thinking, to be able to communicate and co-operate well and to solve the problem of cultural differences under multicultural or multi-lingual conditions in the context of globalization.

2.2 Teachers' Global Competence

Teachers' global competence was first advocated by Western countries and international organizations, and has been discussed and researched for more than 30 years. At present, due to the diversity of cultural backgrounds and teacher identities in different countries, scholars have proposed different orientations of global competence for teachers, which can be summarized into three orientations (Zuo,2020) [8]. The first is the global citizenship orientation of teacher global competence, based on which scholars generally agree that teacher global competence is a necessary civic quality in the era of globalization[9],and that global teachers need to have the ability to think critically about global social issues[10].The second is the global competence of teachers with the orientation of student development instructors, based on which researchers tend to define it as the professional qualities of global knowledge, skills and attitudes that teachers must have to guide the development of students' global competence[11]. The last orientation is an integrative approach to teacher global competence, based on which researchers believe that teacher global competence encompasses both global citizenship, with a global perspective, and the professionalism involved in global competence education, which involves the development of students' global citizenship[12].

In summary, in the context of globalization, and taking into account the meaning of global competence and the important role and responsibility of teachers in education, teacher's global competence can be defined as teachers' knowledge of global issues or interculturalism, their ability to communicate across multiple cultures, and their knowledge and skills in teaching and learning to develop students' global competence.

3. Research Design

3.1 Data Sources

The latest round of TALIS2018 survey initiated by OECD globally contains nine themes, including teachers' educational experience and preparation for teaching, teaching practice, professional development practice, and interpersonal relationships, and aims to reflect the development status and general trends of teachers. As can be seen from Table 1, a total of 48 countries or regions around the world participated in this survey, and the data used in this study came from the 2018 teacher questionnaire in Shanghai, which yielded 3,781 valid data after excluding invalid questionnaires.

Table 1: Information on Shanghai teachers who participated in the TALIS2018 survey.

Dimensions	Background information	Frequency	Percentage (%)	Valid percentage (%)
Gender	Male	982	26.0	26.0
	Female	2799	74.0	74.0
Highest level of formal education	College degree	32	0.8	0.8
	Bachelor's degree	3250	86.0	86.0
	Master's degree	496	13.1	13.1
	Doctor's degree	1	1	1
Length of teaching experience	0—5 years	488	12.9	12.9
	6-10 years	560	14.8	14.8
	11-20 years	1420	37.6	37.6
	More than 21 years	1313	34.7	34.7

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3.2 Measuring Framework

In 2014, the National Framework for Action on Global Education of the Partnership for 21st Century Learning in the United States proposed a model for a teacher global competence competency structure [13],with competency characteristics expressed in four components: (1) ability to prepare for relevant theoretical studies, and understand the importance of integrating global contexts and perspectives into teaching and learning; (2) ability to research, design, and integrate a wide variety of innovative curricula, technological tools, and practical experiences; (3) ability to communicate and collaborate effectively with colleagues; (4) ability to apply theory to practice. Teacher global competencies addressed in the TALIS 2018 Teacher Questionnaire focus on teachers' perceptions of global competencies, their pedagogical preparation for fostering students' global perspectives, and the pedagogical practices they engage in. Taking into account the connotation of teachers' global competence and the teacher's global competence competency structure model, this study classified teachers' global competence into three dimensions: understanding, preparation and practice. Understanding refers to teachers' recognition of the value of global competence; preparation refers to teachers' preparation for professional development to enhance global competence; and practice refers to teachers' integration of global competence into their classroom teaching practices.

3.3 Variable Selection and Research Methodology

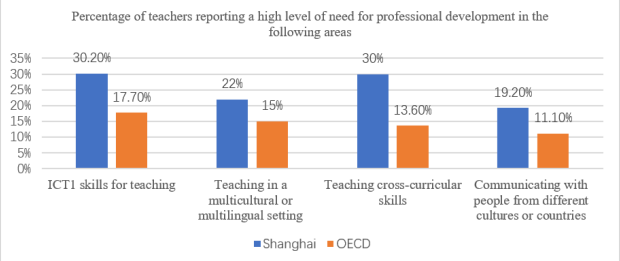
Fourteen variables from the TALIS2018 test items related to teachers' global competence were extracted (TT3G06F2-TT3G06H2, TT3G27E, TT3G27J, TT3G27K, TT3G27N, TT3G34M, TT3G42P, TT3G45A, TT3G45B, TT3G45D, TT3G33C, TT3G33H), recorded using a four-point Likert scale, with higher scores indicating higher levels of degree in each dimension. In this study, gender, years of teaching experience, academic qualifications, and whether or not to further study abroad were treated as control variables, where the academic qualifications group was set according to the TALIS 2018 survey using the ISCED-2011 version of the academic qualifications criteria; the teaching age group used the four-stage theory of teacher development proposed by Meng Fan-sheng et al. (2017): novice teachers (0-5 years), adapted teachers (6-10 years), skilled teachers (11-20 years), and expert teachers (more than 21 years) [14]. As for the research methodology, SPSS 26.0 was used for data collation and statistical analysis in this study. Firstly, after reliability analysis of the questionnaire scales, the Cronbach's $\alpha = 0.83 > 0.8$, indicating that the scale in this questionnaire has good reliability for the purpose of analysis. Then a description of the current state of teachers' global competence was conducted, and the final analysis used independent sample t-testing, ANOVA and cross-tabulation to analyse the influencing factors.

4. Research Findings and Analysis

4.1 The Current State of Teachers' Global Competence

4.1.1 Understanding Dimension

The Understanding dimension measures teachers' professional development needs for global competence, which in turn reflects their recognition of the value of global competence. Figure 1 shows that all four indicators are higher than the OECD average, with 30.2 per cent of teachers having a need for ICT technology development and 30 per cent having a need for interdisciplinary competence development, which is much higher than the OECD average. This indicates that teachers in Shanghai understand the importance of global competence professional development and have a high demand for global competence development.



Source: OECD, TALIS 2018 Database, Table I.5.21

Figure 1: Teacher global competence in the understanding dimension

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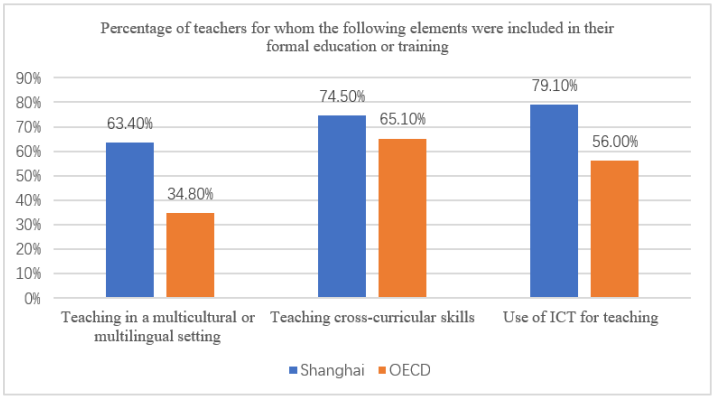
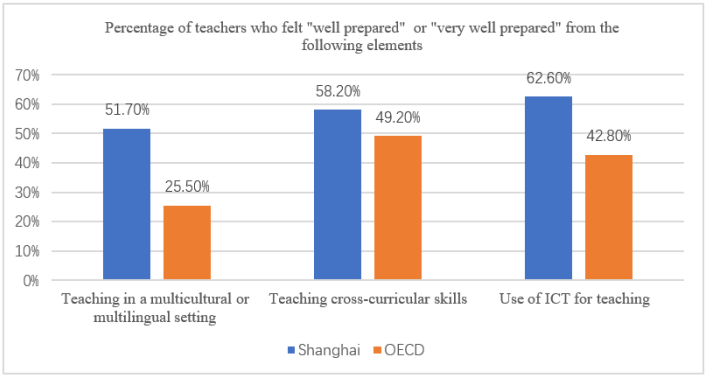
4.1.2 Preparation Dimension

The TALIS 2018 questionnaire focuses on teachers' preparation for global competence in terms of multicultural or multilingual training, information technology training(ICT), and cross-curricular skills training in pre-service education, as well as the level of preparedness for teaching in these three areas in post-service. As can be seen from Figure 2, teachers in Shanghai have higher levels of formal education and teaching readiness in all three areas, and all three indicators are higher than the OECD averages. Figure 3 shows that the highest level of preparedness is in information technology (IT), which indicates that our teachers are better prepared for IT before and after service. In addition, the largest difference between the OECD average and the OECD average is in the level of preparedness for multiculturalism or multilingualism, which also shows that Chinese teachers have stronger intercultural communication skills and global perspectives in the international arena. However, the comparison reveals that the level of post-service preparation in the three areas is lower than that of pre-service preparation in formal education, suggesting that teachers' post-service preparation has been slack.



Data source: OECD, TALIS2018 Database, Table I.4.13

Figure 2: Performance of teachers' global competence in the pre-service preparation dimension



Data source: OECD, TALIS 2018 Database, Table I.4.20

Figure 3: Teachers' global competence in the post-service preparation dimension

4.1.3 Practice Dimension

In contrast to the results of the global competence understanding and readiness dimension for teachers, the TALIS 2018 data present a shortcoming in the global competence practices of teachers in China. Figure 4 shows that Shanghai teachers are below the OECD average in several indicators, except for a higher percentage of teaching that support student learning through the use of digital technology, with the largest gap between the percentage of let students use ICT for projects or class work and the OECD average. The results of the OECD 2018 survey show a significant increase in support for students' use of ICT for projects or class work in more than 90% of countries or regions, with countries such as Finland, Israel, Romania and Sweden showing an increase of more than 30%. In addition, the extent to which teachers cope with multicultural challenges, adapt teaching to the cultural diversity of students and raise awareness of cultural differences among students lags behind the average. The results of the OECD 2018 survey show that teachers in Latin American and Middle Eastern countries and Portugal tend to show higher levels of multicultural self-efficacy, while teachers in Asian and Nordic countries show lower

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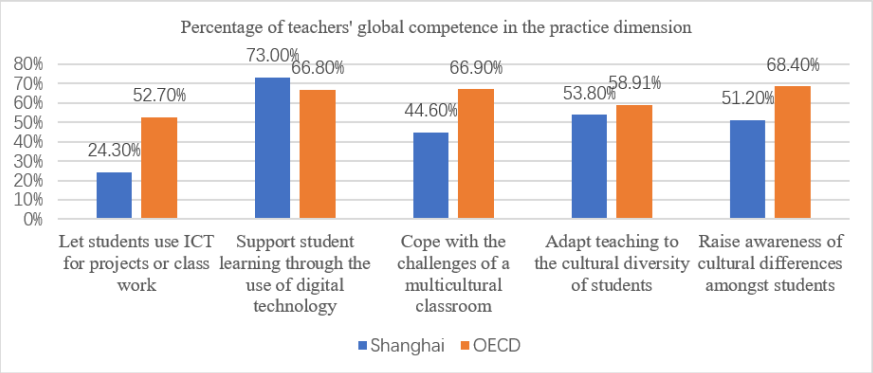
levels of multicultural self-efficacy. This shows that there is a serious disconnect between preparation and practice, understanding and action in global competency development for teachers in Shanghai, particularly in let students use ICT for projects or class work and cope with multicultural challenges.



Data source: OECD, TALIS 2018 Database, Table I.2.1, Table I.2.20, Table I.3.38

Figure 4: Teachers' global competence in the practice dimension

4.2 Comparison of Factors Influencing Teachers' Global Competence

4.2.1 Gender Factors

The data in Table 3 shows that on the gender factor, the understanding dimension significance level p1=0.15>0.05, sig value=0.960>0.05; the practice dimension significance level p3=0.68>0.05, sig value=0.210>0.05, therefore there is no significant difference between genders on the understanding and practice dimensions of teachers' global competence. However, the preparation dimension sig value=0.016<0.05, therefore there is a significant difference between the genders on the preparation dimension, in which the mean values of the preparation dimension are higher for male teachers than for female teachers, indicating that male teachers are better prepared than female teachers on the global competence of teachers in formal education.

4.2.2 Academic Qualification Factors

The results of the ANOVA show that on the academic factor, the level of significance for the understanding dimension p1=0.013<0.05, the level of significance for the preparation dimension p2=0.003<0.05 and the level of significance for the practice dimension p3=0.303>0.05, therefore there is a significant difference between the educational qualifications on the understanding and preparation dimensions of teachers' global competence and no significant difference on the practice dimension. This indicates that the educational factor significantly influences the understanding and preparation dimensions of teachers' global competence.

4.2.3 Teaching age factors

The results of the ANOVA test showed that there was a significant difference between teachers' global competence in the understanding dimension (p1=0.002<0.05) and the preparation dimension (p2=0.008<0.05) for the teaching age factor. The mean plots show that age in teaching is negatively related to teachers' understanding of global competence on the understanding dimension, suggesting that teachers with more years of teaching experience are maturing in their professional development and novice teachers are more concerned with their own professional development and understand the importance of improving their global competence. On the preparation dimension, teaching experience was positively correlated with teachers' global competence readiness, indicating that teachers with more experience in educational practice tend to have higher levels of teacher global competence readiness. On the practice dimension, expert teachers having the highest mean values, suggesting that expert teachers are able to combine practice and preparation effectively based on their long teaching practice and experience.

4.2.4 Study Abroad Factor

The data shows that on the factor of study abroad, the understanding dimension significance level p1=0.636>0.05, sig value=0.000<0.05. Therefore, the study abroad factor significantly influences the understanding dimension of teachers' global competence, in which the mean values of the preparation dimension are higher for the study abroad teachers than for the non-study abroad teachers, indicating that

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study abroad broadens the teachers' international This indicates that further study abroad broadens teachers' international perspectives and enhances their understanding of global competence. The preparation dimension sig = 0.079 > 0.05 and the practice dimension sig = 0.870 > 0.05, so the influence of the study abroad factor on the preparation and practice dimensions of teachers' global competence was not significant.

5. Enhancement Strategies

In the context of the era of globalization and intelligence, the urgent demand for global talents has brought more and more attention to global competence. The cultivation and enhancement of teachers' global competence is not only a guarantee for cultivating students' global competence, but also a requirement for teachers' own professional development. Based on the above research findings, this paper will propose following strategies to enhance teachers' global competence.

Firstly, encourage Teachers to Study Abroad to enhance their Understanding of Global Competence. The results of the previous analysis of influencing factors suggest that further study abroad is a key factor influencing teachers' understanding of global competence, and that further study abroad can develop teachers' cross-cultural awareness and communicative skills, broaden their global perspectives and understand the importance of global competence to their professional development. Schools should also support and encourage teachers to undertake cross-disciplinary and cross-regional study trips, and give teachers time and opportunities to visit and exchange abroad to enhance teachers' understanding of global competence[15].

Secondly, emphasis on Post-service Teacher Education and Strengthening Global Competence System Training. The comparative analysis of the TALIS 2018 data in the previous article shows that the current level of post-service preparation for global competence of teachers in China is lower than the level of preparation for pre-service formal education, indicating that not enough attention has been paid to global competence in teachers' post-service education. Therefore, attention should be paid to the content of global competence in post-service education settings, to enhance teachers' interdisciplinary skills, ICT competencies and multicultural or multilingual competencies, and to adopt a flexible and varied approach to provide teachers with more timely and effective post-service training models. In addition, the results of the analysis of influencing factors show that female teachers and novice teachers have lower levels of preparedness for global competence in teaching, so more emphasis should be placed on post-service global competence education for male teachers among skilled teachers, and on global competence training and education for female teachers among novice, adaptive and expert teachers, and on targeted training for teachers at different stages of their teaching careers for different genders.

Thirdly, encourage Teacher Collaboration and Interaction and Value the Role of Expert Teachers as Guides. Collaborative learning among teachers is an important way to promote their professional growth [16]. The results of the previous analysis of influencing factors show that expert teachers have the highest mean global competency readiness and practice dimensions, and TALIS 2018 data show that about 67% of new teachers in Shanghai have participated in professional development activities such as mentorship or peer support. Therefore, it is important to emphasize the role of experienced teachers as role models, promote cooperation between expert teachers and novice teachers in terms mutual observation and lesson evaluation, and invite experts to give lectures and presentations to guide teachers on ways to improve their global competence and ways to develop students' global competence, so as to achieve joint development.

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