Research on Teachers' Practical Knowledge: Hotspots, Trends and Evolution Paths: Bibliometric Analysis Based on CSSCI Source Journals

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Abstract

As a crucial part of educational reform, teachers' practical knowledge gradually arousing the concern of the public, and becomes the focus of researchers' attention and reaped certain research results. It is necessary for us to sort out the research progress in this field, particularly for hot topics, by means of systematic literature. By reviewing the data research, the author comes up with the development path of relevant research in the field of teachers' practical knowledge in China over the past 17 years: to upgrade teachers' personal capability, deepen the reform of curriculum stages and clarify teachers' experience and knowledge, etc..; in terms of the path of research evolution, teachers' practical knowledge has gone through the embryonic stage and the growth stage successively, which is promoted and deepened gradually at the micro level through macro guidance. In the research field of teachers' practical knowledge, we will tend to change research perspective, increase research density, deepen research contents and integrate research methods in the future.

Key words: Teachers' practical knowledge; Research hotspots; Research trends; Evolution path; Potential hotspots

1. INTRODUCTION

As educational knowledge reform becomes deepened and teachers' individual decision-making and thinking capability arouse more concern, people have gradually come to realize that "preaching", "teaching" and "dispelling doubts" cannot stay on the surface of imparting textual knowledge, but should go deep from the exterior to the interior, and attach enormous importance to teachers' practical knowledge. Since 1966, UNESCO and ILO have adopted the Recommendations on Teachers' Status, defining "teacher education" as a special profession for the first time (Department of Normal Education, Ministry of Education, 2003). The introduction of this policy has aroused widespread concern and triggered in-depth discussion of teachers' practical knowledge in the educational circles. Therein, Elbaz, an Israeli scholar, was the first to bring forward the concept of teachers' practical knowledge. In 1981, she first came up with the concept of "teachers' practical knowledge" in the article entitled "Teachers' Practical Knowledge: A Report on a Case Study" published in Curriculum Inquiry. In 1983, she also made expositions in more detail in her book Teacher's Thought: A Study on Practical Knowledge. The publication of Elbaz's work is equivalent to announcing the birth of teachers' practical knowledge, also initiating the era of research on practical knowledge (Cheng, 2017). Although research on teachers' practical knowledge in China is influenced by numerous western research results, but tracing back to the source, China should have started to pay attention to "teachers' practical knowledge" in the middle and late 1990s. In particular, since the new century, in the context of the curriculum reform movement on a global scale, the academic circles became increasingly interested in its inquiry. In 2003, to match the accelerated promotion of the curriculum reform of basic education, Chen Xiangming put forward how teachers should raise their awareness and capability of self-professional development, in a bid to stimulate

students' all-round, healthy and harmonious development in a more effective manner - this is an urgent problem faced by basic education (Chen, 2003). Teachers' practical knowledge has gradually become a hot issue in the field of teaching and research.

In recent decades, Chinese scholars have performed historical evolution and worked out generating mechanism, summary and reflection and development path of the research on effective teaching in the field of teachers' practical knowledge in combination with the method of literature analysis. Chen Baihua reviewed and reflected on the research literature in recent decades; to better explore the due meaning of practical knowledge, he put forward the matters needing attention and the direction of future efforts in China's research on practical knowledge (Chen, (2012). Lin Yigang and Pan Guowen discovered two ways of generation of teachers' practical knowledge by exploring the generating mechanism in the research literature. The discovery of these two ways provides some ideas and methods for the generation and development of teachers' practical knowledge (Lin & Pan, 2013). Liu Xudong and Wu Yinyin have reflected and summarized the research literature in recent ten years; they pointed out the problems present in related research in China, and stressed the road and direction of future research (Liu & Wu, 2011). Liu Dongmin and Tian Xiaohang analyzed the development path of acquisition in research literature, thought about the significance and mechanism of acquisition of teachers' practical knowledge, and emphatically explored the related problems and methods of acquiring teachers' practical knowledge through individual education practice, practical knowledge sharing, modern information network as well as other paths, and drew diversified conclusions on the acquisition path (Liu & Tian, 2008). From the perspective of time span of research, most of the above-mentioned literatures, focusing on the background of the new curriculum reform, made a phased comprehensive analysis of the research on teachers' practical knowledge, and the complete historical investigation was not enough; from the research methods, literature analysis is chiefly used for the above-mentioned literatures, making it difficult to avoid the errors incurred by personal subjective factors, and lacking of systematic quantitative analysis; viewing from the conclusion of the research, the hot issues are classified and evaluated in the above literature, but there is no objective regulation for the classification standard, and the relationship between research topics cannot be grasped.

On the whole, although China has scored some achievements in the research field of "teachers' practical knowledge", there are still some points to be perfected. This paper will objectively explore, analyze and explore the research hot spots of teachers' practical knowledge in China during the past 17 years from 2004 to 2021 by means of scientific and standardized bibliometric methods and visual methods, and sort out its development and research context, with a view to revealing the profound relationship and development trend of research hotspots of teachers' practical knowledge, offering some references for domestic scholars to study the knowledge trend in this field in the future.

2. RESEARCH METHODS

2.1 Data Sources

Based upon the research needs, this paper selects CNKI database as the basic data source in the selection of sample literatures. To search the literature in this research field as much as possible, the researchers did relevant searches with "practical knowledge" as the title and "teacher" as the key word in the advanced search settings, with the selected time span of 17 years from 2004 to 2021. After clicking search, Some research papers with incomplete or inconsistent information were removed from the research papers available, and finally 464 valid research papers were left. With a view to guarantee that the analysis results can reflect the hot spots in the filed of teachers' practical knowledge in China over the past 17 years in an accurate manner, 131 research papers from CSSCI journals were selected on this basis after manual identification and screening.

2.2 Research Tools

There are CiteSpace software, Bicomb co-word analysis software and SPSS22.0 statistical software. CiteSpace software is an information visualization application software developed by Dr. Chen Chaomei of Drexel University in Philadelphia, USA, based on JAVA language. When most scholars study a certain topic, they are more inclined to believe their own feelings, with strong personal subjective factors, and it is easy to make errors in the research results, which will make the literature results less persuasive and convincing to a certain extent, thereby obscuring the original value of the literature. As a new method of bibliometrics and its visualization over the past years, "knowledge map is provided with dual properties and characteristics of 'map' and 'spectrum': it is both a visual knowledge graph and a serialized knowledge pedigree, which demonstrates numerous hidden complex relationships such as network, structure, interaction, intersection, evolution or derivation among knowledge units or knowledge groups, and these complex knowledge relationships are gestating new knowledge." (Chen, Chen, Hu, & Wang, 2014) As a result, the errors of the analysis results caused by the subjective factors of the researchers have been reduced to a certain extent, and scholars in various fields have started to analyze their respective research fields by use of CiteSpace software. In recent years, it has gradually become the most distinctive and influential information visualization software in nationwide information analysis. Funded by China Health Policy Support Project (HPSP), Bicomb co-word analysis

software is developed by use of the database language which is mature and popular at present, and its chief goal is to quickly scan the bibliographic information in the literature database of biomedicine, accurately extract, classify and store information, do calculations and analyze the matrix, etc., in a bid to furnish comprehensive and accurate basic data for further research.

2.3 Research Process

The research process is to make clear the basic analysis object. In this research, 131 papers retrieved by CSSCI database in the field of teachers' practical knowledge from 2004 to 2021 were taken as the analysis object, and the research hot spots and knowledge base of teachers' practical knowledge were clearly indicated. 1. The basic operation processes of CiteSpace software are specifically as below: I. collect and sort out data. CiteSpace software requires that the input document format is principally the text format of documents in the database of American Institute of Scientific Information (ISI). This paper is in the document format in Chinese database, so the document format downloaded from CSSCI database is first exported in the text format of Refworks; II. set up relevant programs in the visualization software of CiteSpace; III. extract the statistical results of the background, and research and analyze the keywords co-occurrence knowledge map of teachers' practical knowledge by use of CiteSpace5.1.R5; 2. the basic operation steps of Bicomb are as below: I. choose the research data; II. collect and sort out the data, and convert the collected database documents of CNKI format into ANSI coded text files that Bicomb can recognize; III. make keyword statistics by use of Bicomb software; IV. extract the statistical results; V. analyze the co-word matrix of keywords and derive the co-word matrix (Cui, 2015).

3. ATLAS ANALYSIS

3.1 Analysis of the Composition of High-frequency Keywords

To display the development status and research trend of research in the filed of teachers' practical knowledge in China, and to analyze the hot issues in the research on teachers' practical knowledge in recent 17 years in a more effective way, the researchers sort out and analyze the high-frequency keywords among the sample literatures of teachers' practical knowledge in China, and adjusted the tag size and point size to form a keywords co-occurrence knowledge map, as exhibited in Figure 1.

As can be learned from the Figure 1, the research hot spots can be revealed by searching for keywords based on the size of the points in Figure 2. The larger the degree of a point, the higher the degree centrality of the point, and the more important it is in the network. "Practical knowledge", for example, is the largest point

in the map, indicating that it is of vital importance in the network. Besides, some key words such as "generating mechanism", "teachers' professional development", "pre-service teachers", "teacher education curriculum" and "teacher knowledge" are the most eye-catching and their points are comparatively large. Through bibliometric analysis, keywords with comparatively high frequency are taken as the core high-frequency keywords in this paper. On the other hand, the pivotalpoint that plays a strategic role in the whole network can be dug out by running CiteSpace to calculate the intermediary centrality of points. The intermediary centrality reflects the capability of a point (such as keywords or citations) as a "medium" in the whole network, that is, the capability to occupy the shortest path between the other two points. Without this point, the other two points cannot communicate with each other. The more positions occupied, the higher the intermediary nature of this point, and the more points have to pass it during contact (Yin, 2008). Thus, the stronger the intermediary centrality of a keyword, the more information between its associated keywords.

Figure 1
Keywords Co-Occurrence Knowledge Map of Teachers' Practical Knowledge (2004-2021)

3.2 Statistics of Word Frequency of High-frequency Keywords

Through the statistics of keywords in the research literatures of teachers' practical knowledge in China, the acquired keywords as well as the frequency and percentage distribution thereof are presented in Table 1.

As can be learned from Table 1, the cumulative percentage of high-frequency words is around 46.12%, making up a certain contribution rate in the keyword samples. Therein, the top 10 hot keywords except practical knowledge are respectively teachers' practical knowledge (39), pre-service teachers (13), generating mechanism (12), teachers (8), novice teachers (8), normal university students (8), teacher education (8), reflection (6), teacher knowledge (6). This result preliminarily suggests that the research of teachers' practical knowledge in China places emphasis on teachers' teaching.

Table 1
Statistical Table of High-frequency Keywords

No.	Keyword	Frequency	Percentage%
1	Practical knowledge	85	16.0681
2	Teachers' practical knowledge	39	7.3724
3	Pre-service teachera	13	2.4575
4	Generation mechanism	12	2.2684
5	Teacher	9	1.7013
6	Novice teachers	8	1.5123
7	Normal university students	8	1.5123
8	Teacher education	8	1.5123
9	Reflection	6	1.1342
10	Teacher knowledge	6	1.1342
11	Teachers' professional development	6	1.1342
12	Practicalness	5	0.9452
13	Knowledge management	5	0.9452
14	Narrative research	4	0.7561
15	University teachers	3	0.5671
16	Educational practice	3	0.5671
17	Teacher education curriculum	3	0.5671
18	Representation form	3	0.5671
19	Educational development	3	0.5671
20	Experience	3	0.5671
21	Clandinin	3	0.5671
22	Personal practical knowledge	3	0.5671
23	Subject teaching knowledge	3	0.5671
24	Student teachers	3	0.5671

3.3 Matrix Analysis of High-Frequency Keywords

Although high-frequency keywords embody the research hot spots and trends of teachers' practical knowledge in China to a certain extent, only linear arrangement of these keywords based on the frequency of occurrence thereof cannot embody the relationship between them in a full and stereoscopical way. To this end, further co-word analysis is needed (Zhang, Zhou, Hu, & Zhao, 2016). With a view to figure out the relationship between keywords, the researchers conducted co-word analysis of 10 high-frequency keywords with Bicomb co-word analysis software to generate a matrix of high-frequency keywords, which is then imported into SPSS22.0 software and transformed into a co-word similarity matrix. The concrete results are presented in Table 2.

The numerical values in the above table demonstrate the similarity between keywords. The closer the distance between the two corresponding keywords and the higher the similarity, the closer their values will be to 1, and vice versa, they will be to 0 (Huang, Li, & Liu, 2018). With practical knowledge as an example, only generating mechanism as well as reflection thereof in the above table are more similar to practical knowledge than other keywords, which suggests that researchers attach more importance to generating mechanism as well as reflection thereof as the research objects when studying this field.

Table 2
High-frequency Keywords Similarity Matrix

	Practical knowledge	Pre-service teachers	Generation mechanism	Teachers	Novice teachers	Normal university students	Teacher education	Reflection	Teacher knowledge	Teachers' professional development
Practical knowledge	1.000	0.089	0.277	0.000	0.113	0.113	0.113	0.131	0.000	0.065
Pre-service teachers	0.089	1.000	0.080	0.000	0.000	0.000	0.098	0.000	0.000	0.000
Generation mechanism	0.277	0.080	1.000	0.000	0.102	0.102	0.102	0.000	0.118	0.000
Teachers	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000
Novice teachers	0.113	0.000	0.102	0.000	1.000	0.000	0.000	0.144	0.000	0.000
Normal university students	0.113	0.000	0.102	0.000	0.000	1.000	0.125	0.000	0.000	0.000
Teacher education	0.113	0.098	0.102	0.000	0.000	0.125	1.000	0.000	0.000	0.000
Reflection	0.131	0.000	0.000	0.000	0.144	0.000	0.000	1.000	0.000	0.000
Teacher knowledge	0.000	0.000	0.118	0.000	0.000	0.000	0.000	0.000	1.000	0.000
Teachers' professional development	0.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000

4. CLUSTER ANALYSIS OF HIGH-FREQUENCY KEYWORDS

The clustering results can embody the affinity-disaffinity relationship between keywords, which can present the hot spots of effective teaching and research to a further extent. Specifically, the frequency (co-words) that the keywords

appear in pairs in the same article is taken as the analysis object, and the closely associated keywords are gathered together to form clusters by means of statistical method of clustering. During clustering analysis of keywords, the most influential keywords (seed keywords) are brought together to generate clusters, and then the seed keywords and adjacent keywords in the clusters form a

new cluster. The higher the similarity of keywords, the closer their distance; reversely, the farther (Chen, Sun, & He, 2017). On the principles of cluster analysis and following the development trend of the research field of teachers' practical knowledge over the past 17 years, and considering the connotation and connection of high-frequency keywords, the hot spots in the research field of teachers' practical knowledge from 2004 to 2021 can be categorized into three types: 1. the research on teachers' practical knowledge of teachers' educational capability (from a practical perspective); 2. the research on teachers' practical knowledge in the context of new curriculum reform (from the perspective of curriculum reform); 3. the research on practical knowledge of classroom teaching activities (from the teacher's perspective).

Table 3
Clustering Table of Keywords

Type 1	Normal university students, educational practice, teacher education, subject teaching knowledge, practical knowledge, pre-service teachers
Type 2	Teachers, knowledge management, teachers' professional development, Clandinin, practicality, representation form, university teachers
Type 3	Reflection, student teachers, novice teachers, generating mechanism, teacher education curriculum, teachers' practical knowledge, experience, teachers' development, personal practical knowledge, narrative research, teacher knowledge.

Figure 2
Tree Cluster Diagram of Keywords

7：师范生	7. Normal university students
16：教育实习	16. Educational practice
8：教师教育	8. Teacher education
23：学科教学知识	3. Subject teaching knowledge
1：实践性知识	1. Practical knowledge
3：职前教师	3. Pre-service teachers
5：教师	5. Teachers
13：知识管理	3. Knowledge management
11：教师专业发展	1. Teachers' professional development
21：柯兰迪宁	1: Clandinin
12：实践性	2. Practicality
18：表征形式	18: Representation form
15：高校教师	15. University teachers
9:反思	9. Reflection
24：实习教师	24. Student teachers
6：新手教师	6. Novice teachers
4：生成机制	4. Generation mechanism
17：教师教育课程	7. Teacher education courses
2：教师实践性知识	2. Teachers' practical knowledge
20：经验	20: Experience
19：教师发展	9. Teachers' development
22：个人实践性知识	2. Personal practical knowledge
14：叙事研究	14. Narrative research
10：教师知识	10. Teachers' knowledge

The first type is the research on practical knowledge of teachers' educational capability (from a practical perspective), which covers the key words of normal university students, educational practice, teacher education, subject teaching knowledge, practical knowledge, and pre-service teachers. As a crucial stage of systematic teacher training, normal university students' practical knowledge not merely serves as a vital basis for guiding educational and teaching practice activities, but objectively embodies practical knowledge in the field of education. In the course of education of normal university students, there is a lack of practical knowledge about normal university students to a great extent (Gao, Zhang, & Wang, 2021). The education of higher normal school neglects the training of pre-service teachers' practical knowledge, which results in a serious lack of practical knowledge, rendering it difficult to cope with unexpected teaching emergencies as well as complicated educational and teaching environment in the internship stage and the initial employment stage (Han, 2017). Thus, how to promote teachers' practical knowledge has become a hot issue with a view to make normal university students and pre-service teachers adapt to the teaching practice more easily.

The second type is the research on teachers' practical knowledge in the context of new curriculum reform (from the perspective of curriculum reform), which covers the keywords of teachers, knowledge management, teachers' professional development, Clandinin, representation form, and university teachers. The Canadian scholar Clandinin as well as his collaborator Conneely initiated a unique research model on teachers' practical knowledge, becoming a master of research on teachers' practical
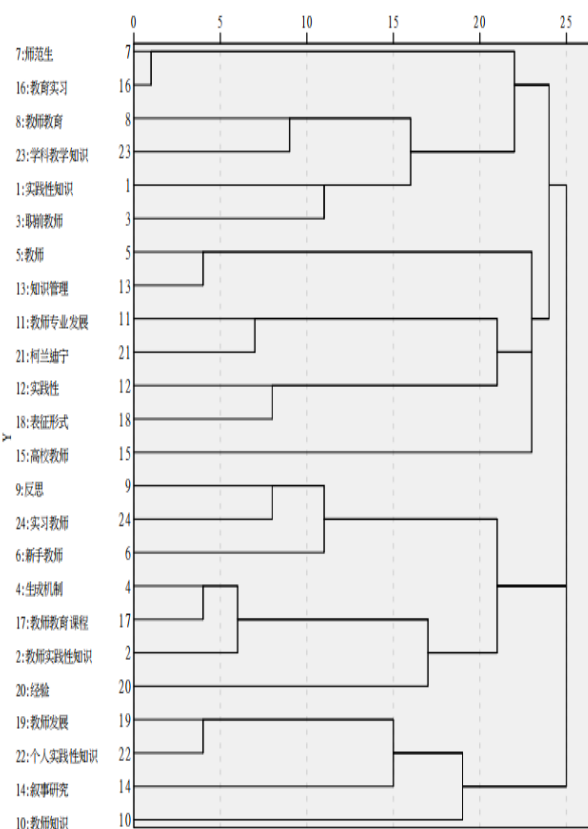
knowledge. Their views on teachers' practical knowledge formed in their research serve as the foundation and guidelines for research on teachers' practical knowledge (We, 2006). The new curriculum reform lays emphasis on the independent, cooperative and inquiry learning methods; an increasing number of teachers gradually comprehend and update some of their own concepts of curriculum and teaching, and launch the practical exploration of "inquiry, cooperative and open teaching and learning methods" (Li, 2009). On this basis, the research on teacher education has gradually shifted from focusing on teachers' external behaviors to teachers' internal thinking, from examining what teachers "did" to practical thinking on "why they did it" (Chen, 2009).

The third type is research on teachers' practical knowledge (from the teacher's perspective) focusing on classroom teaching activities, which covers key words such as reflection, student teachers, novice teachers, generating mechanism, teacher education curriculum, teachers' practical knowledge, experience, teachers' development, etc. Teachers' practical knowledge is a product in line with the teaching law and the trend of the times. There are numerous factors that influence teachers' classroom teaching, among which the teacher factor is the most critical one. However, teachers' good performance in the classroom also depends on the completeness of teacher knowledge as well as their capability to make flexible use of the knowledge, so teachers' practical knowledge plays a decisive role in it (Liu & Li, 2009). Hence, the key to classroom teaching rests with enhancing teachers' comprehensive capabilities such as teaching capability, organizational capability as well as basic literacy. Therein, by organically combining literary narrative theory with Dewey's experience theory, narrative inquiry is a process for teachers to understand experience, interact with experience and gain personal practical knowledge. As the ideas such as "teacher as researcher" and "teacher action research" become permeated in the field of teacher education, narrative inquiry as a way for teachers to acquire personal practical knowledge has attracted increasing attention (Kang, 2016). As teachers' practical knowledge is in line with students' needs, the foundation of constructing educational objectives should put a premium on students' participation in innovation, and guide students to transform theoretical knowledge into personal practical knowledge in actual participation. Abstract theoretical knowledge should also be concretized as far as possible, so that students can have a good command of more operational rules, thus enriching the diversity of the teaching classroom. Classroom teaching needs reflection besides teachers' necessary experience. Donald Schon, a well-known American educationist, thinks about teachers' practical knowledge in reflection in action and reflection on action, which involves the relationship between knowledge and practice (Cochran-Smith & Lytle, 1999). Teacher educators should permeate

the cultivation of reflective consciousness into the four-year consistent curriculum. Just like the teacher training program in "reflective inquiry" proposed by Weinstein (1990), it is necessary to fully encourage teachers to develop the research spirit in their work and record their personal teaching experience in a critical and reflective way, so as to learn knowledge and draw lessons from it (Yang & Pan, 2014). Enhancing teachers' personal comprehensive capability is not merely an essential link in the course of classroom teaching, but a basic way and a crucial means to smoothly launch the classroom teaching activities and fulfill the teaching objectives. Therefore, during classroom teaching, teachers should constantly perfect their own practical knowledge to promote the pertinence, interactivity and effectiveness of classroom teaching.

5. CONCLUSION AND PROSPECT

While taking into account the charts and literatures above as well as the research on teachers' practical knowledge, China as a whole is still in a state of development, with an insufficient number of published articles and weak correlation between them, all of which indicate that China's shortcomings in research are still in a marginal position. The thoughts in this regard are as below:

a) Teachers' practical knowledge is a significant driving force to push forward education reform. In the course of searching for literatures, it can be seen that researchers in this field are not necessarily highly authoritative persons in the discipline, and there are also teachers in all professional disciplines, which suggests that this is not necessarily the patent of higher professionals. By means of CNKI's metrological visual analysis and Citespace software, though it is observed that the citation rate and popularization rate are not high, there is still a collision of ideas among researchers in the course of research and improvement. But on the other hand, teachers in some professional disciplines have not received specialized training, and they need to cooperate with professional personnel to achieve win-win results and jointly expand the research on teachers' practical knowledge; b) Teachers' practical knowledge is a vital means to upgrade teachers' personal capabilities. Teachers' practical knowledge brings together teachers' wisdom and personal capabilities to highlight the quality of teacher education. It is regarded as the basis for teachers to improve their personal capability, which can effectively guide teachers' teaching practice. For instance, the keywords such as "teacher education", "teachers' professional development", "teacher education curriculum" and "experience" extracted from Citespace software are taken as the starting point about how teachers can upgrade their own capability and classroom capability. However, from the current development, because of the contradiction and lack of the internal guidance mechanism and the external practice environment, teachers are still

lack of practical knowledge, so how to increase teachers' practical knowledge needs more discussion. c) Teachers' practical knowledge is a vital component of all disciplines. As for the field of teachers' practical knowledge, from the point of view of papers of various scholars, it belongs to a comprehensive field covering various aspects. In this field, we can find the shadows of psychology, pedagogy as well as other disciplines, and there are ample scope for use of the theories of various disciplines in this "comprehensive" field. Through professional knowledge analysis of various disciplines, researchers have come up with a brand-new concept with their own ideas, which created a relative value for the promotion of research in the filed of teachers' practical knowledge. d) Teachers' practical knowledge is a key to guide the development of teaching. From the research field, the researchers are more inclined to the development of teachers, and pay less attention to the influence of students. However, increasing teachers' practical knowledge exerts a far-reaching influence on students. Even in colleges and universities, there are insufficient professional theories of research, and it is limited to promote the research on teachers' practical knowledge by relying on researchers. The higher students' awareness of the research, the higher the possibility of raising teachers' practical knowledge. Thus, it is necessary to encourage and boost the popularization and promotion of the research among college students, in order to enhance its leading role in the development of teaching. This is extremely necessary in China's current higher education environment, with special emphasis on upgrading the quality.

Through the above analysis, it can be concluded that the current research hot spots in China are roughly based on two points. The first point gives priority to the development of teachers' personal capability, which is about the basic elements of teachers' self-growth and the improvement of their basic capabilities. The second point is the diversified presentation of classrooms in the context of educational reform, which examines the research on teachers' practical knowledge in the context of effective teaching, stressing the consistency between teachers' practical knowledge and diversified presentation of courses, and discusses some basic issues such as how to conduct effective teaching and how to enhance the experience of courses.

In general, from the development stage of this decade, the research on teachers' practical knowledge in China is not only in conformity with the realistic background of the basic education reform in China, but boosts the development of practice and enriches theories in teaching to a further extent. As for the outlook on the future, we are more inclined to grasp the following trends.

First of all, change the research perspective. From focusing on teachers' teaching behaviors to paying attention to students' curriculum experience, there is no doubt that teachers' teaching behaviors are a vital research perspective in the filed of teachers' practical knowledge. However, following the trend of taking students as the main body and teachers as the leader, creating a free, relaxed, democratic and harmonious classroom teaching atmosphere is also extensively advocated in the context of the new curriculum reform. Thus, if researchers still only focus on teachers' individual teaching behaviors while ignoring students' dominant position, the research and development will not carry modern characteristics. Thus, it should be a key content on how to launch efficient teaching research in the future by turning from teachers' teaching perspective to concerning about students' sense of curriculum experience in combination with the research results that are constantly enriched and expanded in their fields.

Moreover, increase the research density. Teachers' practical knowledge is a constructive tool for teachers' professional development as it plays an irreplaceable role - it is conducive to not only comprehend the significance of teachers' behaviors, but find a practical starting point for teachers' professional development (Shu & Wang, 1999). Despite that the research on teachers' practical knowledge is on the rise as a whole, it is still necessary to attach importance to raising the quality of research literature. On this basis, we should broaden the influence of research, enhance the cooperation between researchers and avoid the situation of each doing things in their own way.

Furthermore, deepen the research contents. To facilitate the continuous deepening of education reform, the research on teachers' practical knowledge cannot be discussed only in a simple background. Thus, we need to, from theory to practice, launch in-depth research at the micro and meso levels in combination with the development of teachers' personal qualities and the formation of students' curriculum experience, so as to make the research on teachers' practical knowledge more vivid and vital.

Finally, integrate the research methods. For the research of teachers' practical knowledge, domestic scholars may place emphasis on theoretical speculation, interpret the connotation of teachers' practical knowledge, identify its formation characteristics, and conclude the structure, development path, generating mechanism thereof, or just sum up experience and explain the shortcomings, generation of teachers' practical knowledge as well as the countermeasures. However, pure theoretical speculation and pure summary of experience are insufficient to support scientific research, and only when the two are combined, can we reach the ideal realm of displaying the original appearance and essence of things. Thus, the breakthrough and innovation of research on teachers' practical knowledge are fundamentally dependant on the change and innovation of research methods.

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