

## Construction of Chinese Professional Database for Continuing Education of Chinese Teachers in Primary and Secondary Schools<sup>1</sup>

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**Abstract:** The implementation of the National Training Program has promoted the development of continuing education for Chinese teachers in primary and secondary schools. After the short-term training, Chinese teachers in primary and secondary schools will face the problem of insufficient follow-up resources for their future continuing education. The state attaches great importance to the basic education in the rural areas of the central and Western regions, and strengthens the continuing education and training of teachers in these areas. One of the problems that need to be solved urgently in the training is the insufficiency of curriculum resources. The way to solve this problem is to establish a database of Chinese majors for Chinese teachers in primary and secondary schools, to provide Chinese teachers in primary and secondary schools and students of Chinese majors in normal universities with massive, fast and accurate curriculum resources, so that Chinese teachers in primary and secondary schools can easily and quickly find the required curriculum resources, thereby improving teaching efficiency and improving the quality of Chinese education and teaching, and then implement the training objectives of continuing education.

### 1. The Necessity of the Construction of Chinese Professional Database for the Continuing Education of Chinese Teachers in Primary and Secondary Schools

#### 1.1 The Concept of Chinese Professional Database.

Chinese professional database and Chinese database are two concepts at different levels. The former refers to the subject area, that is, the resources related to Chinese subject, corresponding to other subject areas such as mathematics, physics and so on. The latter refers to the classification of language level, corresponding to foreign database.

The content of the database of Chinese major in the continuing education for Chinese teachers in primary and secondary schools should include all the curriculum resources, such as textbooks and teaching aids, especially the corresponding book resources, such as ontological knowledge, background knowledge and conditional knowledge.<sup>2</sup> Forms should include audio, video, images, documents, etc. According to the way of use, these curriculum resources include not only the resources directly used in teaching, such as textbooks, teaching plans, writers, backgrounds, famous teachers' demonstrations, exercises and cases, but also indirectly used resources such as literary works, literary theory, linguistics, pedagogy, psychology, sociology or other interdisciplinary knowledge.

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[2] Zhu Shaoyu, Editor-in-Chief, Chinese Curriculum and Teaching in Middle Schools, Higher Education Press, April 2005, 1st Edition, 374 pages

## 1.2 Current Situation of Chinese Curriculum Resources in Primary and Secondary Schools.

1) Current curriculum resources are scattered. The richness of Chinese curriculum resources exceeds that of any other subject. "The extension of Chinese learning is equal to that of life" fully illustrates the richness of Chinese curriculum resources. However, the available curriculum resources are scattered, and there may be available resources in the network, libraries, textbooks, reference books and other places. Teachers need more time and energy to collect information.

During the seven years since the implementation of the National Training Program, Chinese education experts have done a lot of work on how to improve the quality of the National Training Program. The research results on the curriculum standards, curriculum design, training mode and training effect of the National Training Program have been very rich. At present, the national training program tends to train Chinese teachers in rural primary and secondary schools in the central and Western regions, providing opportunities for continuing education for teachers in these regions, which plays a very good role in promoting the ability of Chinese teachers in primary and secondary schools in the central and western regions of China. A prominent problem in training is the shortage of resources. The result of the shortage is that the training effect gradually fades out or disappears after the centralized training. Course resources are like vast oceans. Scattered resources are like fish in the ocean. They are erratic and difficult to catch. During the centralized training period, training institutions will provide part of the curriculum resources, such as database resources such as university libraries and HowNet, and some dynamic curriculum resources can not be continuously updated and used, such as the high-quality primary and secondary school soft environment where training institutions are located. These resources can not directly affect the language curriculum, but need to be sorted out and processed before they can be used. The fragmentation of network resources makes it difficult for Chinese teachers to screen and form a system when using them. At present, there is no mature, stable, systematic and abundant curriculum resource library to be directly utilized.

2) The quality of existing curriculum resources is difficult to guarantee. The full use of Chinese curriculum resources will promote the improvement of the quality of Chinese education and teaching in primary and secondary schools. No matter where the teaching environment is, the curriculum resources are very rich, but not every teacher can develop and construct the curriculum resources. Network resources are abundant, but in the age of self-media, its credibility and authority need to be discussed. Everyone has different abilities to develop curriculum resources, and there are great differences in the correctness and applicability of the collected resources. It is important for teachers to use unchecked resources, which will have a negative impact, and it is difficult to ensure the quality of teaching. The structure of primary and secondary school Chinese teachers' learning edge is relatively complex, and there are quite a number of Chinese teachers from non-normal schools, non-Chinese majors and non-undergraduate education in some areas; Chinese teachers in weak school teaching environment in remote areas have nowhere to obtain high-quality curriculum resources. For various reasons, the potential of these teachers in the development and construction of curriculum resources in the process of teaching has not been fully tapped, and the selection and utilization of curriculum resources is also far from the ideal state. It is very difficult for many Chinese teachers to develop and screen high-quality curriculum resources and apply them properly in Chinese teaching.

3) High-quality curriculum resources need to be purchased before they can be used.

There are many ways to develop language curriculum resources. The resources published by regular publishing houses or large professional websites are authoritative, but these resources often need to be paid to be used. These costs are a burden for many middle and western primary and secondary school language teachers. It is unrealistic to use these resources for a long time. Therefore, many language teachers have to give up the use of these high-quality curriculum resources painfully.

4) Resources for continuing education and training cannot be used for a long time. During the period of National Training Program, many Chinese teachers in primary and secondary schools can obtain some relatively stable curriculum resources, some of which can be brought back for use, but

most of them can not be taken away, such as university library resources, knowledge network resources and soft environment resources of primary and secondary school campuses where training institutions are located.

Language curriculum is instrumental and humanistic, and its essence is a comprehensive subject. It not only undertakes the task of language teaching, lets students learn to listen, read and write, and has Chinese thinking, but also undertakes the task of humanistic ideological education such as aesthetics, morality and culture, so as to enable students to have humanistic literacy and feelings. Therefore, Chinese curriculum resources should be rich and authoritative. The resources of Chinese curriculum in primary and secondary schools are scattered, and their sources are diversified. Teachers have different abilities to acquire resources, and the ways and quality of acquisition are also diversified. Because the accuracy and authority of some resources are difficult to guarantee, resources can not meet the needs of teaching, thus restricting the development of Chinese teachers' continuing education in primary and secondary schools.

### **1.3 The Necessity of the Construction of Chinese Professional Database.**

In our country, the continuing education and research of primary and secondary school teachers is an important work. Article 53 of the National Plan for Medium-and Long-Term Education Reform and Development (2010-2020) states: "Improving the Professional Level of Teachers. Improve the training system, do a good job in training planning, optimize the structure of the team, improve the professional level of teachers and teaching ability. Through research and training, academic exchanges, project funding and other means, we will train the backbone of education and teaching, 'double-qualified' teachers, academic leaders and principals, and bring up a number of famous teaching teachers and subject leaders. Continuing education and training of primary and secondary school teachers has always been an important part of the development of national education. Especially the "national training plan" initiated by the Ministry of Education and the "provincial training plan" organized by the provincial education departments have entered the second five-year plan stage. National and provincial training programs are carriers for the systematic and comprehensive implementation of the continuing education of primary and secondary school teachers. In addition, the training of primary and secondary school teachers at all levels is also an important means to train teachers and ensure the quality of teachers. It is an important measure to improve the quality of primary and secondary education and teaching in China. As an important subject of primary and secondary education, Chinese subject is also the mother tongue education. The quality of teaching has a significant impact on basic education teaching. The quality of Chinese teachers also directly affects the level and quality of Chinese teaching. Therefore, Chinese curriculum resources should be rich, comprehensive, authoritative and scientific.

The construction of professional database for Chinese teachers in primary and secondary schools has always been a blank. The screening and utilization of traditional curriculum resources has increased the difficulty of Chinese teaching, especially for new teachers.

Chinese professional database will ensure that Chinese teachers can find the course resources they need efficiently and quickly. The large data searched by teachers automatically generates the aggregation and association of resources, which can provide more accurate resource clustering for teaching activities such as preparing lessons and reading. These resources are officially published or audited by experts and are authoritative. Through resource clustering, it is more convenient and accurate to obtain resources. In the era of "Internet +", combining the Internet with the professional development of teachers, combining the big data analysis and database construction with teachers' continuing education, and using Chinese professional database resources to promote the professionalization of teaching and learning in primary and secondary schools, is an inevitable trend in the era of "Internet +".

At present, some library resources in China have a certain scale of Chinese e-books. For example, the superstar e-books have reached one million copies, and the national library has collected more than three million copies of e-books. In addition to e-books, including audio, video, images,

documents and other professional materials, these resources are huge, rich, but primary and secondary language teachers want to precise inquiry, in the vast network resources or library collection to find the information they need, undoubtedly like a needle in a haystack.

At present, our background is "Internet +". In such a developed society with mobile terminals, there is a need for an electronic database for primary and secondary school language teachers to meet the needs of primary and secondary school language teachers in preparing lessons and continuing education. Moreover, with such a database, after large data analysis, and through the Internet and mobile terminals, fragmented reading content in fragmented reading time can also be transformed into group text reading content, which greatly improves the efficiency of lesson preparation. Compared with paper books, mobile terminals show rich, fast and fresh resources, which are more free and convenient to use.

## **2. Analysis on the Construction of Chinese Professional Database**

### **2.1 Difficult Collection and Screening of Data Information**

The database construction of Chinese majors is aimed at the continuing education and training of Chinese teachers in primary and secondary schools and their daily teaching behavior. Therefore, the main content of the database is the curriculum resources of Chinese subjects in primary and secondary schools. Then, what content belongs to the category of Chinese subject in primary and secondary schools? From the point of view of Chinese textbooks, Chinese textbooks in primary and secondary schools cover a wide range of areas, including China and foreign countries, ancient and modern, both language and literature, literature and art as well as science, both textbook system and assistant reading system in textbooks. In addition, it also includes other curriculum resources besides textbooks, such as nature, society, network and so on, which cover a wide range of contents. How to collect professional resources and who will screen them after collection has become a big problem. First of all, the personnel who collect and screen must understand and be familiar with Chinese education in primary and secondary schools and form a team. The formation of a team is difficult. Secondly, it is difficult to collect information. The richness of curriculum resources makes it very difficult to collect the angle and quantity of information. In addition, the screening of information is difficult. Even if various curriculum resources are collected and screened out, it is also a difficult problem. For example, what criteria should be used for screening, how to grasp the quantity and quality of screening, and so on, are all worth studying and thinking.

### **2.2 Complex Classification and Systematization of Data Information**

It is very difficult to translate Chinese curriculum resources into data information, and it has not yet been fully transformed. The existing data information is not classified. Taking e-books in libraries as an example, the abundant collection resources are not all available resources of the Chinese subject. Even if they have been indexed, they can not be found directly available resources. Therefore, in order to meet the needs of Chinese teaching in primary and secondary schools, it is necessary to systematically classify these scattered and fragmented resources. However, this is a huge project, it is just like some shopping websites, which specially divides the types of shopping and establishes an integrated information system. In this system, it is a huge project to find the related resources quickly and through the analysis of large data and cloud computing.

### **2.3 The Complex Ownership of Intellectual Property Rights Involved in Data Information**

The content of the database is related to books, movies, TV dramas, articles and so on, which involves intellectual property rights. How to avoid infringement and piracy and let primary and secondary school language teachers use it free or reasonably pay for it is also a difficult problem. Firstly, although the training for Chinese teachers' continuing education in primary and secondary schools is a national behavior, the Ministry of Education or the Provincial Department of Education has delegated training qualifications to training institutions, which have many levels. Only universities have large-scale library resources, and the other training institutions have less library

resources even if they have library resources. The library resources of colleges and universities can be used during the training period, but after the training, the group of Chinese teachers in primary and secondary schools is no longer open, especially the electronic reading rights of University libraries. Usually, it can only be used on the campus network. The electronic resources of library collection involved in university libraries are usually purchased copyright, and there is no problem in using them. However, these resources are only part of the resources used by primary and secondary language teachers. Other resource libraries do not have, for example, network resources in the age of self-media. Some resources are of good quality and can be used. But how to incorporate them into the resource library will involve the issue of purchasing copyright, especially audio and video teaching materials. Once they are found to be used for training on a universal scale, copyright will also be involved. How to deal with this part, the departments and legal policies involved are more complex. This is a difficult problem. If we solve it well, we will promote the legal construction and rational use of the database.

## **2.4 Difficult Analysis of Data Information**

After the construction of the database, the use of language teachers in primary and secondary schools will inevitably involve large data analysis, data analysis and correlation within a specific range, which is also a difficult problem. First of all, there should be a data sharing platform, secondly, there should be professional data analysis software and data analysts, and thirdly, there should be experts familiar with primary and secondary language teaching. According to the current situation of Chinese education in primary and secondary schools, these data analysts should analyze the relevant information needed in the training of Chinese teachers in primary and secondary schools and the needs of Chinese teachers in the preparation of lessons, so as to effectively analyze and correlate the keywords and the data generated by teachers' search, which are indispensable in both aspects. Teams with such professional backgrounds can develop and build indexing tools only by data analysis.

## **3. Strategies for the Construction of Chinese Professional Database Based on the Continuing Education of Chinese Teachers in Primary and Secondary Schools (Development and Utilization Strategies)**

### **3.1 Publishing Industry Enlarges Database Construction and Producing More Kinds of Digital Resources.**

Especially the theoretical books including educational theory and literary theory besides literary books, the publishing industry tends to produce more best-selling literary books at present, while the theoretical books for primary and secondary school language teachers are relatively few. In addition, most of the video resources tend to be film literature, while there are relatively few teaching resources for primary and secondary schools, such as demonstration classes for famous teachers, lectures for famous teachers, interpretation of expert texts, textbook analysis, classroom observation and expert comments, etc. The number of production and distribution by regular publishing houses is very small. Therefore, it is suggested that the publishing industry increase the production and distribution of these resources. If the sales volume is taken into account, it can be distributed to bookstores, educational and training institutions, basic education schools and other specific departments. We can also consider frequent updates, free upgrades and content updates within a certain period of time, which has a strong attraction for users and teachers.

### **3.2 Collection and Arrangement of Increased Collection Data Resources in Libraries.**

Among all kinds of library resources at all levels, the scale of e-books is increasing, but it is far from meeting the needs of language teaching for curriculum resources. If various training institutions at all levels undertake teacher training projects, their libraries should strengthen the collection and collation of information resources, establish horizontal cooperation with other training institutions' libraries, exchange resources, and purchase regular publications. On the one

hand, we should increase the scale of existing digital resources, on the other hand, we should establish separate collection resources for Chinese majors through classification and indexing.

### **3.3 The Department of Education to Strengthen the Standardized Management of Expert Network Data Resources.**

The communication characteristics of privatization and popularity of self-Media are affecting the accuracy, scientificity and standardization of network resources. Therefore, if we want to incorporate the vast amount of network resources into the database of primary and secondary school language teacher training, the audit work must be standardized. We can not change the characteristics of the age of self-media, but as teaching resources, the right to choose lies in us. If a database is established, it is necessary to organize a team of experts to audit resources step by step, just like the editors of publishing houses, after repeated audits, until it meets the requirements, it can be incorporated into the database. Based on the current situation of teacher training, free resources on the Internet can be given priority. The collection and collation of network free resources undertaken by language education experts can be provided to some authoritative websites of primary and secondary school language teachers or personal blogs, micro-blogs and famous teachers'studios of language education experts, etc. These resources can be audited and integrated into the database.

### **3.4 Strengthen the Training of Teachers in the Use of Resources and Development.**

Teachers participating in continuing education training are also curriculum resources. The curriculum resources they gather include tangible and intangible. These students are front-line teachers with rich experience and their wisdom is intangible curriculum resources. At the same time, they will also provide some teaching videos, courseware, cases and so on, which are tangible curriculum resources. Most of these curriculum resources are scattered, not formed a systematic, small number, not large-scale. But this part of curriculum resources is the most direct use of curriculum resources for front-line teachers, so training institutions need to collect and sort out and classify them. During the training period, curriculum resources can also be developed, which will produce new curriculum resources such as micro-courses, teaching plans, theoretical research and so on. The collection of these resources provides new energy and power for the database. These curriculum resources are active and fresh. Training institutions must pay attention to the collection and utilization of these resources.

## **4. Basic Architecture Assumption of Building Chinese Professional Database**

The content of Chinese professional database is abundant and its structure should be diversified. No matter from which perspective, the ultimate goal is to serve Chinese teachers in primary and secondary schools conveniently and quickly. Therefore, the database architecture can consider the following aspects:

1) With the primary and secondary school Chinese textbooks as the core, this paper carries out a hierarchical structure around the writers, works and reading aids system in the textbooks. The model is as follows:



Fig. 1 Structure around the writers, works and reading aids system

This kind of structure mode belongs to the micro-structure, with clear orientation, can directly let teachers find the resources they need, convenient and fast. It is the most favorite mode of primary and secondary school language teachers at present, and helps teachers to imitate and learn more. This mode is more popular with new teachers and is conducive to the rapid growth of new teachers.

2) With the system of Chinese curriculum theory as the core, it carries out a hierarchical structure around the structure of curriculum and teaching theory. The model is as follows:

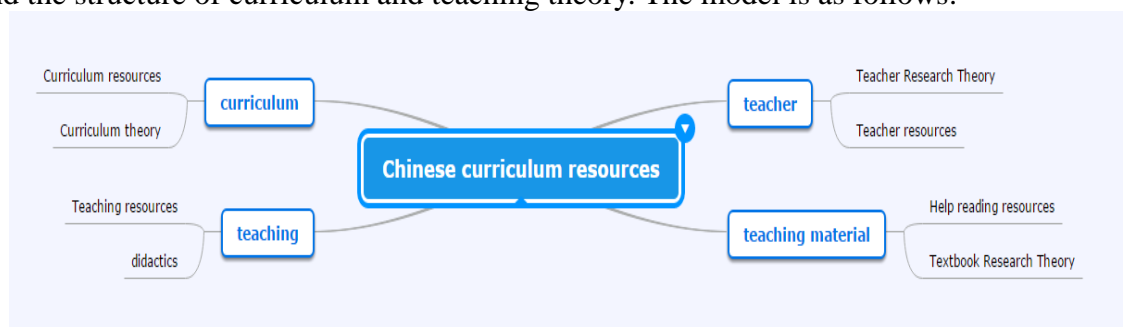


Fig. 2 Structure of curriculum and teaching theory

This model belongs to the macro-structure. For Chinese teachers in primary and secondary schools, there is more sense of the overall curriculum, which is conducive to teachers' macro-grasp of the Chinese curriculum system, clarification of teachers' responsibilities, improvement of teachers' theoretical research level, and in the long run, more conducive to the training of expert teachers.

Of course, the above two models can not reflect all levels of database construction. We can still construct a more diversified database of primary and secondary school language teachers' training from other perspectives, so as to make it more convenient to provide help for the continuing education of primary and secondary school language teachers.

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