Research on Curriculum Construction in Higher Vocational Colleges Based on Modern Educational Technology

Qunlin Chen*

{yuyve2008@126.com*}

Guangxi College for Preschool Education of Pingguo Campus Management Office, Nanning, Guangxi, 530022, China

Abstract. In order to effectively promote educational innovation, actively promote teaching reform, talent cultivation mode reform, and system reform, share high-quality teaching resources, and comprehensively improve the quality of education and teaching, this article proposes a study on the construction of vocational and technical courses based on modern educational technology. This paper first introduces the innovation of modern educational technology and curriculum construction of higher vocational colleges, and then makes a statistical analysis of the national curriculum construction model of higher vocational colleges. By Stratified sampling of the population P and random sampling within the subgroups of the population P, the percentage obtained from sample P1 can be extended to the total P composed of all national higher vocational colleges. According to statistical analysis of data, the following results are obtained: Currently, the national level curriculum construction mode of vocational colleges in the classification system of vocational colleges is mainly "teaching content textbook construction", which accounts for almost 58% of the total number of national vocational colleges in the classification system of vocational colleges; The proportion of "celebrities and teachers - academic achievement oriented" is very small, only 16%; The "Teaching Method Teaching Method Type" model has a certain position, accounting for 1/4 of the total number of vocational and technical courses in the national vocational and technical professional classification system. The research results of this project will help promote the transformation of the curriculum system in China's higher vocational and technical colleges, and will also provide theoretical and methodological references for the future construction of the curriculum system in China's higher vocational and technical colleges.

Keywords: modern educational technology; Higher vocational education; Curriculum construction.

1 Introduction

In order to truly promote innovation in education, achieve the sharing of high-quality teaching resources in teaching reform, talent cultivation mode reform, and system reform, and improve the overall quality of education and teaching, the Ministry of Education began the construction of the "Higher Education Teaching Quality and Teaching Reform Project" vocational and technical curriculum in April 2003. According to incomplete statistics, among the 300 "2004 National Higher Vocational Courses", there are 51 higher vocational courses, accounting for 17.0% of the total[1]. According to the distribution of 157 colleges and universities that have

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obtained "national vocational courses" in recent two years, about 15% of vocational and technical colleges have obtained more than one "national vocational courses". Judging from the work of curriculum construction in national higher vocational colleges, it basically reflects the working goal of the Ministry of Education to build a curriculum construction system in higher vocational colleges covering most majors, including three levels of the country, provinces, cities and schools, and benefiting all colleges and universities in China. After about five years, an open system with thousands of courses in higher vocational colleges will be built, with abundant high-quality teaching resources, this will greatly alleviate the contradiction of shortage of high-quality educational resources and lay a solid foundation for continuously improving the quality of education. In order to achieve this goal, information technology represented by the internet plays a crucial role in the construction of vocational and technical courses. It is a profession that emphasizes practical skills and practical operational abilities, so its application has become very important[2-3].

2 The status and role of modern educational technology courses

2.1 Innovation of Modern Educational Technology Curriculum Construction in Higher Vocational Colleges

(1) Strengthen the combination of theory and practice; The theory and technology of "modern educational technology" is an example of closely combining information technology theory and practice. The "modern educational technology" course fully demonstrates the characteristics of theory and practice, not only highlighting the important position of teaching theory in curriculum teaching, but also introduces the technical realization ways of using these theories to innovate teaching methods. In terms of teaching content, knowledge integration is the core of curriculum system construction, reflecting and absorbing the latest research results of this subject in time, taking knowledge points as modules, reasonably designing practical teaching links, appropriately reducing the content of basic theories and methods of modern educational technology, increasing the content of practice and practical operation, and cultivating students' practical ability and creative ability. The optimized course content is integrated into three parts, in which "Fundamentals of Modern Educational Technology" mainly teaches basic concepts and their application in education and teaching, "Construction of Teaching Resources" mainly includes the acquisition and processing of multimedia materials and the making of multimedia courseware, and "Modern Educational Technology Equipment" mainly teaches modern educational technology equipment, so that students can master the use of common modern educational media through practice [4]. See Table 1 for the arrangement of teaching contents.

Table 1. Teaching Contents of Modern Educational Technology

serial number	module	content	Class hours
1	modern education	Basic concepts, principles and methods of educational technology	2
	supporting technology	Teaching design	3
2	Construction of teaching resources	Acquisition and processing of media materials	3

3	modern education	Modern educational technology laboratory	4
	technical equipment	Photography practice	4

3 Statistics of curriculum construction mode in higher vocational colleges

In order to scientifically distinguish three types of higher vocational courses, we have made a statistical analysis of the national curriculum construction mode of higher vocational colleges.

3.1 Stratified sampling

According to the information published on the website of "National Higher Vocational College Curriculum Construction" in Ministry of Education of the People's Republic of China, from 2013 to 2020, a total of 2,511 national higher vocational courses were built. These 2,511 national-level vocational courses with exemplary significance constitute the population of our research object (denoted as population P). According to the classification system of higher vocational courses (higher vocational colleges), higher vocational courses in higher vocational colleges are divided into 13 categories, including the science of law, engineering and management. Because there are obvious differences in course contents, knowledge types, teaching methods, teaching conditions and so on, the data distribution characteristics of the population P meet the requirements of stratified sampling[5]. So we use stratified sampling method to extract research samples from the population P. First of all, based on these 13 categories, we make classified statistics on the population P, and get the specific number of each major category of courses in national higher vocational colleges. By stratified sampling according to major disciplines, a total of 100 courses in national higher vocational colleges are obtained, which constitute a sample P1 (see Table 2, the specific information of courses is omitted), and the sample size is about 4% of the number of parent units. Because the random sampling method is adopted in each subject category, the characteristics of the whole and the population P can be effectively deduced from the sample P [6].

Table 2. Sample P1(100 higher vocational courses)

Discipline categories	the science of law	engineering	management	pedagogics	economics	Neo-Confucianism	history	Two lessons kind	agriculture	Cultural quality	literature	medical science	philosophy	amount to
quantity	4	32	8	4	4	16	1	1	6	2	9	12	1	100

The percentage of the number of major courses in the overall P was calculated, as shown in Figure 1.

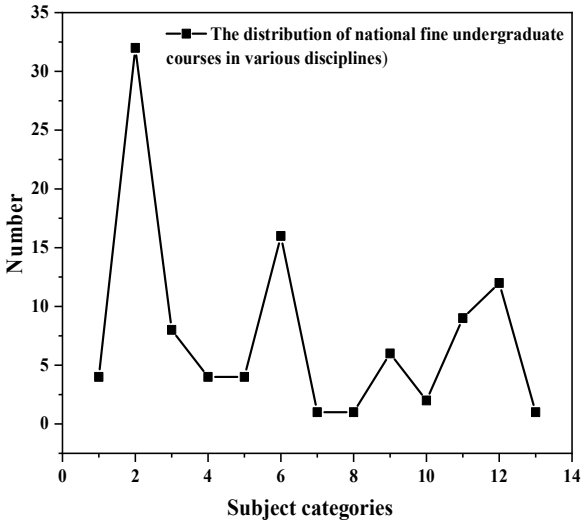

Fig.1. Statistical chart of the percentage of national elite undergraduate disciplines in 2013-2020

3.2 Collect data for analysis

We have obtained all the necessary data of 100 national-level higher vocational courses in various ways, and successfully completed the data collection. Through the qualitative analysis of the collected data, we find that the national higher vocational courses in sample P1 can be clearly divided into three categories: the first category of courses is marked by academicians, famous scientists, educators, artists and outstanding leading figures in various disciplines, all of whom have achieved outstanding academic and/or teaching achievements in their respective academic fields, and we call this category "famous teachers-academic achievement type"; The second kind of courses is marked by excellent teaching materials and excellent teaching contents, which are classic, scientific, advanced and forward-looking, and suitable for college students' mental development and thinking mode[7-8]. Through the publication of teaching materials in higher vocational colleges, it has achieved good radiation effect in the whole country or other provinces and cities. We call this kind "teaching content-teaching material construction type"; The symbol of the third kind of courses is to apply modern educational technology to innovate teaching methods and means, develop non-traditional teaching strategies such as research-based learning and collaborative learning, or use virtual reality technology to train simulation skills in teaching practice. Through the combination of modern educational technology and teaching methods and means, the courses in higher vocational colleges are endowed with new vitality. We call this kind "teaching method-teaching means type". In this way, three modes of curriculum construction in higher vocational colleges are summarized. By classifying the units in sample P1 into three modes: famous teachers-academic achievements, teaching content-textbook construction and teaching methods-teaching means, the percentage of the units classified into each mode in the total capacity of sample P1 can be calculated. We stratified sample the population P and randomly

sample within the subgroups of the population P, so the percentage obtained from the sample P1 can be extended to the population P composed of all national higher vocational courses. So we get the following statistics, as shown in Figure 2.

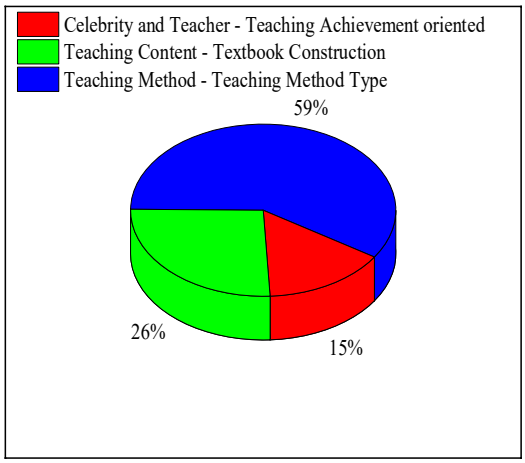

Fig.2. Statistical Chart of Curriculum Classification Mode in Higher Vocational Colleges from 2013 to 2020

3.3 Statistical results

According to the statistical analysis of the above data, we can get the following results: at present, the mode of curriculum construction in national higher vocational colleges is mainly "teaching content-textbook construction", which accounts for almost 58% of the total number of courses in all national higher vocational colleges; The proportion of "famous teachers-academic achievements" is very small, only 16%; The mode of "teaching method-teaching means" has a certain position, accounting for 1/4 of the total number of higher vocational courses in the national professional classification system of higher vocational colleges[9-10].

4 Conclusion

The construction of professional courses in higher vocational and technical colleges is not only necessary for their own development, but also the goal of their professional teaching. The application of modern educational technology has not only changed teaching methods, but also the structure and content of courses, updating teachers' educational concepts. Therefore, modern educational technology represented by information technology has greatly improved the quality and effectiveness of teaching, laying a solid foundation for the deep integration of educational technology and content in the next step. However, the construction of vocational and technical courses is a systematic project that requires teachers to correctly face and apply modern educational technology to the construction of vocational and technical courses. Only in this way can we promote the transformation of vocational and technical course models.

Acknowledgments. (1) 2018 China Guangxi vocational education reform project "Research and Practice of Teaching Management Process Optimization in Higher Vocational Colleges Based on the Background of "Diagnosis and Reform": A Case Study of Guangxi College for Preschool Education" (No. GXGZJG2018A004)

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