Brief Analysis of Statistics in Higher Vocational Colleges

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Abstract: *Statistics is subject foundation requisite for students who major in finance and economics. It is also a science about data. With the development of China's economy, and the role of statistics is gradually recognized by people, which has formed a huge challenge for higher vocational colleges in China. Under the background of big data, enterprises and institutions pay more attention to the statistical data analysis ability and mining ability of candidates when recruiting talents. But in reality, it is often difficult to recruit statistics professionals, because there are very few higher vocational colleges offering pure statistics[1]. From the perspective of discipline system, the relationship between statistics and various disciplines is cross, not a vertical discipline, but a horizontal discipline. Combining computer knowledge to form such as national economic accounting etc[2]. For current statistics teaching work of economics and management majors in higher vocational colleges, it is especially necessary to cultivate students' statistical thinking. However, at present teaching work, there is obvious lag in the teaching of statistics. Based on teaching contents, teaching methods and other aspects, this paper puts forward some suggestions on statistics teaching in higher vocational education to promote the improvement of teaching quality.*

Keywords: *statistics, big data, higher vocational colleges*

1. Introduction

Statistics is a course with strong practicality, and statistics is also an important quantitative analysis tool, with unusual strong use characteristics. With the development of China's economy and the progress of science and technology, big data has been applied in all fields of society, injecting new vitality into the development of society. In the era of big data, traditional statistical methods will be changed. A new approach to data analysis is needed to better meet the demands of the times. However, it is found that most statistics courses in higher vocational colleges are still stuck in the traditional teaching mode, which obviously cannot meet the requirements of national construction and social development[3]. For most of the current statistics teaching in higher vocational colleges still lay particular stress on theoretical knowledge, the teaching methods and concepts are relatively backward, and the corresponding practical exercises are lacking. Therefore, under the background of big data, it is urgent to reform the statistics discipline in higher vocational colleges. So how to improve statistics teaching is an important problem for statistics teachers in higher vocational colleges.

2. Problems in statistics teaching in higher vocational colleges

First of all, students in higher vocational colleges poor in learning, but have strong practical ability. Students' foundation is weak, their admission results are not very satisfactory. The weak foundation of in mathematics will lead to a difficult situation for students to learn. Statistics is mainly based on social science, with a large number of calculations and analysis. Students will have a certain fear of difficulties, which will greatly reduce their interest in learning. For complex formulas, students are easy to give up. Many students find it difficult to understand, they fear formulas and calculations, so they don't listen in class, but rather spend time on their cellphone.

Secondly, the separation between the teaching and practice. For the statistics teaching work in higher vocational colleges, the fundamental purpose is to help students master the methods of data analysis, so that students can discover the law in massive information and provide scientific basis for the final decision-making.

We all know that now is the era of big data, however, from the current teaching work, statistics

teaching is obviously lagging behind, and its formed teaching mode has been difficult to meet the development needs of the current era. In the class, there is more to teach the basic statistics theory, lacking the knowledge of big data statistics, especially in the application of computer technology. Many teachers do not pay attention to the cultivation of students' software application, and most of them just pass through the software teaching. Without in- depth explanation and analysis, students will lack the mastery of software skills. There are many software in the computer to help us collect data, like Microsoft Excel, SAS, Python etc. Some teachers don't even know how to use the software. Students have obvious deficiencies in the application ability of big data statistical software, which affects students' practical operation ability[4]. It will lead to students can not meet the needs of enterprises, and it is unable to form competitive advantage in employment. Teachers simply explain textbooks and emphasize theories in class, which leads students to sleep and play in class and restricts the improvement of students' practical ability. Over time, teachers have no intention of teaching, forming a vicious circle.

Thirdly, the shortage of teaching tools. There was a lack of teaching materials suitable for higher vocational students. The teaching materials on the market are similar in structure, content and philosophy. The cases used in the books are old and repetitive, and there are few cases that are relatively new and in line with the reality, and many of the materials are beyond the acceptable range of higher education students, making it difficult for them to learn[5].

Fourth, from the current education situation of higher vocational colleges in China, most of the statistics courses offered by higher vocational colleges still adopt the traditional teaching methods. The traditional teaching mode is generally the teacher speaks the statistical theory knowledge on the platform, the students sit below to listen, occasionally take the class notes, cooperate with the content of the class to do exercises, the teacher assigns homework students to do homework after class. In the current information technology era, this traditional teaching mode has been unable to fully meet the needs of teaching, nor can it achieve the goal of teaching. Neither teachers nor students have any novelty or interest in teaching. The traditional teaching mode is always supplemented by teachers as the main students, which cannot better mobilize students' learning initiative. The traditional teaching method only cultivates students' single learning ability and also has some disadvantages, which is not conducive to the improvement of teaching quality. Under the condition of socialist market economy, the actual life varied and complicated determines the statistical knowledge is not only limited to the traditional teaching mode, simply to teach students statistical theory knowledge, and should adapt to the "big data information age" of social environment and change, in teaching should pay more attention to cultivate students' comprehensive ability to analyze and solve problems.

Next, with the reform of "Internet + teaching", various online learning platform emerge in endlessly, realize the high quality teachers and learning resources sharing, but independent between each platform, data sharing between platform, education managers in the lack of sufficient data basis, teaching resources allocation with subjective consciousness to judge, cannot make scientific and reasonable decisions, consequently, students can't get equal teaching resources, less cross-field, interdisciplinary knowledge contact, teaching quality difference is bigger, is not conducive to the cultivation of interdisciplinary talents.

Then, with the continuous improvement of the importance that higher education attaches to moral education in China, the construction of a collaborative education system between various majors and ideological and political courses has gradually become the most core link in the reform of professional courses and ideological and political courses in higher vocational colleges. However, due to the training characteristics of higher vocational education with typical applied and skilled talents, ideological and political education has problems such as insufficient attention and imperfect construction of integration and development system. The construction of ideological and political integration of professional courses and curriculum has also become the key and difficult point in the education and teaching reform of higher vocational colleges. Statistics is one of the disciplines that must be contacted or applied in many fields. It is the basis for the ideological and political connotation of the course to improve the ideological and political level of statistics related professionals and the smooth ideological and political development of the course. For the future positions of the students majoring in statistics, China has clear requirements for their professional ethics and professional quality norms, and the basic core includes but is not limited to "seeking truth from facts", "strict and cautious", "not making false numbers" and so on.

In addition to this, the shortage of statistical software. There is very little statistical software supporting teaching materials available for statistics teaching in higher vocational colleges. Like accounting software, there are so many partners support, teachers could compare and choose. But for

the statistical software, there are few providers, it's either too professional or too complicated. Teachers can not use statistical software without reference books, students can not use either. Although students have mastered the derivation method of mathematical formulas, it is difficult to get accurate data information in the face of complicated data.

Lastly, the single assessment method. In the current statistics teaching in higher vocational colleges, closed-book examination is more often used to carry out assessment with large number of questions and calculations, and more of them are aimed at theoretical knowledge. We all know that statistics is a subject about data collection, calculation and analysis with strong practicality, however, the assessment hardly reflects practicality, and teachers don't know students' real practical ability. It is also meaningless for the teaching of this course.

3. Ways to improve statistics teaching in higher vocational colleges

In order to meet the requirements of the current era of big data, in the process of statistics reform in higher vocational colleges, it is necessary to innovate teaching methods, improve teaching quality and provide better teaching services for students. Here are some suggestions:

Changing teaching contents according to students' situation. In the process of teaching in higher vocational colleges, it is necessary to strengthen the cultivation of applied talents and skilled talents. Under the limited teaching time, it is difficult to meet the relevant requirements of students' statistics, which affects the improvement of teaching quality. In addition, students have a weak foundation and do not like learning.

Under the limited teaching time, not all knowledge points are suitable for higher vocational students, on the basis of improving the teaching of basic theoretical knowledge, teachers could focus on imparting some key knowledge. Paying more attention to the practical training. Teachers could design a complete statistical investigation activity, which aims at the current hot issues, from the determination of the subject of statistical investigation to the design of statistical scheme, from the design of statistical questionnaire to the collection of data, and sort out the data, then analyse and finally come to a conclusion. Students could put their learned professional knowledge into life practice, which is conducive to students' mastery and understanding of statistical knowledge[6].   Students will be more likely to participate in the class and have more interests in learning statistics. Thereby achieving the purpose of teaching.

Selecting teaching materials reasonably and scientifically. In selecting teaching materials, teachers should consider the situation of higher vocational students, it is better to combine the characteristics of the major. If conditions permit, teachers could write statistical teaching materials themselves. It is better to write teaching materials with experts from enterprises. There is always a gap between college teaching and enterprise work, it requires teachers to know more about enterprises and to cultivate talents needed by enterprises.

Strengthening the use of statistical software. First of all, teachers must be able to use statistical software. A lot of older teachers can not get how to use software, so they should self-study in leisure time or participate in training. Most of statistical software may be too technical, so colleges could look for partners to develop statistical software suitable for higher vocational students. Through the cultivation of software application, students could master more advanced processing methods and improve their practical ability. Under the era of big data, make students form a competitive advantage before graduation.

Diversification of teaching methods. Making effective use of multimedia teaching methods could help students have a good command of knowledge. Combine pictures and texts with videos, and make those boring, abstract and difficult theoretical knowledge concrete, so the theoretical knowledge will be vivid, which can enhance students' interest, and at the same time enhance their initiative.

Combine the advantages of online teaching and traditional teaching to carry out "online" + "offline" mixed teaching. Using information technology, relying on the network platform, the classroom is extended to the network virtual space, that is, on the basis of the traditional classroom teaching, combining the teaching resources of the online education platform and using advanced teaching tools for online teaching. In addition, under the mixed teaching mode, the teaching process is no longer a complete classroom, the teacher in the classroom role need to change, the main role of teachers is to guide, inspire, monitor the teaching process, students slowly change the role become the leading role of teaching initiative, enthusiasm and creativity, the role of effective transformation to improve the

teaching level to achieve the best teaching effect.

With the advent of the era of "Internet +" education field, "school + teachers + entity classroom" teaching mode has become the past, "wisdom teaching platform + wisdom learning terminal + students" teaching mode stands out, tens of thousands of boutique course platform, students choose teachers and courses, students can cross school, cross-platform choice courses, through the course, credit recognition complete learning. The accurate analysis of the learning situation of educational big data makes it possible to teach differentiated teaching, personalized learning, fine management and scientific decision-making. Educational big data can be effectively integrated into smart classroom and smart campus, and promote the generation of smart education. Students can break through the limitation of the classroom and get personalized teaching and guidance through the intelligent learning platform, so that students can enjoy equal educational opportunities. Through the mining, analysis, modeling and scientific decision-making of educational and teaching data, educational managers can complete the reasonable and balanced allocation of educational resources and realize the balanced development of regional education.

Course education under the horizon of higher vocational colleges statistics teaching path innovation, should by strengthening the construction of statistics courses, improve the professional teachers to carry out the ideological course concept and the enthusiasm of depth mining statistics course education connotation, combined with statistics teaching content and personalized needs of higher vocational college students, realize the integration of statistics and ideological education, in order to achieve the double education goal. In view of the current poor integration degree of statistics "professional courses" and "ideological and political education" in some higher vocational colleges, we must effectively rely on the combination point of statistics major and ideological and political education work. In terms of teaching content, the knowledge points and skill points of each chapter of the statistics course should be organically integrated with ideological and political work, and the moral, legal, professional quality, social responsibility should be effectively expanded for each chapter. Statistics course ideological connotation of continuous mining, need in colleges and universities, teachers constantly summarize the course about patriotism, social responsibility, humanistic spirit content, will summarize the content into a more novel statistical teaching materials, courseware, etc., through the targeted, rich and vivid teaching connotation lead students into the course education. In addition, big data technology can also provide help for the integration of statistics teaching and ideological and political education. According to the application of big data technology in the education industry, the core of big data is prediction. By using the use of algorithms, massive data is integrated and analyzed to predict the possibility of a certain event. When carrying out ideological and political education activities for students, teachers can use the existing data to analyze the learning situation, grasp the students' learning dynamics, and then take measures to guide and educate them. Through reasonable prediction, it can prevent students' ideological changes, timely relieve students' depressed mood, and guide the establishment of correct values.

Multiple assessment methods. Statistics is an extremely complex and practical subject. It is also an examination course in higher vocational colleges. Most of the assessment is to calculate the students' usual performance and final exam results according to a certain proportion, and take it as the only assessment standard, which can only detect whether students have mastered the basic knowledge of statistics, but can not master students' practical ability and the ability to use statistical knowledge.

In addition, this too simple assessment method can't reflect the teaching quality of teachers either. Teachers usually mark the scope of the examination before the examination, the students only need to recite the test points and simulate the exercises. These assessments do not meet the requirements of statistics teaching objectives, do not apply statistical thinking effectively, and cannot accurately reflect students' mastery of statistical knowledge. So it is necessary to change the way of assessment, that students can define their own learning direction and improve the actual teaching effect. The practical process assessment could be included in the assessment, and with some of professional case practice work, students are able to carry out appropriate research studies and demonstrate their practical skills in their investigation reports. It will improve students' enthusiasm for learning statistics and hands-on ability, so as to better put the learned statistical knowledge into the practice and application of statistics.

4. Conclusion

With the constant development of the economy and continuous deepening of the application of big data, statistics is getting more and more attention. The arrival of the era of big data not only brings new

vitality to the development of higher vocational colleges, but also tests teachers' teaching skills.

Big data serves human beings but how to make full use of the advantages of big data in the teaching process of statistics is the most important thing. Statistics is an important course in higher vocational education, which needs to collect and sort out the data, and then carry out corresponding analysis and prediction, so it requires that the statistics course in higher vocational colleges should pay attention to practicality and improve students' practical operation ability and innovation ability. I hope this analysis can inject new vitality into the statistics teaching in higher vocational colleges.

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