The Application and Teaching Improvement of Statistics in the Practice of Innovation and Entrepreneurship

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Abstract: Statistics, as a data analysis subject, mainly collects and collects the data of the research object, and establishes statistical model, quantitative analysis, summary and prediction, and discusses the law and characteristics of the quantity of the object. With the advent of the era of big data, the importance of statistics has become more and more recognized and paid more attention by the society, and the demand for talents with statistical basis is becoming more and more important. Statistics courses are also set up in various majors. However, because the statistical theory involves some abstract knowledge of probability theory and mathematical statistics, it is difficult for students to master it. The previous scholars' attention to the reform of statistics teaching is mostly focused on how to combine statistics theory with practical application, but in practical application, it ignores the background of the current college students' innovative and entrepreneurial practice. Therefore, combining statistics learning with the practice of College Students' innovation and entrepreneurship can not only achieve the purpose of learning statistics, but also achieve the goal of College Students' innovation and entrepreneurship project. At the same time, it also lays a foundation for the future academic research activities. It can be described as a great deal.

1. Introduction

The basic theory of statistics involves some knowledge about probability and sampling distribution. This part is more abstract and difficult to understand. It is more boring and difficult for students to learn. In addition, as part of the application of statistics, the data or more imaginary data, "clean" and single, or the selection of data far away from the students' major, the former makes it easy for some students to get the same analysis results as the textbooks in the experimental class, but it is more "rough" in real life. As a result, the latter is not impressed by the experience of the latter, which has influenced the students' enthusiasm for learning and the effect of learning to a certain extent. Combining the concept of "everyone innovation" and "all kinds of innovation" in the current society, the demand for this aspect is larger because of the limited ability of college students and their instructors (often the majority of them only have the knowledge of the major and lack of statistical knowledge or the opposite). Students engage in innovation and entrepreneurship activities to achieve the goal of combining statistical theory with practice.

2. The Development History of China's Statistics

China's statistical education has relatively late start. From the beginning of the 20th century, the development process can be roughly divided into three stages.

The first stage: before 1949. During this period, Mr. Xu Bao Ma Lu, the master of Chinese mathematical statistics, who made great contributions to the development of Chinese statistics. Mr. Xu graduated from the Department of Mathematics of Tsinghua University in 1933. He first went to Peking University to teach. In 1936, he went to the University of London College to study under R. A. Fisher, J. Neyman and E. S. Pearson et al. Mr. Xu has made world-class contributions in many fields such as probability theory, statistical inference and multivariate statistics. He was elected as the first academician of the Academia Sinica in 1948. In 1955, he was elected as the first member of the Chinese Academy of Sciences and became a Chinese statistician. The only first-level professor in the academic world. In addition to Mr. Xu, there are also famous scholars such as Zhu Junyi, Jin

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Guobao, Xue Zhongsan, Dai Shiguang, etc. They have made great contributions to the development of the statistics department either in their early studies abroad or in their studies in China.

The second stage: 1949-1978. During this period, the Chinese Department of Statistics was deeply influenced by the former Soviet Union and divided into two special periods of "probability theory and mathematical statistics" and "social economic statistics". After the founding of the People's Republic of China, due to the political and economic situation at the time and the influence of the international environment, China's statistics were the shadow of the former Soviet Union. In 1954, the Soviet Academy of Sciences, the Soviet Ministry of Higher Education and the Central Bureau of Statistics jointly organized a statistical science seminar, which made a resolution on the subjects of statistics: "Statistics is an independent social science", that is, socioeconomic statistics, " Mathematical statistics is a part of mathematics. It has no sociality or class nature. After accepting this resolution, China has implemented it as the only correct point of view. Under the highly centralized planned economic system, the basic framework of the socio-economic statistical system was proposed, and statistics departments such as industrial statistics, business statistics, foreign trade statistics, and agricultural statistics were established. The application of mathematical statistics methods in various industry statistics was restricted. . For a long time, there was little connection between the two statistics. Mathematical statistics are becoming more and more theoretical, even if the application is not too daring to touch the socio-economic phenomenon; while socio-economic statistics are increasingly conceptualized, indexed, and simplified, rarely touching mathematical statistics methods, and statistical theory and application are artificially separated. Open.

The third stage: after 1978. Reform and opening up have brought unprecedented opportunities to the development of Chinese statistics. The renewal of ideas and the changes in the social and economic system have made the statistics attached to the planned economic system gradually lose its foundation for survival. Along with the discussion of the standard of truth testing and the re-influx of statistical thoughts and statistical thoughts in Europe and the United States, Chinese statisticians have been deeply rethought to the traditional statistical theory, and a long-lasting academic discussion has been carried out, and finally some consensus has been reached. To sum up, in the past 30 years of reform and opening up, there have been two landmark events in the process of statistical development. One is the determination of statistics from two independent statistics to the idea of”big statistics”, and the other is the first-level discipline of statistics. Determination of status.

3. The Importance of the Construction of Practical Teaching System in the Training of Applied Statistical Talents

3.1 The Construction of the Practical Teaching System Reflects the Professional Characteristics of the Applied Statistics Profession.

Applied statistics is a methodology discipline that emphasizes the acquisition and processing of data and the resolution of practical problems through data analysis. Therefore, the application of statistics and mathematics is more emphasis on the use of knowledge and the ability to solve practical problems. The construction of practical teaching system is an important part of perfecting the training mode of applied statistical talents, which fully reflects the professional characteristics of applied statistics services in various industries. Only by constructing a reasonable practical teaching system, students can learn to use statistical knowledge to analyze practical problems in practice, and skillfully use statistical software to process and analyze data, in order to meet the training needs of applied statistics, fully embody the professional application characteristics.

3.2 The Construction of Practical Teaching System is the Positioning Requirement of the Application Technology University.

The idea of the University of Applied Technology provides a new and feasible development path for emerging undergraduate colleges. Compared with traditional undergraduate colleges, applied

technology universities put more emphasis on “applications”, while practical ability and innovative ability are the key points for training, strengthening the cultivation of students' practical and innovative abilities, and the practice teaching links are the focus. Constructing a reasonable practical teaching system is an inevitable requirement for adapting to the orientation of applied technology universities, and an effective way to implement the teaching ideas of applied talents from practical teaching.

3.3 The Construction of Practical Teaching System is an Effective Means to Adapt to the Trend of Big Data.

In the context of big data, various industries have put forward new requirements for applied statistical professionals. The traditional statistics major has low requirements on students' ability to use computer and project completion. More emphasis is placed on the mastery of statistical theory and the simple use of statistical software for simple data analysis and processing. In the context of big data, the dimension of data and the increase of data volume and various industries have begun to pay attention to the application of data mining. At present, new requirements are put forward for the application of statistical ability students' computer skills and statistical software such as SAS and R. The construction of practical teaching system is an effective means to apply statistical talents to meet the new requirements under the current big data trend.

4. The Shortcomings in the Teaching of Statistics

4.1 The Teaching Goal is not in Harmony with the Orientation of Running a School.

Due to the lack of sufficient teaching experience and the professional statistics teaching task for finance and economics, many teachers have many years of professional statistics theory learning experience. In addition, many young teachers can not accurately understand the teaching purpose of statistics courses in finance and economics. It is easy to return to the teaching goals. In the teaching system of Statistics Specialty, the importance of theory teaching is emphasized in the teaching of statistics course, and the misunderstandings of mathematical deduction which pay attention to the statistical method are emphasized. The teaching methods such as heavy theory and light practice will not only cause the students to lose their interest in learning, but also weaken the role of statistics as the basic course of application, and violate the orientation of practical and innovative schools on the practical basis.

4.2 The Teaching Process does not Match the Teaching Plan.

The mismatch between the statistical teaching process and the teaching plan is mainly reflected in three places. First, the selection of teaching materials does not match the teaching plan. The textbooks on the market can combine professional and method, and the practicality of many textbooks is lacking. There are no examples that are in line with the profession, and there is some powerlessness in mobilizing students' enthusiasm. Second, the teaching implementation does not match the teaching plan. According to the requirements of applied undergraduate talent training, there must be certain practice links in the teaching plan. Most of the teachers are required. The practice link in statistics is equated with the operation of computer software, neglecting the necessary statistical survey plan design and the implementation of specific statistical survey work, and these specific practice links can bring unexpected enthusiasm to students; the third is teaching assessment and The teaching schemes do not match, and the teaching assessment of the knowledge objectives is easy to do in the form of test papers, but it is more frustrating to use the papers to achieve the goal of assessing the ability goals.

4.3 The Quality of Teachers does not Match the Orientation of Training.

The training of applied talents must have the corresponding teaching staff. At present, the teachers of the statistics teaching work are divided into two categories: one is the teacher of statistics professional origin. These teachers have a solid knowledge of statistics, and they are familiar with the latest development of statistics, but in class organization and teaching. The

methods are not as good as teachers with normal school background; two, professional teachers have been engaged in statistical teaching tasks due to the needs of professional construction. These teachers have a solid knowledge of professional courses, have strong experience and profound understanding of the application of statistics in related fields, and the same teaching methods need to be strengthened. What these two types of teachers lack is the practical ability to be put forward in the training and positioning of applied talents. If we can not prove that our teachers have such practical ability through some procedures or results, it is not possible to cultivate the talents of application type.

5. The Specific Curriculum Design of Statistics in Innovation and Entrepreneurship

In the curriculum design, and most of the statistical courses are all finished with theoretical knowledge and then the actual machine operation is different. Here, we advocate the actual operation while learning. In the first stage, since most students do not have a relevant statistical knowledge reserve, at this stage, some basic knowledge of statistics, such as the concept of statistics, the basis of probability and distribution, the steps of investigation, etc., are introduced. Let students have a general understanding of statistics and the investigation process.

In the second stage, the content of the innovation and entrepreneurship project is cut into. According to the survey steps of the previous study, the research content of the innovation and entrepreneurship project is determined, the questionnaire is designed, and the survey data is collected.

The third stage is the interplay of statistical theory knowledge and actual operations. For example, after the data of the innovation and entrepreneurship project is collected, how to describe the data from a statistical point of view, learn various techniques for displaying materials, such as the display of various charts, how to use the relevant statistical software in the computer to operate and obtain various results. In addition, the theoretical knowledge of parameter estimation and hypothesis testing is introduced. Subsequently, actual data is used for parameter estimation, and a theoretical model is established for hypothesis testing.

In the fourth stage, based on the statistical results, combined with the statistical knowledge of the first stage, the research purpose of innovation and entrepreneurship and the theoretical perspectives of related majors, the investigation report is written. So far, the entire process of statistical investigation has been completed, and the research report on innovation and entrepreneurship has also been completed.

6. Conclusion

By linking the knowledge of statistics to the practice of innovation and entrepreneurship, this study breaks through the limitations of the classroom and the laboratory, and covers the scope of statistics beyond the classroom, which will make the boring statistics course lively and interesting, improve the learning heat of college students, and master the knowledge of statistics. Prison, more solid. At the same time, through this teaching method, the ability of college students to use statistical knowledge to solve practical problems has been enhanced and a good foundation is laid for the improvement of College Students' innovative and entrepreneurial ability. Finally, the purpose of this study is to combine statistics and knowledge with each university student's innovation and entrepreneurship practice.

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