

Integration and practice of Statistics Teaching and Curriculum Ideology and Politics

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Abstract

This paper discusses and summarizes how to integrate the curriculum ideological and political education into the statistics teaching. The statistics curriculum contains rich ideological and political elements, which plays a very important role in cultivating the craftsman spirit of leading students to be honest and trustworthy, keep improving, be willing to contribute, serve the society, family and country feelings and so on. In order to better implement the policy and requirements of integrating curriculum ideology and politics into the teaching of professional courses, in the teaching of statistics courses, we have integrated curriculum ideology and politics into theoretical learning, case analysis and curriculum evaluation, and carried out teaching practice and exploration. It has effectively realized the trinity teaching objectives of statistics course knowledge transmission, ability training and ideological and political education. A very good effect of ideological and political education has obtained.

Keywords

Curriculum ideological and political; Statistics; Teaching practice.

1. Introduction

Statistics is a follow-up course of advanced mathematics, probability theory and mathematical statistics. It studies the science of extracting useful information from data to draw conclusions, discover laws and put forward constructive opinions [1, 2]. The theory and application of statistics are constantly updated with the arrival of the big data era, and the application fields are more extensive. This course has a systematic and rigorous discipline theory system and is a highly applicable course. The methods of general statistics and inferential statistics are widely used in sociology, economics, natural science and other fields. The training objective of statistics course is to train talents with good mathematical foundation and statistical literacy, master statistical theory and methods and skilled use of statistical software to analyze data. With the arrival of the big data era, there is an urgent need for talents with statistical professional background in all fields.

Since the curriculum ideological and political was put forward in Shanghai in 2014, there have been many mature experiences and theoretical achievements through the practice and exploration in different stages, different levels of schools and different majors. Under the current situation, the educational concept of statistics courses in colleges and universities is also gradually changing. Ideological and political education has gradually infiltrated into statistics courses. The educational concept of cultivating morality first and then educating people is constantly improving. The integration trend of professional education and ideological and political education is more and more obvious [3, 4]. However, the integration of ideological and political education into statistics curriculum education is still in the exploratory stage. Many colleges and universities focus on the practical operation of theory and knowledge in the

teaching process of statistics. The integration of curriculum ideological and political education and statistics knowledge teaching is not enough, or it is just a formality, or the ideological and political elements of statistics curriculum are not reflected in the teaching practice, so it is impossible to organically integrate curriculum ideological and political education into the specific teaching practice of statistics curriculum. It has not formed a complete system of integrating the ideological and political education of the course into the teaching of statistics from the syllabus, teaching objectives to teaching cases. These are the problems to be urgently solved in the reform of the ideological and political education of statistics.

2. The Important Significance of Integrating the Curriculum Ideology and Politics Into Statistics

Although statistics is a branch of Mathematics, it is widely used in various disciplines, and even in industry, commerce and government information decision-making. Statistics is an important basic work of national management and scientific decision-making. It not only serves the management and regulation of our party and government, but also serves various economic and social activities. It can be said that statistics have strongly promoted economic and social development, and the authenticity, accuracy and timeliness of statistical data are of vital importance. The work of new-type statistical talents has long attracted the great attention of the Party Central Committee and the State Council. In 2016, the state promulgated the opinions on deepening the reform of the statistical management system and improving the authenticity of statistical data, which provides a guarantee for preventing and controlling "digital corruption" from the institutional level. Although there are legal and institutional constraints, the most important thing is "people". The ideological and political education of statistics courses in colleges and universities has a long way to go to cultivate talents who have a strong sense of morality, are awed by data but do not follow blindly, and can truly love the profession of data investigation and data analysis [3]. In the process of the development of the socialist market economy, statistics courses are widely used in various fields, such as market research and prospect analysis, which are inseparable from statistical knowledge [5].

In the teaching process, teachers take the knowledge points of statistics as the carrier, excavate the materials of ideological and political education in the course, integrate the ideological and political elements and concepts into the teaching activities, reasonably sort out and design the teaching content and teaching process, and organically combine the statistical course with the ideological and political education in the course, and organically combine teaching and education. Secondly, statistics is a subject that studies the laws of statistics. In daily work and life, there are a lot of random phenomena, which makes statistics more advantageous in ideological and political education than other mathematics courses. In the course of teaching, the life of statisticians and their important contributions to probability statistics are introduced, so that students can truly feel their spirit of exploration for science. Stimulate students' learning motivation and establish the belief of pursuing truth and realizing their own value. This helps promote the comprehensive and healthy development of students. Thirdly, there are many abstract concepts and complex formulas in the course of statistics, and it is difficult for students to understand and refine them in a short time. In the teaching process, proper introduction of actual cases can not only deepen students' understanding of concepts and formulas, but also guide students to dig the connotation behind the cases and reflect the educational value of the cases.

Fostering virtue through education would be completed naturally in the study of professional courses, and combine the concepts of ideological and moral education with the teaching of statistics to improve the professional quality of students. The talents that we export have the double advantages of professional ability and professional quality, and truly realize the talent

training goal of collaborative education. Therefore, it is of great significance to carry out ideological and political reform in the statistics course, which can carry out ideological and political education for statistics professionals, help them establish correct political positions and values, and truly realize the "Trinity" training goal for students.

There are mainly the following methods to practice and solve the problem of how to integrate the curriculum ideology and politics into the case and practice teaching of statistics.

3. Integrate the Course Ideology and Politics Into the Course Teaching Process.

3.1. Integrate the Course Ideology and Politics into The Study of Basic Theories and Theorems.

Learning the basic theoretical knowledge of textbooks is the key to learning any course. In the process of learning these knowledge, we should understand the development of these knowledge and the formation process of theory, integrate the corresponding ideological and political elements of the course, and educate students to learn the scientific spirit of mathematicians' exploration of knowledge. Cultivate students' rigorous and realistic work style, patient and meticulous work style and serious scientific spirit. For example, when learning the Central Limit Theorem, we first introduce that the Central Limit Theorem is the most important theorem in statistics and has a strong application background. Since about 1716, statisticians Moivre, Laplace and Lyapunov have proved and popularized the theorem. The Central Limit Theorem is one of the cornerstones of mathematical statistics. With the continuous research of mathematicians, new theories have been produced and have been widely applied [6].

In the study of the two Central Limit Theorems, we sublimate and summarize the general theory from the special situation, so that students can learn the scientific spirit of these mathematicians who are persistent and pursue the truth. We should have innovative thinking, constantly improve existing achievements, dare to challenge and explore new knowledge in the future. Starting from the basic idea of the central limit theorem, for many insignificant and negligible variables, after summing them, they play a great role, showing a trend of normal distribution. This makes the students understand that "Unity is strength. One person's ability is very limited, if many people cooperate, they will have more energy to complete almost impossible goals", and cultivate this team spirit. At the same time, the idea of limit also enables students to understand the truth that "No integration of streams, can't result in seas and oceans". In order to reach the end point and achieve the grand goal, we must do every step and every detail. The design of the example further explains the above truth. Finally, the expansion of the design explores the working principle of Galton nail board, which is a deceptive device used to place bets, so that students can understand the deceptive tricks of gambling, stay away from such bad illegal acts as gambling, do not take advantage of opportunism, and only practical efforts can succeed.

3.2. Integrate the Ideological and Political Education into The Curriculum When Learning Theoretical Knowledge and Conducting Specific Case Analysis

Considering the applicability of the course of statistics, life practice cases are introduced into the teaching content to train and improve the students' ability to analyze and solve problems with theoretical knowledge, and improve their moral quality [6]. When teaching typical examples, we write and update the teaching contents and cases, select representative examples that are closely related to students' lives, and through the solution of problems, let students have inspiration and understanding, which can arouse students' resonance. And it completes

the integration of curriculum ideological and political education and statistics teaching naturally.

For example, when learning the parameter interval estimation, the example that I chose was to investigate the time of playing games of the students in the whole school. I randomly select 200 students, and get the weekly time of playing games of each student through the investigation, and calculate the average weekly time and variance of playing online games of 200 students. With a confidence level of 96%, the confidence interval of the average weekly playing time of students in the whole school is (14.8, 18.2). Similarly, a survey was conducted on the time of these 200 students participating in sports every week, and the confidence level was 96%. It is estimated that the confidence interval of the students participating in sports every week is (2.18, 4.5).

Through these two specific parameter interval estimation examples, the students' learning, physical exercise and entertainment methods are evaluated and analyzed. The time spent playing games every week takes a lot of time, while the time spent on physical exercise is so little. This shows that many students are addicted to games and neglect their usual physical exercise, which also leads to the decline of learning efficiency. If you want to gain something in the University, you should focus on learning, properly strengthen exercise, and study and live in down-to-earth. You can't place your spirit on the virtual network world. Only with real talents and learning can you make more contributions to the society and the country.

Another example, when learning the Bayes formula, the story of Children and Wolves [7] is cited. How to explain how the villagers in the story change from trust to distrust with statistical theoretical knowledge? Through appropriate assumptions and the use of the learned knowledge of Bayesian probability, the villagers' trust in children is reduced from the original high value to a very low value. After using the theoretical knowledge to solve this problem, we should excavate the moral elements of honesty and conduct honesty education for students. Honesty is a kind of quality, a virtue, a basic principle of a person, and the foundation of a person. Especially in modern society, it is one of the basic contents of the socialist core values, and integrity is also one of the basic moral norms that every citizen must abide by. This way of infiltrating recessive ideological and political education in simple terms makes it silent to cultivate people and moisten things.

4. Integrate Curriculum Ideology and Politics Into the Course Assessment of Students

The examination and evaluation system of curriculum ideology and politics is not only a necessary means to test the teaching effect, but also an important way to ensure teaching and education. The assessment scheme of statistics course respects the differences between students and incorporates the learning performance of students in the whole statistics course into the assessment system. The specific assessment scheme is as follows.

4.1. Innovate the Assessment Mode and Build an All-Round Assessment Mode with The Curriculum Ideology and Politics as The Main Body

The effective connection between the classroom and the extracurricular will be carried out. The assessment methods of combining oral and written tests, combining open and closed books, combining teacher evaluation with students' self-evaluation and collective mutual evaluation, and combining classroom performance with daily behavior will gradually form a multi-dimensional and all-round assessment mechanism to evaluate students. Among them, the theoretical assessment also needs to strengthen the examination of students' basic theories and their ability to internalize after class, as well as their ability to solve problems. Practice assessment needs to strengthen the performance of students' practice process inside and

outside the class, as well as the assessment of their ability to solve problems, writing of social practice reports, discussion in class and other teaching activities, so that students can play the role of the main channel of curriculum thinking and politics in the formation of moral habits.

We assess the development and progress of students in scientific and moral qualities such as rigorous scientific attitude, humanistic spirit, cultural self-confidence, social responsibility and patriotism, and in shaping correct world outlook and values. So as to test and feedback the effect of ideological and political education in statistics, and provide experience for better implementation of ideological and political education in the future.

4.2. Standardize the Process Assessment and Realize the Return of Assessment Standard

At present, curriculum ideological and political education still attaches importance to theory and neglects practice, which is directly related to the imperfect assessment mechanism of curriculum ideological and political education, that is, the quantitative assessment of curriculum ideological and political education is not fully grasped. The change of this dilemma needs to take the examination of students' learning as the starting point. The essence of assessment is the return of students' standard, which requires efforts in the process of assessment. In the assessment process, the attendance of students should be included in the assessment, the indicator system of the process assessment should be refined, and the integrity education should be run through the whole process of the ideological and political education of the curriculum, so as to realize the standardized process assessment and the standard return of the ideological and political assessment of the curriculum [8].

From different aspects of the curriculum ideological and political education effect feedback evaluation, in order to better improve the quality of teaching and promote the innovation and improvement of college curriculum ideological and political education. Curriculum ideological and political education is not only a new type of planning for schools, but also a new type of teaching for teachers. The fundamental purpose is still to train students with all-round development. Therefore, it is particularly important to assess the effect of ideological and political education. The assessment for this subject is divided into two aspects. Firstly, students' self-assessment. Students have different ideas about the outlook of professional learning and the goals they want to achieve. Students will conduct self-assessment. Secondly, teachers' assessment of students. Teachers have a deep understanding of students' ideological trends and professional learning, assess students' growth and point out the correct development direction.

5. Conclusion

In the teaching process of statistics course, we must follow the pace of the times of higher education reform, select ideological and political cases closer to life, add ideological and political elements in combination with the knowledge points of the course, carry out in-depth ideological and political education of the course, and analyze and solve new problems with the scientific concept of development. In the process of ideological and political teaching of statistics, it is necessary for every teacher to actively participate in the course, take moral education as the fundamental task, deeply study the course content, further improve the political quality, scientifically and reasonably integrate the ideological and political elements, give full play to the role of ideological and political education of statistics, and better cultivate students' abilities in all aspects.

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