

# Research on Teaching Reform of Statistics Course for Economics and Management Majors under the Background of Big Data

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**Abstract :** In view of the problems existing in the teaching process of traditional statistics under the background of big data, combined with the positioning of applied undergraduate talent training, this paper puts forward a series of reform measures: building a multi-dimensional teaching content system, increasing practical teaching links based on Excel software, changing teaching methods, innovating assessment methods, etc. The purpose is to optimize the teaching process of statistics and realize the training goal of applied talents.

**Keywords :** Big Data; Major in Economics and Management; Statistics; Curriculum Reform

Big data is the product of the development of modern science and technology. Especially as the meaning of data extends from numbers to information, big data has also become a “gold mine” in various industries, which has also derived a series of related disciplines. The content of data science is very rich. It is the general name of a variety of related disciplines, including statistics in addition to computer science. It can be seen that statistics plays an important role in the data science of processing big data. Statistics related scientific knowledge belongs to the basic content in the whole computer science. Therefore, it can be said that if you want to learn computer science well, and the introductory knowledge is statistics. You must make full efforts in statistics in order to lay the foundation for learning computer science. Therefore, in the curriculum reform, statistics must also be the focus of the curriculum reform.

## 1. Problems in current statistics teaching

As for statistics, most students do not have a clear and in-depth understanding, and it is easy to confuse it with mathematics. However, for most students, mathematics is a nightmare and a subject that everyone avoids. Because mathematics gives people the impression that it is complex and difficult to understand. Accordingly, for those who confuse the two disciplines, they naturally think that statistics is also difficult to learn, which leads to some problems in the process of statistics teaching.

### 1.1 Students' subject foundation is not solid enough, and learning difficulties lead to students' lack of learning enthusiasm.

Statistics is a subject based on mathematical statistics and probability theory. Therefore, the composition of the subject content will include calculus and linear algebra as the basis. However, looking at the whole economics and management specialty, it is obvious that there are a large proportion of liberal arts students, even more than half. For the majority of liberal arts students, mathematics is generally weak, so the professional foundation is too weak to support their subsequent learning, which will be a great blow to the statistics curriculum and a great challenge to teachers' teaching. In traditional statistics, the interpretation of professional theories and formulas is more boring, so students are not interested in learning statistics.

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## **1. 2 The teaching content of this course is not perfect, with more theories, less practice and poor application**

With the advent of the information age, almost all courses adopt multimedia teaching, but the classroom still focuses on the teaching of statistical theory. The emphasis on practical operation is far from enough. This teaching method lacking practical operation will make students lag behind the needs of practical work in follow-up data collection, processing and analysis.

## **1. 3 The teaching methods and means are traditional, and the teaching effect is not ideal**

With the adjustment of class hours, some teachers are difficult to adapt to the teaching under the class hour reduction mode. They always feel that the number of class hours is insufficient, and some teaching contents pass by and can not go deep. The teaching method of most teachers is still the four stage mode of “teaching knowledge points—consolidating classroom exercises—arranging homework—answering questions”. Even though teachers design interactive content with students, the effect is not ideal, and it is difficult to meet the new learning needs.

## **1. 4 Teaching cases are old and not updated in time**

Due to the lack of timeliness of statistical cases used in teaching materials, and the classical cases in statistical teaching materials are far from real life, which is difficult to stimulate students’ learning enthusiasm and interest. At the same time, most textbooks basically use statistical cases at the macro level, but lack new cases related to big data statistics at the micro level.

## **1. 5 The teaching examination and evaluation system is single**

In the traditional statistical assessment and evaluation, the evaluation of students’ performance always follows the form of “usual performance+final performance”. This form has always been a commonly used evaluation form in colleges and universities in China, but this form has obvious limitations. In this form, the standard for evaluating students’ performance only stays at the level of theoretical knowledge, but does not involve practical operation. However, for statistics, its greater role lies in practical operation. Therefore, no matter how well the theoretical knowledge is mastered, it must also have the corresponding practical ability to really play the practical role of statistics.

## **1. 6 Teachers lack big data knowledge and cannot combine big data with professional practice**

Teachers’ knowledge needs to be improved. Today, mankind has entered the era of big data. The arrival of the era of big data has spawned the production of many emerging technologies, brought great convenience to life and brought great changes to the teaching field. However, it also puts forward higher requirements for teachers, especially for teachers of computer science. However, according to the current situation, many teachers have not adapted to the speed of the development of the times, are not comprehensive in computer professional knowledge, and there are still many teachers with insufficient practical operation ability.

# **2. A series of measures for statistical reform of economics and management specialty**

## **2. 1 We should build a multi - dimensional teaching content system and introduce big data related content**

In the era of big data, the ways of learning knowledge are infinitely expanded and the learning cost is reduced. People can easily obtain the theoretical knowledge they need. Under this background, how to make use of these knowledge and better improve the application ability of knowledge has become a new goal of talent training, and the application ability is the core of teaching. Therefore, we need to work hard on curriculum design. First, we should consolidate students’ basic theoretical knowledge and train students’ thinking ability in statistics on this basis. In this process, the extension and expansion of big data knowledge can be properly carried out, supplemented by corresponding course cases. The selection of cases should be close to life and come from life, so that students can better understand.

## **2. 2 We should reasonably design teaching contents, strengthen practical teaching and improve students’ practical ability**

The application of statistics is very strong, but the application is based on solid theory. Therefore, in the process of teaching, we must pay attention to the combination of theory and practice, and complete the teaching tasks step by step under the guidance of teachers to achieve the teaching objectives. In order to achieve the goal of training applied talents, the class hours of statistics course have changed from pure theory teaching (48 class hours) to theory (40 class hours)+practice (8 class hours). The course group takes Excel software as the data analysis tool and adds relevant knowledge in the practice class, because Excel has strong data analysis ability and is also the most commonly used office software in various units.

### **2.3 Student centered, combined with a variety of teaching methods to stimulate students' interest and enthusiasm in learning**

Teachers should change from traditional indoctrination teaching to heuristic teaching, adhere to student-centered, actively adopt various teaching methods such as interactive teaching, case teaching and practical teaching, and guide students to actively participate in the teaching process. We should establish curriculum packages through superstar learning platform, expand students' learning channels and platforms, and let students' learning activities break the restrictions of time and space, in order to create a more convenient learning environment for students, and stimulate students' enthusiasm in learning. In addition to daily course teaching, students can also be encouraged to participate in other competition activities. While cultivating students' application ability, they can also expand students' knowledge and accumulate valuable practical experience.

### **2.4 We should innovate in the traditional performance assessment methods and change the situation that the traditional assessment methods focus on theory rather than application**

In the part of theoretical examination, new questions of application analysis and case analysis can be added. In the practical assessment part, in order to test the students' ability to study practical economic and social problems, the focus of the assessment is the students' comprehensive application ability of statistical knowledge.

### **2.5 Improve teachers**

For every school, the teachers of the school are the signboard of the school, the standard and one of the main reference conditions for students and parents to choose a school. At the same time, for schools and students, sufficient teachers are also the guarantee of teaching quality. In the context of Internet big data, the curriculum construction combined with big data knowledge puts forward new and high requirements for teachers. In order to further improve and deepen the reform of statistics teaching, statistics teachers should often participate in the exchange and cooperation of domestic colleges and universities, constantly broaden teachers' vision, and learn from each other, in order to improve their statistical theory teaching and practical operation ability.

## **3. Conclusion and prospect**

With the advent of the era of big data, higher requirements are put forward for the curriculum reform of statistics for economics and management majors in applied universities. Through the research on the reform of statistics curriculum system, it is found that there are a series of problems in the traditional statistics curriculum teaching. Therefore, in the context of big data, according to the training direction of applied undergraduate talents, the statistics course team has launched a series of reform measures, including: the construction of multi-dimensional teaching content system in the context of big data, the addition of practical teaching links based on Excel software, the change of teaching methods through the learning platform, the innovation of assessment and evaluation methods and other specific measures, in order to achieve the efficient utilization of statistics teaching resources, the innovation of teaching contents, the continuous optimization of teaching methods and the gradual enrichment of teaching cases.

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