

# Exploration and Practice of the Teaching Mode Reform of "Statistics" under the Background of the New Business Discipline

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**Abstract:** The revolutionary advancements in new information technologies and industries have raised new demands for cultivating business professionals and innovating teaching models. This article centers on the reform of the "Statistics" course's teaching model, using local undergraduate institutions' economic management majors as an example, to thoroughly examine issues in statistical teaching practice. It examines the reform from four perspectives: teaching objectives, teaching content, teaching methods, and teaching evaluation, illustrating with specific teaching materials and designs, and deriving pertinent conclusions and recommendations.

**Keywords:** Teaching Mode; Statistics; New Business Discipline.

## 1. Introduction

The world has entered the "Internet plus" era, marked by the revolutionary advancements in new information technologies and industries. Emerging technologies such as artificial intelligence and big data, alongside new business models in manufacturing, retail, and finance, are imposing new demands on business education and the reform of teaching methodologies [1]. The key to the development of new business lies in improving the collaborative education model between industry and academia, constructing an interdisciplinary and comprehensive integrated knowledge system, in order to enhance students' learning ability, thinking ability, and social practice ability [2]. In specific teaching practice, to achieve the goal of improving the talent cultivation mode and building a cross-border integrated knowledge system, it is crucial to reform the traditional teaching mode, integrating new business concepts and requirements into daily teaching practice. This integration should not only optimize teaching objectives and content but also reform teaching methods and evaluation. Statistics is a science that focuses on the theories and methods of statistical investigation, organization, and analysis, with a strong theoretical foundation and wide-ranging applications [3]. Statistics is a mandatory course for economic management majors and a crucial component of the new business discipline construction. Exploring and practicing reforms in the teaching of Statistics is essential for enhancing students' learning, thinking, and practical abilities. Using local undergraduate economics and management programs as a case study, this article delves into issues within the teaching practice of Statistics. It explores and implements reforms in teaching models through specific teaching content and designs, focusing on four aspects: teaching objectives, content, methods, and evaluation.

## 2. Analysis of the Current Situation and Problems

Lingnan Normal University, a provincial-level

undergraduate institution, boasts a century of educational history and has cultivated a significant number of exceptional teachers, educators, and applied talents for society. The Business School, a secondary college within Lingnan Normal University, houses six business majors. Statistics is a compulsory course for all students in management majors, carrying a credit of 3 points. This article examines the current state and challenges in teaching Statistics, drawing from teaching practice.

### 2.1. Weak Foundation in Mathematics

The course "Statistics" encompasses extensive mathematical knowledge, including numerous formulas and a high level of difficulty. Without a solid foundation in mathematical statistics, students may find it challenging to grasp the principles behind the statistical formulas. According to statistics, approximately 80% of students in business schools are from the humanities disciplines, with a weaker foundation in mathematics and science, which undoubtedly elevates the challenge of learning statistics. Some students lack clear learning objectives and exhibit limited initiative. Teaching is an interactive process between instructors and learners. If students lack enthusiasm, fail to preview or review, and solely rely on weekly classroom instruction, mastering statistical knowledge becomes difficult.

### 2.2. The Teaching Content Lacks Integrity

While the course of "Statistics" is challenging, it possesses a systematic and scientific knowledge system. Each learning session is a process of acquiring new knowledge and understanding and mastering new concepts while activating existing knowledge. Based on respecting students' cognitive laws, optimizing and integrating teaching content is particularly important, with teachers playing a crucial role in this aspect. Currently, in the teaching practice of "Statistics", there are issues such as weak overall coherence in teaching content, significant leaps between knowledge points, and inadequate connection between knowledge points across different chapters or disciplines. The fragmentation of teaching content has led to students artificially segmenting

knowledge points to some extent, preventing them from combining multidisciplinary knowledge to construct a systematic knowledge system. Additionally, in the teaching of "Statistics", there is a phenomenon of emphasizing theory while neglecting social practice, with more emphasis on introducing statistical principles and less on explaining specific statistical practices or field research activities.

### 2.3. Teaching Methods are Monotonous

Currently, the classroom teaching of "Statistics" mainly adopts passive traditional teaching methods, with less emphasis on interactive teaching based on specific cases or real-world scenarios. Teachers primarily deliver knowledge to students through blackboards or multimedia teaching aids, which may result in a phenomenon of excessive information delivery without sufficient interaction. There is minimal interaction and communication between teachers and students, leading to a less lively classroom atmosphere and difficulty in mobilizing students' enthusiasm for participating in classroom teaching. In the process of knowledge transmission, students are passive recipients and may unconsciously find the classroom teaching process tedious. Therefore, their understanding of knowledge points may only remain at a preliminary level.

### 2.4. Teaching Evaluation is not Comprehensive

Teaching evaluation mainly includes two aspects: one is the evaluation of students' learning outcomes, such as final exams; the other is the evaluation of teachers' teaching practices, including aspects such as teaching design, organization, and implementation. Currently, the evaluation metric for student learning outcomes in the "Statistics" course is the final exam score. While the final exam score somewhat reflects students' understanding of the basic principles and formulas of "Statistics", a closed-book exam is insufficient to comprehensively evaluate students' overall abilities. More importantly, in the current teaching evaluation system, student evaluations of teachers constitute a significant part of evaluating teachers' teaching work. However, most students primarily evaluate teachers' teaching activities based on whether the teacher provides the scope of the final exam. Teachers who provide the exam scope are considered good teachers, and their student evaluation scores are generally high. This phenomenon not only leads to teaching evaluations becoming superficial but also demotivates some teachers in their teaching enthusiasm.

## 3. Exploration of Teaching Mode Reform

The reform of the teaching mode for the "Statistics" course should further proceed in terms of clarifying teaching objectives, optimizing teaching content, innovating teaching methods, and improving teaching evaluation. This article elaborates based on specific teaching cases of "Statistics".

### 3.1. Teaching Objective

Clarifying teaching objectives is the primary task of teaching. Only by having clear teaching objectives can teaching design, course delivery, and talent cultivation be effectively carried out. The reform of the teaching mode for the "Statistics" course requires teachers to conduct teaching in accordance with students' cognitive patterns. Teachers should not only teach basic conceptual knowledge but also

guide students in summarizing the inherent laws of knowledge. Specifically, the teaching objective of "Statistics" is to cultivate students' abilities in data processing, investigation, and research. Teachers should focus on training students to apply the basic theories and methods of statistics to specific socioeconomic phenomena and enable them to conduct specific social surveys and data analysis. More importantly, teachers should emphasize the cultivation of students' independent thinking abilities, allowing them to understand the economic implications of data during survey practice or data analysis, deepening their understanding of the basic principles of statistics and improving their problem-solving abilities.

### 3.2. Teaching Content

"Statistics" is a methodological science that explores the inherent quantitative patterns within data. The combination of statistics and probability theory has greatly expanded the scope of statistical research. Generally, "Statistics" can be divided into descriptive statistics and inferential statistics, with inferential statistics being a difficult area. The lack of statistical inference thinking is a key reason why students fear statistics. To address this issue, teachers should consciously integrate "statistics" and "probability theory" in teaching practice to help students establish internal connections. For example, in the teaching practice of the chapter on statistical organization, teachers should combine "frequency distribution" and "distribution graphs" to guide students in connecting frequency distributions with probability density functions. Through comprehensive teaching design, teachers integrate and optimize the teaching content, helping students connect fragmented content, and construct a knowledge framework by connecting points to form lines and lines to form a plane.

### 3.3. Teaching Method

Teaching methods refer to the pathways, steps, and means employed to achieve teaching objectives. These methods are diverse and constantly enriched through teaching practice. Teachers need to select appropriate methods based on the characteristics of the content and adapt to local conditions. The "Statistics" course involves a considerable amount of mathematical knowledge, numerous formulas, and is relatively difficult. Therefore, teachers should be adept at using diversified teaching methods according to the teaching content and characteristics, such as the typical case method, visualization method, and topic-specific teaching. This article provides a specific example using the typical case method. Field research is a crucial aspect of statistical data collection, organization, and analysis. When teaching chapters related to field research, if teachers can use typical field research examples to specifically describe the details of the field research process to students, it will enhance students' interest in learning and their enthusiasm for conducting field research [4]. "The Economy of Jiangcun" is a classic academic work that serves as a typical case for field research. It is a model for how to conduct social investigations and write investigation reports, holding great academic and practical significance. Based on this, teachers can assign course assignments in advance, requiring students to carefully read the work and engage in deep thinking around a series of questions, followed by writing a review. For example, why did the author choose Kaixiangong Village as the research site? What methods were used to collect data? How were the research materials

organized and the investigation report written? What difficulties were encountered during the field investigation, and how were they resolved? Through the interplay between the literature and this series of questions, students deepen their understanding of field research and grasp the basic norms for writing investigation reports.

### 3.4. Teaching Evaluation

Teaching evaluation is an activity that judges the value of teaching effectiveness based on teaching objectives, mainly including the evaluation of teachers' teaching practice and the assessment of students' learning outcomes. Firstly, to enhance the evaluation of teachers' teaching practice, it is crucial to improve the mechanism for assessing teaching effectiveness, such as routine teaching inspections by teaching supervision teams, teaching skills competitions for middle-aged and young teachers, and the mentor responsibility system for young teachers. Secondly, the teaching objective of "Statistics" is to enhance students' comprehensive abilities, which is not only reflected in mastering basic formulas and principles but also in strengthening the cultivation of students' thinking creativity and rational critical thinking. Therefore, in teaching practice, teachers should adopt diverse and flexible methods to assess students' learning outcomes. One is the closed-book exam, which mainly assesses basic principles, formulas, computational abilities, and other content. The second is course papers, which primarily evaluate students' overall knowledge application, language expression abilities, and thinking skills. The third is investigation reports and course defenses, which mainly assess students' practical abilities. The evaluation of students' grades should be multidimensional, including final exam scores, course papers, investigation reports, and students' enthusiasm for participating in teaching activities, requiring comprehensive assessment.

## 4. Conclusion

The revolutionary development of new information technology and industries has ushered in the era of "Internet+", posing new requirements on the cultivation of business talents and teaching models due to the emergence of new technologies and business formats. This article focuses on the reform of teaching models, taking business majors in local undergraduate universities as an example. Based on an

in-depth analysis of the existing issues in "Statistics" teaching, it explores the reform content of statistics teaching models from four dimensions: teaching objectives, teaching content, teaching methods, and teaching evaluation, using specific teaching content and instructional design as examples. Teaching is an art that needs to be continuously enriched through practice, and the improvement of teaching effectiveness requires the joint efforts of both teachers and students. For students, they should fully understand the importance of "Statistics", enhance their enthusiasm for learning, and actively participate in investigative practices. For teachers, they should have a clear understanding of the overall framework of "Statistics", elaborate on each chapter's content thoroughly, and enhance students' enthusiasm for learning and practice, bridging the gap from theory to practice.

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