

Teaching Reform of Statistics Courses in Economic Management in Higher Vocational Colleges in Hebei Province, China

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Abstract: The relevant knowledge, methods, and skills of applied statistics have become one of the methods and skills that college students majoring in business management need to master in the era of big data. This paper mainly analyzes the current status of education and teaching statistics in economic management in higher vocational colleges in Hebei Province, China, based on the background of innovation and entrepreneurship. Combined with the "Surveying Hebei" social survey activity, relevant improvement and enhancement methods are proposed for teaching objectives, content, methods, and practical teaching. In combination with the "Investigation in Hebei" social survey activity, relevant improvement and enhancement methods are proposed for teaching objectives, content, methods, and practical teaching. The design of economic management statistics courses is continuously improved, aiming to provide some feasible opinions and suggestions for the curriculum construction of China's higher vocational colleges.

Keywords: Statistics; Investigation in Hebei; Teaching Reform.

1. Introduction

With the advent of the era of big data, the development of statistics has entered a new stage and has been applied to more and more disciplines. Statistics is a basic course for economic management majors in higher vocational colleges. It improves students' ability to quantitatively analyze economic data. When conducting empirical analysis of economic phenomena, it is inseparable from the quantitative analysis of a large amount of economic data, so mastering statistical methods is crucial. The theoretical content of the "Statistics" course is difficult to understand, and there are many chapters. As students of economics and management majors, they should tend to learn statistical thinking and master the applicability of statistical methods. In the teaching process, teachers should think about how to let students learn to process data, use statistical methods to analyze data and discover actual social phenomena.

2. Necessity of Reforming Statistics Courses in Economic Management in Vocational Colleges

2.1. Stimulate Students' Interest in Learning

For students majoring in economics and management, statistical surveys, compilation, and analysis are crucial for studying social and economic phenomena. However, statistics courses in most vocational colleges tend to be dull, with monotonous teaching methods that increase students' learning pressure and hinder their sense of accomplishment. Reforming statistics courses, including the content and teaching methods, can spark students' interest and enthusiasm for learning.

2.2. Enhance the Sense of Gain from the Course

Traditional statistics courses tend to prioritize theoretical content over practical applications. In these courses, teachers

often overlook the practical aspects, making it difficult for students to apply statistical knowledge to analyze social and economic data. As a result, students struggle to deepen their understanding of theory through practical experience. By reforming the curriculum to emphasize practical applications, students can enhance their ability to apply statistical concepts, improve their completion of practical reports, and feel more accomplished in their statistics courses.

2.3. Improve Students' Learning Literacy

By engaging in scientific research activities, we can enhance students' enthusiasm and creativity, as well as develop their ability to think critically and conduct academic research. We can tailor statistics teaching content to specific needs. After acquiring a solid foundation of knowledge and related theories, we can integrate "Research Hebei" social practice activities to enhance students' practical knowledge, assist them in conducting scientific research, and improve the quality of their research reports.

2.4. Achieve Teaching Objectives More Effectively

The teaching objectives for students majoring in economics and management in higher vocational colleges are specifically tailored. The statistics courses aim to help students master knowledge, strengthen their ability to apply theory to practice and gain a deep understanding of statistical methods. In addition to this, teachers are responsible for fostering students' self-study skills, problem analysis and problem-solving abilities, research and innovation skills, teamwork, and communication abilities in the classroom. The teaching arrangement, in conjunction with the "Research Hebei" activity, is designed to enhance students' self-study abilities in the subject, expand their knowledge, connect cutting-edge scientific research with basic theory, and cultivate their research and innovation capabilities. Furthermore, teachers can enhance students' teamwork and communication skills by organizing exploratory discussions

and guiding them in forming scientific research groups during classroom activities.

3. Problems in Statistics Courses in Economic Management Schools of Vocational Colleges

The aim of providing statistics courses in higher vocational colleges is to help students acquire essential knowledge and principles, learn to apply theoretical knowledge to analyze and solve real-world problems, integrate theoretical knowledge into researching and understanding social and economic phenomena, and enhance students' ability to analyze and solve practical problems. However, the statistics courses offered by most higher vocational colleges in Hebei Province are quite traditional and have some issues.

3.1. The Course Content Lacks Specificity

The process of statistical work involves four main steps: statistical design, statistical investigation, statistical collation, and statistical analysis. The statistical course is structured based on these four steps. For students in higher vocational colleges, statistical design, investigation, and collation pose fewer challenges compared to statistical analysis, which is more complex. Statistical analysis mainly focuses on probability statistics, formula derivation, and model building. Students in higher vocational colleges often struggle with this aspect due to their weak mathematical foundations, leading to difficulties in understanding and poor learning outcomes. In teaching, there is a tendency to focus on theoretical concepts without integrating current relevant topics, using real-life examples, or applying specific real-life problems.

3.2. Single Teaching Method

Due to the current time constraints, most statistics courses primarily rely on lectures, with teachers delivering information and students passively receiving it. The teaching methods and communication channels used by teachers are relatively straightforward, leading to subpar teaching outcomes. Most teachers do not engage students with classroom activities, which limits opportunities for independent thinking and demonstrating learning. There is also a lack of innovation and reform in implementing new teaching models to enhance students' statistical literacy. Additionally, online resources and the "Learning Pass" software are underutilized, hindering the effectiveness of virtual learning. This limits the potential for a more interactive and engaging learning experience.

3.3. Practice is Delayed

Most colleges and universities have added practical components to their statistics courses, but the content of these practical exercises often lags behind current social issues. The current assessment methods also do not fully reflect the student's learning outcomes. Typically, practical exercises in statistics courses take the form of practice reports. However, the quality of these reports is often low, and students struggle to apply their theoretical knowledge to current social issues. This results in outdated content and simplistic analysis methods that do not effectively improve students' application abilities and research skills.

3.4. Traditional Assessment Method

In most vocational colleges in Hebei Province, China,

statistics courses use a grading system where 70% of the final grade comes from the final examination and 30% from regular assessments. The final exam is typically a closed-book test, which assesses concepts, theories, and calculation methods but doesn't evaluate students' application skills. Regular grades are based on teacher evaluations and don't include student self-evaluations or peer evaluations, so they may not fully reflect the student's learning progress.

Many statistics courses require students to submit practical reports to assess their teamwork ability. However, these reports are usually done in groups, which can lead to some students depending on the group leader or more capable students to do the work. This can result in some students receiving points without actively participating in the homework, leading to inaccurate assessment results.

4. The Reform Ideas of Statistics Courses in Vocational Colleges

In recent years, Hebei Province has conducted the "Survey Hebei" social survey activity to fulfill the objectives of the "Hebei Province Medium- and Long-Term Youth Development Plan (2018-2025)". The aim is to guide young students in shaping their thoughts, contributing to society, and growing by serving the people. Statistics courses in higher vocational colleges in Hebei Province can be integrated with the "Survey Hebei" social survey activity.

4.1. Reduce the Difficulty of Course Content

The "Surveying Hebei" social survey activity aims to identify a survey project, conduct research, and prepare a survey report focusing on the economic, social, and cultural development of Hebei Province. It has been observed that students majoring in economics and management at higher vocational colleges often have a weak foundation in mathematics. In light of this, teachers can align their teaching content with the "Surveying Hebei" material, with a particular focus on statistical investigation, data organization, and statistical analysis. Specifically, the emphasis should be on descriptive statistical analysis, while reducing the complexity of teaching inferential statistics and simplifying model development.

4.2. Enrich Teaching Methods

Utilize both online and offline teaching platforms to enhance teaching methods. You can upload valuable teaching resources to the "Learning Pass" platform and assign them as tasks to help students prepare for class. Integrate cases, micro-classes, MOOCs, SPSS application software, and relevant resources, and collaborate with multimedia courseware to cover the classroom teaching content. In addition to traditional lecture methods, teachers can also incorporate current trending topics to use a guided approach, providing clues based on the knowledge learned and encouraging students to explore and think independently.

4.3. Update Practice Content

Teachers can assist students in selecting their research projects from the topic range provided by the "Surveying Hebei" social practice activity. This will enable students to conduct thorough investigations and analyses of social and economic issues in Hebei Province, China, and enhance the relevance of their practice reports. Additionally, students can take part in choosing the "Surveying Hebei" social survey

activity, allowing them to experience the practical application of knowledge, increase their interest in learning, and enhance their competitiveness.

4.4. Innovative Assessment Methods

In higher vocational colleges, for students majoring in economics and management, the application of statistical knowledge is more important than mastering theoretical formulas. Students' independent learning can be assessed through completing relevant tasks in "Learning Pass". Their mastery of basic knowledge can be assessed through regular classroom quizzes. Classroom performance can be assessed by presenting the course in practical reports, and their ability to apply knowledge can be assessed through the submission of practical reports at the end of the semester.

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