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Research on Teaching Models for Talent Development in Financial and Economic Universities under the Big Data Era

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Abstract

Under the Big Data Era, the constructive cultivation and teaching models of talents in both new business and humanities disciplines have emerged as the foremost strategic direction for the future development of management education. This study first analyzes the shortcomings of traditional economics and management talents and the inadequacies of traditional talent development models under the backdrop of big data. Based on this analysis, it explores innovative and improved approaches to talent development in the big data era, including curriculum restructuring, the establishment of data analysis centers, provision of technical resources, encouragement of interdisciplinary collaboration, and the establishment of internships and industry bases. The cultivation of new management talents in the information age holds significant developmental importance.

Keywords

Big Data; Economics and Management; Talent Development; Teaching Models.

1. Introduction

The State Council's "Action Plan for Promoting Big Data Development" explicitly states that data has become a fundamental strategic resource for the country. Big data is increasingly exerting a significant impact on global production, distribution, consumption activities, and economic operation mechanisms. It has become a new driving force for economic development in the information age. In the "14th Five-Year Plan" which began in 2021, it emphasized that big data is a new key driver for promoting economic growth, and within it, the constructive cultivation and teaching models of talents in both new business and humanities disciplines have emerged as the foremost strategic direction for the future development of management education.

Currently, China has a certain foundation and advantage in the field of big data. However, with the innovative changes in business models and the iterative updates of management knowledge, especially the new development potential exhibited by cross-border e-commerce in the era of big data, the economic situation at home and abroad has placed new requirements on the cultivation of business talents in the new era. Building a new business and management discipline in the information age has become a new platform for the country's future business education and a potential growth point for the new economy. Therefore, exploring innovation and improvement in talent development models in the context of big data holds critical developmental significance in the information age.

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2. Literature Review

Big data refers to a vast amount of information that overwhelms organizations, making it challenging to collect, manage, process, and extract decision-supporting insights within a reasonable time frame [1]. In the context of domestic research, the study of big data in the cultivation of management talents is primarily manifested in the cultivation of new interdisciplinary thinking and the establishment of deep connections between data-oriented thinking and management disciplines [2]. Simultaneously, domestic research on the impact of big data on the cultivation of management talents mainly offers insights and measures related to new business education and learning [3]. Currently, there is still no innovative and improved theoretical system for practical application in the construction of new business disciplines and talent development models. With the development of visualization theory and technology and the shifting focus of domestic research, domestic universities are beginning to creatively integrate traditional education models [4]. Foreign scholars studying big data primarily focus on areas such as company performance, big data projects, account information, and small business marketing. They provide specific analyses of the future trends in the development of management talents, combining innovation with industry demands to seek direct approaches and methods for cultivating data-oriented management talents, forming practical theoretical frameworks [5]. Both domestic and foreign research emphasize the infusion of innovative educational methods into the traditional cultivation of management talents, with foreign research focusing on application and practicality while domestic research leans towards theoretical system construction.

3. Shortcomings of Traditional Economics and Management Talents in the Big Data Era

3.1. Lack of Data Collection and Cleaning Skills

In the process of big data analysis, data quality and accuracy are of paramount importance. However, many traditional economics and management talents may not have received sufficient training to effectively collect and clean data for analysis within a reasonable time frame. Data collection involves obtaining data from various sources, including databases, web scraping, sensor data, and more. Subsequently, the data needs to be cleaned to remove incomplete, inaccurate, or duplicate information to ensure the reliability of the analysis. Incorrect data collection and cleaning can lead to biased or misleading analysis results, severely deviating from reality and potentially negatively impacting business decisions.

Additionally, traditional economics and management talents need to understand the concepts and standards of data quality to identify and address issues during data collection and cleaning. They should learn to use various data quality tools and techniques to validate and clean data in an automated or semi-automated manner, which will enhance data availability and credibility, laying a solid foundation for subsequent analysis.

3.2. Insufficient Data Visualization

Data visualization is the process of transforming data into easily understandable and communicable graphics or charts. It is a critical component of data analysis, helping to present complex data in a way that decision-makers can more easily understand trends and patterns. However, traditional economics and management talents often lack training in data visualization, which can result in analysis project outcomes being difficult to convey to non-technical stakeholders, including executives, sales teams, or marketing professionals. If data analysis results cannot be presented in a clear and engaging manner, it can be challenging to gain support for decisions or disseminate insights within an organization.

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3.3. Inadequate Data Analysis Skills

In the era of big data, data analysis skills are not just an additional advantage but a crucial competitive edge. Data analysis encompasses various skills and techniques, including statistical analysis, machine learning, predictive modeling, and data mining. Traditional economics and management talents need to learn how to use these tools and techniques to extract meaningful insights from data. For example, they may need to analyze sales data to identify potential market opportunities or use machine learning algorithms to predict customer behavior. These analytical skills can help businesses make wiser decisions, optimize business processes, and improve efficiency.

3.4. Lack of Domain Knowledge

Data analysis requires not only technical skills but also in-depth domain knowledge. Data in different industries and fields have specific contexts and meanings. Without an understanding of this domain knowledge, analysts may struggle to interpret data correctly or provide relevant recommendations. Traditional economics and management talents may lack knowledge in specific fields, which can affect their performance in analytical projects. For example, if a traditional talent from the finance sector participates in a healthcare data analysis project, they may not be familiar with the healthcare industry's terminology, regulations, and challenges. This can lead to inaccurate data interpretation or the omission of critical information.

4. Shortcomings of Traditional Teaching Models in the Big Data Era

4.1. Constraints of the Educational System

Traditional business schools and economics departments often focus on conventional management and economics courses, which typically cover areas such as strategic management, marketing, and financial management. These programs often lack sufficient emphasis on data science and analytics. As a result, students may miss opportunities for comprehensive data analysis training. Additionally, due to the potential lack of timely updates in the educational system to reflect the rapid developments in the field of data science, students may miss the chance to learn the latest technologies and tools. Traditional economics and management education tends to emphasize qualitative analysis over quantitative analysis and data-driven decision-making.

4.2. Lack of Educational Resources and Faculty

Data science and analytic are relatively new fields that require experienced educators and professionals to teach relevant courses. However, some regions, especially developing countries or remote areas, may lack adequate educational resources and faculty to provide high-quality data analysis training. Educational resources may include modern laboratories, computer equipment, and access to datasets. Without these resources, students may not gain practical data analysis experience, which is crucial for honing their skills.

4.3. Cultural and Mindset Issues

Traditional economics and management education may prioritize conventional business methods and management theories, viewing data analysis as an auxiliary tool. This can lead students to harbor resistance or indifference toward data analysis. Some students may perceive data analysis as complex and tedious, discouraging them from actively learning these skills. Furthermore, some students may lack awareness of the potential value of data analysis. They may not understand how data analysis can improve decision-making, optimize business processes, and provide a competitive advantage. Consequently, they may not invest time and effort in learning these skills.

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4.4. Lack of Practical Opportunities

Data analysis skills require practice and application, yet traditional management programs may not offer sufficient practical opportunities. Students may be required to learn theory without applying these skills in real data analysis projects. The lack of practical experience may make students less confident and hesitant to tackle real-world data analysis challenges. Practical experience is essential for data analysis because it helps students apply theoretical knowledge to real situations and cultivate problem-solving abilities. Without such experience, students may not fully realize their potential.

4.5. Insufficient Time and Effort Investment

Acquiring data analysis skills typically demands a significant amount of time and effort. Traditional economics and management students may already have busy schedules, juggling multiple courses and other academic requirements. Consequently, they may struggle to allocate enough time to learn and practice data analysis skills. Data analysis often involves using various analytical tools and programming languages like Python, R, and SQL. For traditional economics and management students without a programming or technical background, learning and mastering these tools may seem like a daunting technical barrier, which can discourage them from pursuing these skills.

5. Recommendations for Talent Development in Financial and Economic Universities under the Big Data Era

5.1. Curriculum Restructuring

Financial and economic universities should consider a profound restructuring of traditional curricula to fully integrate the core content of data analysis. This process involves introducing new core courses such as fundamentals of data science, statistics, machine learning, and data visualization. These courses should be practical and application-oriented, helping students develop skills from data collection and cleaning to building predictive models and making data-driven decisions. Universities can also consider introducing more interdisciplinary courses, such as cross-disciplinary courses in business and data science. These courses can be jointly taught by professors from different faculties to ensure students receive comprehensive education in data analysis.

The design of data analysis courses should cater to students of different levels and backgrounds, from beginners to advanced, to ensure that everyone receives appropriate training. Furthermore, courses should incorporate real-world cases and projects so that students can apply their knowledge in actual business scenarios.

5.2. Establishment of Data Analysis Centers

Financial and economic universities can consider establishing specialized data analysis centers to support the development of students, faculty, and researchers in the field of data analysis. These centers can provide laboratory facilities for students to practice data analysis skills. They can also serve as think tanks for conducting cutting-edge research and offering the latest data analysis methods and tools to students. Moreover, data analysis centers can facilitate industry collaboration, providing students with opportunities to work on real business projects. This collaboration enhances students' practical experience and allows them to apply theoretical knowledge to real situations. Universities can hire professional data scientists and analysts as mentors and advisors. These experts can guide students in their research projects, provide practical data analysis experience, and help universities maintain connections with industries.

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5.3. Provision of Technological Resources

To help students overcome technological barriers, universities should offer ample technological resources. This includes establishing computer laboratories on campus equipped with the necessary hardware and software tools for students to learn and practice. Universities can also provide access to online educational resources and tutorials to facilitate self-directed learning. These online resources and tutorials should cover a wide range of topics, from fundamentals to advanced skills, to meet the needs of different students. These resources can include open online courses, textbooks, video tutorials, and online learning communities.

To address technical issues, universities should establish technical support teams to provide students with timely assistance and guidance. This helps alleviate potential technological challenges students may encounter during their learning process.

5.4. Encouragement of Interdisciplinary Collaboration

Financial and economic universities should encourage students to participate in interdisciplinary collaboration projects to help them develop comprehensive skills. For example, students from the School of Economics can collaborate with students from the School of Computer Science to jointly solve business and technical challenges. This collaboration not only fosters interdisciplinary thinking but also enriches students' knowledge and skills.

Interdisciplinary seminars, lectures, and project competitions can be organized regularly to promote knowledge exchange and collaboration among different disciplines. Universities can also encourage students to pursue double majors or dual degrees in multiple fields to strengthen their interdisciplinary capabilities.

5.5. Establishment of Internships and Industry Connections

Financial and economic universities should actively establish connections with industries to provide internships and career development opportunities to students. Internship programs allow students to apply the knowledge they have learned in the classroom to real work situations and help them build professional networks. Close ties with industries also ensure that university curricula remain synchronized with business practices, making students more competitive upon graduation. Internship programs offer students the opportunity to gain insights into various industries and organizational cultures, aiding them in better planning their career paths. Universities can collaborate with businesses, nonprofit organizations, and government agencies to offer diverse internship opportunities.

By further expanding and deepening these strategies, universities can comprehensively address the shortcomings of traditional economic and management talent development models. This will help ensure that students graduate with the necessary data analysis and comprehensive skills to successfully tackle challenges in the modern business landscape. The proactive role of universities in this process is indispensable, providing students with the essential resources and support.

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