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Exploration and Practice of Curriculum Ideology and Politics Construction Based on Immersive Teaching——Taking the Course "Statistical Foundation and Data Analysis" as an Example

Tianhai Lu
Wenzhou Polytechnic, Wenzhou, China
Email: 18167288151@163.com

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Abstract

This study addresses the professional dilemma of data analysis talents in the digital economy era who prioritize technology over ethics. It constructs an immersive course ideology and politics teaching model in the "Statistics Foundation and Data Analysis" course. Through the integration of real e-commerce data from enterprises on the production-education integration platform, a hierarchical training and virtual simulation scenario are designed, and the socialist core values are embodied as data ethics guidelines. The "data storyization" strategy is innovatively adopted to imperceptibly embed ideology and politics elements in the data analysis link, using counterintuitive data conclusions to stimulate students' ethical reflection. Practice has shown that this model, through the "three values, five consciousness, and five comprehensive" ideology and politics framework and the "two-dimensional, five-indicator" evaluation system, can enhance the effectiveness of professional ethics education, strengthen students' awareness of ethical compliance, effectively solve the problem of "labelization" of ideology and politics education, and help cultivate high-quality talents with both data analysis capabilities and social responsibility.

Keywords

Immersive teaching; Curriculum ideology and politics; Data analysis; Production and education integration; Vocational literacy

1. Introduction

In the current era where the digital economy is developing in depth, data factors have become a national basic strategic resource. The "China Digital Economy Development Research Report (2024)" shows that in 2023, China's digital economy scale reached 5.39 trillion yuan, accounting for 42.8% of GDP, an increase of 1.3 percentage points year-on-year, and the contribution rate to GDP growth was as

high as 66.4%, which has spawned a demand for millions of data analysis talents per year. However, industry research data shows that 73.6% of enterprises believe that current practitioners have a professional literacy shortage of "emphasizing technology and neglecting ethics, and lacking a sense of responsibility". This requires higher vocational education to construct a "value shaping-knowledge imparting-ability cultivating" trinity education system while cultivating students' data analysis skills. Immersive teaching theory originates from Csikszentmihalyi's "flow theory" and develops through Kolb's experiential learning theory, emphasizing the realization of cognitive internalization through situational immersion and physical experience. Introducing this theory into the construction of the "Statistics Foundation and Data Analysis" course can effectively solve the dilemma of "labeling" and "superficialization" of ideological and political elements in traditional teaching. This study constructs a scenario-based immersive teaching model, concretizes socialist core values into data analysis professional norms, and makes students feel data ethics in virtual simulation training and cultivate a sense of home and country in project battles, gradually forming a characteristic ideological and political teaching model for the course.

2. The Connotation of Immersive Curriculum Teaching System

2.1. Course Characteristics and Advantages

"Statistics Foundation and Data Analysis" as a professional compulsory course for financial and economic majors in higher vocational colleges, is a subject that emphasizes both theoretical research and practical application, and is also a comprehensive training course oriented to vocational posts. The course content directly connects to job positions such as e-commerce operation and market analysis, and reconstructs teaching projects through real enterprise data cases, achieving seamless connection between skill training and industry standards. The value orientation of this course has the characteristic of being implicit, naturally integrating elements such as data ethics and business compliance into technical links like data cleaning and model building. For example, in customer portrait analysis training, it permeates education on personal information protection regulations. The course design reflects the cultivation of hierarchical abilities for higher vocational students, designing learning modules according to the workflow of "data collection → processing → analysis → decision-making", and simultaneously fostering students' gradual growth from basic skills to professional spirit. The advantage of building an "immersive" course thought politics teaching system for "Statistics Foundation and Data Analysis" lies mainly in two aspects:

1)Integration between Industry and Education with Mutual Empowerment

Relying on the existing industry-education integration training base with the school, a "data-driven, value-co-creation" classroom training model is built. For example, real e-commerce live streaming data (including paid amount, unpaid amount, can-

celled order amount, rejected order amount and returned order amount, etc.) is transformed into teaching resources, and hierarchical training projects are designed to make the course content seamlessly connect with industry needs, allowing students to infiltrate social responsibility education in the process of solving practical problems. When dealing with real data, students not only need to master skills such as GMV analysis and repurchase rate prediction, but also need to think about the ethical issues behind the data, and finally optimize corporate decision-making through analysis, achieving coordinated development of "skill enhancement" and "value shaping".

2)Ideological and political elements are integrated seamlessly

Applying the "data storytelling" narrative strategy, using analysis methods adapted to the cognitive level of higher vocational students, selecting data analysis tools that students can easily master, visualizing the presentation of data analysis conclusions, and naturally embedding data ethics, social responsibility, and other ideological and political elements into technical teaching links, enabling higher vocational students to establish a moral boundary consciousness of data application in a subtle and imperceptible way, on the basis of "being able to understand and operate", achieving the effect of seamless integration of ideological and political education. For example, when conducting linear regression analysis on the relationship between logistics timeliness and customer satisfaction, through data pivot tables comparing the credibility of merchants, associating with the regulatory education of the "Anti-Unfair Competition Law", avoiding direct preaching, but guiding students to reflect on business ethics autonomously through the counter-intuitive nature of data results.

2.2. Course Ideological and Political Elements

In the business field, especially in the e-commerce industry, data analysis positions not only undertake data collection, processing, and analysis based on clear analysis objectives, but also need to provide data support for strategic decision-making after mining valuable information. This requires practitioners to have good professional ethics. Based on the "strong practice, emphasis on reality" characteristics of this course, through appropriate teaching design and teaching methods, the education concept of "silent infiltration" of course thinking and politics is integrated into knowledge learning, cultivating business data analysis professionals with comprehensive knowledge reserves and professional skills, who are honest, law-abiding, scientifically rigorous, operate in a standardized manner, have keen data insights and team cooperation spirit, and are brave to undertake social responsibilities, which can be summarized as "three values, five consciousness, and five comprehensives".

Table 1. Course Ideological and Political Elements.

Aspect	Element	Description	Implementation
National Aspect Values	Rule of Law Awareness	Emphasize compliance in data processing	Introduce relevant legal and regulatory cases
	Professional Dedication	Cultivate professional enthusiasm and responsibility	Enhance dedication through project practice
	Integrity Awareness	Emphasize data accuracy and authenticity	Foster data integrity through case analysis
Professional Aspect Awarenesses	Data Security Awareness	Data protection and backup	Encryption technology experiments
	Data Sensitivity Awareness	Visual data analysis	Introduce dynamic data monitoring tools
	Team Collective Awareness	Group project collaboration	Group discussions and role-playing
	Responsibility Awareness	Data analysis of social hot issues	Analyze pollution data and social benefits
	Scientific Rigor Awareness	Classic experimental design	Data analysis instance verification
Comprehensive Abilities	Ability to Link Theory with Practice	Project case analysis	Real-world dataset analysis
	Innovation Ability	Data mining and modeling	Data visualization design
	Global Perspective and Cross-Cultural Communication	Cross-cultural project collaboration	International case analysis
	Self-Management and Lifelong Learning	Use of online learning platforms	Self-directed learning and continuous education
	Independent Exploration and Practice	Provide simulated experiments	Guide students in independent exploration

3. Immersive Teaching Implementation Pathway

3.1. Visualization of Ideological and Political Resource Construction

Convert abstract political ideology elements such as statistical regulations and professional ethics into online resources, and display the relationship between professional ethical norms and data regulatory clauses in an intuitive form through pictures, animations, PPT, etc. For example, use flowcharts to compare the differences in career development between honest operations and violations, present the evolution of data security laws and regulations through timelines, and create short videos to explain the core clauses of data security regulations. Upload the resources to the learning platform to support students' review at any time, explain the core concepts of statistical ethics in plain language, reduce the threshold of theoretical cognition, and enhance knowledge memory points. All resources adopt a "text + voice explanation" dual-channel design, adapting to different learning habits and enhancing the affinity of political ideology elements.

3.2. Virtual Simulation Scene Construction

In the project-based teaching process, a staged virtual simulation training scene is built for classroom practical training tasks, gradually improving students' practical ability and professional qualities from basic operations to complex scenarios. For basic data analysis, standardized processes such as data entry, cleaning, and analysis are set up. For complex scenarios, the focus is on cultivating students' logical

thinking and innovative abilities. An enterprise simulation environment is created, where students complete virtual tasks on the platform, playing roles such as statisticians and investigators, completing full-chain operations, with the system automatically grading and generating error correction prompts. A team collaboration module is set up to simulate typical work scenarios such as enterprise report preparation, market research, and GMV analysis, strengthening team awareness and sense of responsibility. Through repeated practice, standardized operational habits are solidified, professional ethical awareness is strengthened, and the effect of classroom ideology and politics teaching is improved.

3.3. Individualized Chemistry Guidance

In the process of teaching implementation, students' ability levels and learning progress often have differences, and traditional teaching models usually cannot meet the personalized needs of students. Based on the results of students' practical ability assessment (such as data error rate, tool use proficiency, etc.), accurately locate each student's ability characteristics and learning difficulties, provide targeted learning paths and teaching methods, and integrate political elements into personalized learning paths. While achieving "teaching students according to their aptitude", improve students' learning efficiency, and strengthen the teaching effect of curriculum politics. For example, when students are conducting data analysis, according to different error results, judge the steps and reasons of students' operational mistakes, guide students to think about moral issues and professional quality issues in the data processing process. Through such personalized teaching methods, make political education closely linked to individual learning behavior, help students understand the importance of professional ethics, and enhance social responsibility and legal awareness.

3.4. Multivariate Process Capability Evaluation

The original evaluation model of the course only considers the students' hands-on ability and initial score, lacking evaluation of students' professional ethics. By collecting students' learning data through multiple channels (such as operational processes, discussion speeches, task completion, etc.), a comprehensive assessment of students' professional quality, ethical level, and development potential is conducted, providing a more objective evaluation of students' learning outcomes and feedback on their learning status. A "two-dimensional five-indicator" evaluation model is established, namely: "Total score (100%) = Process evaluation (60%) + Final exam evaluation (40%)", where "Process evaluation = Comprehensive training (30%) + Ethical evaluation (20%) + Conduct score (10%)". This achieves a comprehensive evaluation of the student's learning process, avoiding the one-sidedness of evaluation brought by single test scores, and encourages students to focus on cultivating professional ethics during the learning process, subtly shaping their professional personality.

4. Conclusion

This study takes the professional literacy needs of data analysis talents in the digital economy era as the guidance, and constructs a scenario-based immersive teaching model in the "Statistics Foundation and Data Analysis" course. Through contextualized design, the socialist core values are embodied as professional norms, achieving an organic unity of "value shaping, knowledge imparting, and ability cultivation". Practice has shown that immersive teaching, relying on the integration of production and education platform, converts e-commerce data into teaching resources, and through hierarchical training and virtual simulation scenarios, enables students to deepen their understanding of data ethics and social responsibility while acquiring skills such as data analysis. The study innovatively adopts a "data storytelling" strategy, embedding ideological and political elements into technical teaching links, using counter-intuitive data conclusions to guide students' self-reflection on business ethics, and improving the effectiveness of professional ethics education and strengthening students' awareness of ethical compliance. Meanwhile, this study proposes a "three values, five awareness, and five comprehensiveness" framework for ideological and political education, combining visualization resources with a multi-dimensional and process-based evaluation system, and constructs a "two-dimensional and five-indicator" teaching closed-loop. Among them, process-based evaluation accounts for 60%, collecting data through multiple dimensions such as operational processes and ethical evaluations, breaking through the traditional evaluation neglect of professional literacy. The study shows that immersive teaching, through the collaborative effect of physical experience and cognitive internalization, effectively solves the problems of "labeling" and "surfaceization" in ideological and political education.

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