

Original Paper

Research on Virtual Simulation Practice Teaching with Special
Topic Orientation for Economics and Management Majors in
Applied Universities: Taking Cross Border E-commerce
Teaching as an Example

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Received: March 23, 2024

Accepted: April 28, 2024

Online Published: April 30, 2024

doi:10.22158/jecs.v8n2p50

URL: <http://dx.doi.org/10.22158/jecs.v8n2p50>

Abstract

In the context of the new era, with the rapid development of technology, applied universities in the field of economics and management not only need to reform their teaching models in accordance with modern enterprise homework standards and employment standards, but also need to learn to introduce more advanced technology and concepts, and build more modern and professional classrooms for students. The research mainly focuses on applied university economics and management majors, taking cross-border e-commerce as an example, to conduct a detailed study of virtual simulation practice classrooms based on thematic orientation. I hope that relevant theories can provide certain teaching inspirations for teachers and jointly help the continuous improvement of teaching quality in the field of economics and management.

Keywords

Applied universities, Business management majors, Virtual simulation teaching

1. Introduction

Professional courses in economics and management generally have strong practicality, and the positions targeted are mostly skill oriented positions with strong operational requirements. This requires teachers in the field of economics and management to take the development goals of students as the benchmark, actively adapt to the current situation and actual needs of their corresponding positions, and combine with existing teaching difficulties. Introducing virtual simulation technology into teaching practice helps students understand knowledge and master skills from a more diverse

perspective, thereby achieving comprehensive progress in their abilities and literacy.

2. Literature Review

In order to meet the demand of students majoring in economics and management to carry out professional practical activities across time and geography, some universities at present have chosen to integrate virtual simulation technology into their professional teaching. During this process, many scholars in China have put forward their own opinions on the integration of virtual technology and professional teaching, and have generated many research results. Ouyang Rihui (2024) proposed that adding digital infrastructure in practical training bases and teaching classrooms for management majors can effectively expand students' practical space and have a good impact on their ability and knowledge improvement. Li Yingqin (2024) proposed that by introducing a virtual simulation platform in teaching, students can fully coordinate multiple organs such as their hands, brain, and mouth, enabling them to quickly improve their ability and literacy in a classroom that combines teaching, learning, and doing. Scholars have also put forward different opinions on the practical teaching benefits of emerging technologies such as artificial intelligence and virtual simulation. As Shi Jiazhao (2023) pointed out, the birth of artificial intelligence technology poses both challenges and opportunities for e-commerce teaching. Only by catering to the actual needs of students can teachers transform risks into opportunities and help them learn efficiently.

3. The Current Situation of Virtual Simulation Experiment Teaching in Economics and Management Majors

3.1 The proportion of experimental courses in economics and management majors is relatively low. As shown in Table 1, taking the undergraduate teaching plan of cross-border e-commerce as an example, the total class hours of this major are 2348, theoretical class hours are 1462, accounting for 62.27%, and practical class hours are 886, accounting for 37.73%. Among them, professional practice only has 328 class hours, accounting for 13.97%. The total number of professional practice plus general practice is only 524, accounting for 22.32%. It can be seen that the proportion of professional practical courses is relatively low, especially if it is not a research-oriented institution. For application-oriented institutions, the proportion of professional practical courses (13.97%) is at a relatively low level.

Table 1. Credit Hours and Credit Allocation for Cross-border E-commerce Majors

Course platform	Course categories	Learning hours			Learning hours Subtotal	Proportion (%)
		Total credit hours	Theoretic al hours	Practice hours		
Theoretical teaching platform	general education curriculum	Compulsory courses in general education	872	614	258	37.14
	Professional education courses	General elective courses	128	128	0	5.45
		Professional basic courses	256	240	16	10.90
		Professional core courses	240	208	32	10.22
		Professional restricted courses	240	232	8	10.22
	Professional elective courses	64	32	32	2.73	
Practical teaching platform	General Practice	196	0	196	8.35	
	Professional Practice	328	0	328	13.97	
Quality Expansion Platform	safety education	24	8	16	1.02	
	Innovation and Entrepreneurship Practice	0	0	0	0.00	
total		2348	1462	886	2348	100.00

Data source: Teaching Plan for Cross border E-commerce

3.2 The status of practical teaching in economics and management is inferior to that of theoretical teaching. As shown in Table 2, taking the cross-border e-commerce major as an example, the duration of practical courses in the main professional categories is not high, with most of them being 32 hours. Calculated based on a 16 week semester, there are 2 classes per week, and they are all assessment courses and not included in the scope of examination courses. It can be seen that the importance of professional practical teaching still needs to be improved. In addition, less than 10% of the national level virtual simulation experimental teaching centers are focused on economics and management, reflecting the relatively slow construction of virtual simulation experimental teaching centers for economics and management disciplines, which are currently in the exploratory stage. The teaching of virtual simulation experiments in the field of economics and management started late, developed slowly and lagged behind. On the surface, the teaching of virtual simulation experiments in the field of

economics and management is not given enough attention and needs further strengthening.

Table 2. Main Professional Practical Courses for Cross border E-commerce Majors

Course Name	Total credit hours	Exam arrangement
Economic Simulation Practice	32	check
Cross border e-commerce customs clearance simulation practice	32	check
International Business Correspondence Simulation Practice (Bilingual)	32	check
Simulation Practice of International Business Documents	32	check
International Business Negotiation Simulation Practice (Bilingual)	32	check
Simulation Practice of Import and Export Business	32	check
Office automation applications	32	check
Interdisciplinary Comprehensive Practice of Economics and Management	48	check
Comprehensive simulation practice of cross-border e-commerce	32	check

Data source: Teaching plan for cross-border e-commerce major at a certain university

3.3 The teaching resources for virtual simulation experiments are insufficient, and the teaching quality is not high. Practical teaching in economics and management majors is divided into on campus practice and off campus practice. There is a shortage of school enterprise cooperation units in extracurricular practice, and many enterprises and institutions cannot accept so many interns, or there is a phenomenon of cheap utilization of interns. However, in practical teaching on campus, there are also typical cases and insufficient resources for platform construction. The virtual simulation experiment teaching has not been well integrated with relevant courses, which has affected the effectiveness of practical teaching in economics and management. Some practical teaching software is not compatible with the curriculum and actual job positions, and lacks flexibility and intelligence. The operation process and module classification of the software also have certain mechanical properties, which affect the efficiency and quality of virtual simulation experiment teaching. Of course, an increasing number of enterprises and schools have developed a series of practical teaching software, some of which can effectively carry out practical teaching. For example, in the practical teaching of cases where steel mills monopolize iron concentrate powder, steel mills need to purchase raw materials such as iron concentrate powder to produce steel. We all know that the total supply of iron concentrate powder depends on the average price of iron concentrate powder. When the average price is high, the total supply of iron concentrate powder will increase; On the contrary, it will decrease. In the process of operation, there may be a phenomenon of steel companies monopolizing the entire iron concentrate powder market. The main reason is that a steel manufacturer wants to monopolize the raw material iron concentrate powder, thereby monopolizing the steel raw material market and ultimately becoming the price leader in the

steel market. So through practice, students can master the preventive measures in the experiment. Firstly, in the results of commercial loan bidding, if it is found that a steel mill has obtained a large amount of commercial loans, it is necessary to consider whether its next decision will monopolize the raw material market for iron concentrate powder? Secondly, in order to prevent steel companies from monopolizing iron concentrate powder in the system, the bidding for iron concentrate powder is divided into two rounds, with only half of the total supply supplied each time, greatly reducing the possibility of monopoly. Thirdly, the entire market has also strengthened inter group trading of iron concentrate powder, allowing it to circulate freely. This case illustrates a high-quality practical teaching project that requires students to be able to apply professional knowledge, combine practical situations, make effective decisions and preventive practical operations, so that students can understand and proficiently apply it, in order to achieve the goal of improving the quality of practical teaching.

4. Difficulties in Specialized Teaching of Economics and Management

Thanks to the development of China's social economy, emerging industries are emerging in the current economic market. In addition, the rapid integration of informatization and industrialization has made the management activities of modern enterprises increasingly complex and diverse. The choice of teaching mode to effectively enhance the comprehensive literacy of students majoring in economics and management has also become a key issue that teachers need to consider.

In traditional teaching models, sending students to off campus enterprises for internships is the best way to effectively strengthen students' professional skills. However, after years of teaching experiments, it has been found that there are significant differences in the implementation goals and implementation aspects among universities, enterprises, and students. Summarizing and summarizing the issues involved indicates that students generally have doubts about the income, work mode, and working hours of internships; Enterprises find it difficult to identify with the professional qualities of current students, so they are unwilling to provide them with more professional positions; However, universities should not only consider the enthusiasm of students for learning, but also the willingness of enterprises to accept it. This will make schools feel that there are various difficulties in the mode of off campus enterprise internships, and the teaching and practical training modes urgently need to be reformed.

5. Topic oriented teaching principles based on virtual simulation technology

5.1 Principle of Adapting to Needs

In the teaching process, whether it is the choice of virtual simulation technology or the design of practical training modes, it should be in line with talent cultivation. Teachers should comprehensively consider the industry standards of students majoring in economics and management, their personal abilities and qualities, their development needs, and the employment needs of enterprises. Introducing practical and effective virtual simulation technology into practical training courses for management majors fully meets the needs of students to conduct professional training anytime, anywhere,

understand cutting-edge industry knowledge, and consolidate professional skills.

5.2 Principle of Capability Development

The specialized teaching courses for economics and management majors based on virtual simulation technology should focus on three levels: students' basic professional abilities, professional technical literacy, and professional competence. Emphasis should be placed on developing students' comprehensive abilities, not only through the use of virtual simulation technology and specialized project activities to enhance their professional skills, but also through comprehensive training and enhancement of their ability to analyze and solve problems, social communication skills, innovation awareness, entrepreneurial ability, and decision-making ability.

6. The Application of Virtual Simulation Teaching in Thematic Oriented Teaching of Economics and Management Majors

6.1 Determine Teaching Themes with the Goal of Cultivating Abilities

With the continuous development of the economy and society, the demand for management talents at the social level has also increased. Taking the e-commerce major as an example, with the continuous development of the e-commerce industry, the corresponding positions for e-commerce students at the social level have also shown a diversified development trend. Therefore, universities should be guided by the actual needs of social development, take the comprehensive development of students as the foundation, and cultivate their abilities and qualities as the goal. Determine clear teaching themes based on the teaching needs of different stages, in order to ensure that students acquire professional skills and professional qualities on the basis of mastering solid theoretical knowledge. E-commerce students need to extensively study disciplines such as marketing, modern logistics, and business management in their daily lives, and also participate in practical training activities that match their professional teaching to transform their theoretical knowledge into practical business activities. For this purpose, teachers can divide teaching projects that integrate virtual simulation technology into validation projects and practical training projects in the process of designing thematic oriented teaching activities for economics and management based on virtual simulation technology. The validation project refers to the online project conducted by students on a virtual simulation platform to verify the effectiveness of their knowledge and their mastery of the corresponding knowledge after completing the learning of basic theoretical knowledge in the classroom; The practical training project needs to design corresponding theme activities by referring to the hot topics in the e-commerce industry in today's society. And guide students to enhance their e-commerce hands-on and practical skills through a combination of offline and online training methods. For example, some cross-border e-commerce software is in Chinese version, but as cross-border e-commerce, it is more in line with professional and practical work items, and can truly cultivate students' practical abilities. Therefore, it is necessary to use teaching software in English that is almost identical to the actual cross-border e-commerce platform to achieve real training purposes. Even real platforms such as Alibaba International Station, AliExpress, and Amazon should be

directly used to operate and practice, in order to highlight professional practical teaching themes and achieve the goal of cultivating practical abilities.

6.2 Focusing on Learning Needs and Introducing Simulation Technology

One of the main reasons for introducing virtual simulation technology in specialized teaching activities for economics and management majors is to create a realistic training platform for students that is highly similar to the real business environment. So as to ensure that students can produce virtual consumer products, play the role of management staff, and simulate company processes to carry out management tasks on corresponding platforms according to their learning needs, ultimately achieving the goal of comprehensively improving students' professional skills. A multi-level practical education based on this type of demand research has been constructed, and virtual simulation technology that matches student needs has been introduced at different teaching levels. On the first level, by introducing relatively simple virtual simulation technology, the specific process of e-commerce enterprise operation is abstracted into a simple virtual simulation model, guiding students to carry out simulation training in the simplified workflow, with a focus on cultivating students' professional basic literacy and skills; The second layer focuses on cultivating students' core professional skills. By simulating real-life work tasks and processes in a more realistic e-commerce work environment, teachers assign tasks to students and guide them to complete corresponding work processes in their spare time after class, accumulating work experience; The third layer is to introduce more professional virtual reality technology to build an e-commerce office space that is highly consistent with the complex socio-economic environment for students. By matching students with "AI colleagues", students can exercise their comprehensive reaction ability and help them become composite talents with innovative and entrepreneurial abilities.

As shown in Table 3, the synchronous experimental course of Western Economics simulates macro and microeconomic business processes through role-playing, creating a real economic environment and allowing students to experience the economic behavior between manufacturers, governments, and consumers in real life. This course integrates practicality, operability, and experiential approaches, allowing students to experience the operation of microeconomics and macroeconomic regulation through scenario simulation and role practice, and providing targeted gains for each student. The main task of the manufacturer team is to lead the manufacturer to operate efficiently and steadily, avoid business risks and traps. Automobile and home appliance manufacturers purchase raw materials from steel manufacturers and are influenced by government fiscal and monetary policies. The government obtains CPI and PPI data based on price increases in the product market and raw material market, and judges inflation and economic cycles based on GDP and other data. On this basis, the government collects M1 and M2 data from the currency market and adopts corresponding fiscal and monetary policies to regulate the economy. When the automotive and home appliance industries are affected by regulation, it will also affect the prosperity of the steel industry.

Table 3. Virtual Simulation Experiment Teaching Projects for Western Economics

Number	Experiment Name	Content Summary
2	Market structure and firm theory experiments in microeconomics	Each year, different market structures are formed in land, commercial housing, villas, steel, and capital; Manufacturers bidding and operating under different competitive and monopolistic market structures
3	Market Failure in Economic Operation and Welfare Economics	The government group judges whether the market has malfunctioned based on regulatory conditions and provides opinions
4	Experiments on National Income Theory and General Equilibrium Theory of Money Market in Macroeconomics	Establish a statistics bureau and a monetary policy committee to calculate economic indicators such as GDP, CPI, unemployment rate, and r every year
5	Experimental Study on the Economic Cycle and Growth Theory of Macroeconomics	Determine the typical characteristics of each year's economic cycle based on the results of the previous experiment; Analysis of the impact of changes in total supply and demand on the real economy by each group
6	Application Experiment of Fiscal Policy and Monetary Policy	Identify macroeconomic issues on the market; Setting goals for macroeconomic regulation and control; Develop fiscal and monetary policies

Data source: Design of practical teaching projects by the research group

6.3 Taking Sustainable Development as the Foundation and Improving the Guarantee System

On the one hand, from the perspective of virtual simulation technology, it is necessary to strengthen the construction level of professional teaching staff in the field of economics and management internally, guide relevant teachers to continuously learn new intelligent technologies while improving their knowledge system and professional teaching skills, and master the skills of operating virtual simulation platforms. Therefore, in teaching, we can help students fully integrate into virtual simulation environments through their own abilities and qualities, in order to cultivate their ability to solve practical problems.

On the other hand, it is also necessary to actively collect, analyze, evaluate, and provide feedback on student learning information during the teaching process through electronic programs and cloud databases that match virtual simulation technology. The actual teaching effect of the next stage can be flexibly adjusted according to this project teaching plan, effectively ensuring the quality of theme oriented teaching in the field of economics and management based on virtual simulation technology.

7. Conclusion

The transformation of modern enterprise management models also directly affects the changes in the ability and quality requirements of modern enterprises for management talents. This means that only management professionals with more skills and professional qualities can achieve precise employment and personal value after graduation. Therefore, it is required that the teaching system of economics and management majors in higher education institutions should adapt to the development of the times and make corresponding innovations and changes, striving to provide more cutting-edge and high-quality course content for students.

Project

1. 2023 Guangxi Higher Education Undergraduate Teaching Reform Project Approval Project , Project Name: Construction and Practice of Virtual Simulation Course with Special Topic Orientation for Economics and Management Majors in Applied Universities, Project number: 2023JGA385.
2. Guangxi University of Foreign Languages Teaching Reform Project Approval Project, Project Name: Research on the Practice Conditions and Practice Base Construction of Cross border E-commerce Virtual Simulation Based on the Background of Industry, University and Research. Project Number: 2023XJG28.

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