

Exploration of New Ways to Cultivate Cross-Border E-commerce Innovative Talents Based on Stem Education Concept

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Abstract: With the overall development of the global economy and the rapid advancement of digital technology, the cross-border e-commerce industry has become an important part of global trade. However, the industry faces many challenges, including the complexity of international trade rules, barriers to cross-cultural communication, processing and analysis of big data, competition in marketing, and the complexity of logistics and supply chain management. These include an understanding of international trade policies and regulations, cross-cultural communication skills, familiarity with data analysis and marketing strategies, knowledge of best practices in logistics and supply chain management, and a grasp of the latest technology trends. In this context, STEM education has become crucial. STEM education emphasizes the principles of interdisciplinary integration, practice orientation, problem orientation, innovative thinking, cooperation and communication, and cultivates students' comprehensive ability and innovative spirit. This comprehensive ability enables talent to tackle complex challenges, solve problems, identify business opportunities, and drive innovation in the industry.

1. Introduction

Cross-border e-commerce has brought a broader market and more opportunities for enterprises [1]. However, the rapid development has also brought an urgent need for innovative talents [2]. With the gradual liberalization of global trade and the popularization of Internet technology, more and more enterprises have begun to set their sights on overseas markets [3]. Cross-border e-commerce enables enterprises to directly face global consumers through online platforms and digital technologies to achieve cross-border sales of goods and services [4]. This not only brings more business opportunities for enterprises, but also provides consumers with a more convenient and diversified shopping experience.

The research of Hu S showed this needed comprehensive talents with business, technology and international vision [5]. These talents not only need to have profound business knowledge and skills,

but also need to have cross-cultural communication skills, market analysis skills and innovative thinking skills. Yu Y pointed out the impact of information technology on supply chain integration [6]. Zhou L achieved the effect of risk aversion by studying the e-commerce supply chain [7]. However, the current talent training model is not comprehensive enough to meet the needs of cross-border e-commerce development.

Driven by the trend of globalization and digitization, the fields of business and education are facing great changes and challenges. The traditional education model and curriculum can no longer meet the demand for talents in the new era [8]. This article will explore new ways to innovative talents from the perspective of STEM education, so as to provide more comprehensive and comprehensive talent support.

2. Basic Principles and Core Features of STEM Education Philosophy

2.1 Basic Concepts of STEM Education

STEM education is a comprehensive educational concept that cultivates students' innovative thinking, problem-solving ability and teamwork spirit through interdisciplinary learning and practice [9].

The goal of STEM education is to develop students' have the ability to deal with real-world challenges [10]. Through practice and exploration, students can apply classroom knowledge to practical problems and develop their creativity and innovation awareness. STEM education also emphasizes students' teamwork and communication skills, because real-world problems often require multidisciplinary cooperation to solve.

Through interdisciplinary learning in STEM education, students can better understand the connection and application between disciplines, and cultivate the ability of comprehensive thinking and problem solving [11]. STEM education also pays attention to practice and experiments, allowing students to personally participate in science and engineering practices, cultivating their practical ability and innovative spirit.

STEM education has been widely concerned and promoted around the world [12]. The concept of STEM education has also been applied to all stages of education, from kindergarten to higher education, the impact of STEM education can be seen.

All in all, STEM education develops students' innovative thinking, problem-solving skills, and teamwork skills to meet real-world challenges by bringing together science, technology, engineering, and mathematics. It is a comprehensive educational philosophy that emphasizes practice and interdisciplinary learning, and is widely used in educational reforms around the world.

2.2 Principles of STEM

STEM's principle is shown in Figure 1.

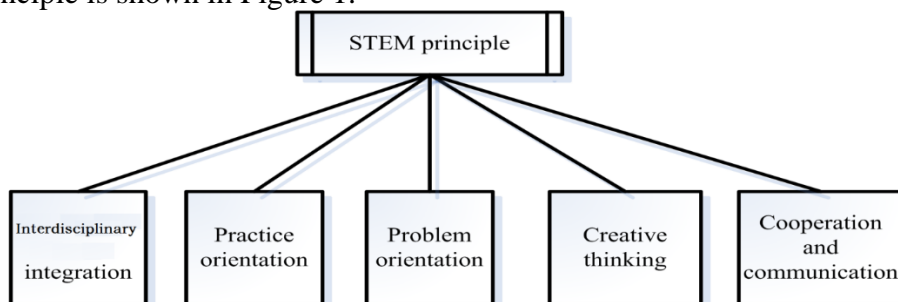


Figure 1: Five basic principles of STEM

Interdisciplinary integration: STEM education breaks the boundaries of traditional disciplines [13]. Through interdisciplinary integration, students can better understand the connections and applications between disciplines, and develop comprehensive thinking and problem-solving abilities.

Practice-oriented: STEM education focuses on practice and experiment. Through practice, students can apply classroom knowledge to practical problems and cultivate their practical ability and innovative spirit [14].

Problem-oriented: STEM education is problem-oriented, encouraging students to take the initiative to ask questions and solve problems through scientific methods and engineering design [15]. This problem-oriented learning method cultivates students' spirit of exploration and ability to solve problems.

Innovative thinking: STEM education develops students' innovative thinking and encourages them to come up with new ideas and solutions. Students learn to think about how to improve and innovate in STEM education, and cultivate their creativity and innovation awareness.

Cooperation and communication: STEM education focuses on students' teamwork and communication skills. Problems in the real world often require multidisciplinary cooperation to solve, so students need to learn to cooperate with others, share ideas and communicate effectively [16].

Through interdisciplinary integration, practice orientation, problem orientation, innovative thinking, cooperation and communication, STEM education provides students with an all-round development educational environment.

2.3 The Importance of STEM Education

First of all, innovative thinking means that students can look at problems from a new perspective and come up with unique solutions [17]. Cultivating students' innovative thinking can enable them to quickly adapt and respond to new challenges and bring new business opportunities to enterprises [18].

Second, the issues involved are often diverse and challenging, such as supply chain management, international trade regulations, etc. [19]. Cultivating students' problem-solving ability through STEM education can equip them with the ability to solve practical problems and provide feasible solutions for enterprises.

Finally, teamwork refers to students' ability to work with others to complete tasks and solve problems together. In cross-border e-commerce, teamwork is very important because knowledge and skills in different fields are involved [20]. Developing teamwork among students through STEM education can equip them with the ability to collaborate with others and work together effectively to achieve common goals.

To sum up, the goal of STEM education is to cultivate students' innovative thinking, problem-solving ability and teamwork spirit. These core qualities are just in line with the abilities required by cross-border e-commerce innovative talents. Through the cultivation of STEM education, students will be able to stand out in the field of cross-border e-commerce and contribute to future business innovation.

3. The Development Trend and Talent Demand of Cross-Border E-commerce

3.1 The Latest Development Trend of Cross-Border E-commerce Industry

The cross-border e-commerce industry is in a stage of rapid development, the following are some of the latest development trends, as shown in Figure 2.

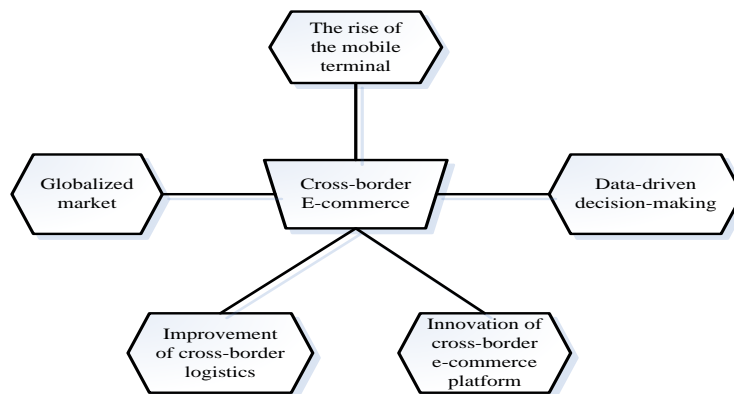


Figure 2: The latest development direction of the cross-border e-commerce industry

Global market: With the acceleration of globalization, the cross-border e-commerce industry is increasingly becoming an important part of international trade.

Rise of the mobile terminal: Consumers can shop anytime, anywhere with their mobile phones, and businesses can expand their market reach through mobile applications and mobile websites. The popularity of mobile payments has also facilitated cross-border transactions.

Data-driven decision-making: By collecting and analyzing big data, businesses can better understand consumer needs and market trends to make more informed decisions.

Improvements in cross-border logistics: An important challenge for cross-border e-commerce is logistics. In order to meet consumer demand for fast and reliable delivery, cross-border logistics services need to be continuously improved. For example, the expansion of logistics networks, the optimization of supply chains, and the innovation of logistics technologies all help to improve the efficiency and reliability of cross-border logistics.

Innovation of cross-border e-commerce platforms: Cross-border e-commerce platforms continue to innovate to meet market demand. Some platforms attract more consumers and merchants by offering more payment options, increasing trust and security measures, and improving user experience. At the same time, some platforms are also actively exploring emerging technologies, such as blockchain and virtual reality, to further enhance the functionality and user experience of the platform.

To sum up, the latest development trends in the cross-border e-commerce industry include globalization of the market, the rise of mobile terminals, data-driven decision-making, improvements in cross-border logistics, and innovations in cross-border e-commerce platforms. These trends will continue to drive the development of the cross-border e-commerce industry and bring more opportunities and convenience to businesses and consumers.

3.2 Demand for Talents in the Cross-Border E-commerce Industry

International trade experts: Cross-border e-commerce involves trade activities between different countries and regions, so professional international trade experts are needed to handle customs affairs, understand trade policies and regulations of various countries, and solve problems in cross-border trade.

Cross-cultural communication skills: Cross-border e-commerce needs to deal with customers and partners from different cultural backgrounds. Therefore, it is very important to have good cross-cultural communication skills, understand and respect the differences between different cultures.

Data analysis and marketing experts: Cross-border e-commerce relies on data analysis to understand market trends, consumer behavior and competition. Therefore, talents with data analysis

and marketing expertise are very popular.

Cross-border logistics and supply chain management experts: Cross-border e-commerce needs to deal with the challenges of international logistics and supply chain management, including cargo transportation, customs clearance, warehousing and distribution, etc. Therefore, talents with expertise in cross-border logistics and supply chain management are very important.

Technical experts: Cross-border e-commerce is inseparable from technical support, including website development, payment systems, data security, etc. Therefore, talents with relevant technical expertise and skills are highly sought-after.

In general, the cross-border e-commerce industry has a high demand for talents with professional knowledge and skills in international trade, cross-cultural communication, data analysis, marketing, logistics and supply chain management, technology, etc.

3.3 The Importance of Comprehensive Ability and Innovative Spirit Cultivated by STEM Education

In terms of meeting the demand for talents in the cross-border e-commerce industry, the comprehensive ability and innovative spirit cultivated by STEM education are crucial.

First of all, the complexity of the cross-border e-commerce industry requires talents to have the ability of interdisciplinary integration. STEM education encourages students to study and research in different subject areas, and cultivates their ability to comprehensively apply various knowledge and skills. In cross-border e-commerce, knowledge in multiple fields such as international trade, marketing, logistics management and technology will enable talents to better deal with complex challenges.

Second, practice orientation and problem orientation are the core principles of STEM education. Students need to understand the specific operation of international trade, solve cross-cultural communication problems, and deal with supply chain management challenges through practical experience. This practice-oriented and problem-oriented learning method develops students' practical ability and problem-solving ability, making them more competitive.

In addition, innovative thinking is an important part of STEM education, innovation is the key to promoting enterprise development and responding to market changes. STEM education encourages students to come up with new ideas, different ways to solve problems, and have the courage and determination to innovate by cultivating students' innovative thinking. This innovative spirit enables talents to find new business opportunities in the cross-border e-commerce industry, meet new challenges, and promote the innovative development of the industry.

To sum up, the comprehensive ability and innovative spirit cultivated by STEM education are crucial to meet the talent needs. These competencies enable talents to integrate knowledge across disciplines, apply practical and problem-oriented approaches to solve complex challenges, and possess innovative thinking to advance the industry.

Based on the above development trends and needs, this paper conducts a questionnaire survey on the students of school A, aiming to collect the relevant opinions of the cross-border e-commerce students of the school on talent training. The results of the survey are shown in Table 1, covering information on students' views on STEM education, knowledge of skills requirements in the field of cross-border e-commerce, and suggestions for school curriculum settings. Through this questionnaire survey, we can have a more comprehensive understanding of students' expectations and needs for talent training, and provide a strong reference for A school's education reform and curriculum design. At the same time, it also helps us to better adapt to the fast-growing cross-border e-commerce industry, cultivate outstanding talents with innovative thinking, problem-solving ability and practical skills, and prepare for future career development.

Table 1: The survey of cross-border e-commerce students' opinions on talent training in school A

| Serial number | Students' views on STEM education | Cognition of cross-border electronic commerce's domain skill requirements | Suggestions on school curriculum setting |
|---------------|-----------------------------------|---|---|
| 1 | Important | Know less | Increase internship opportunities |
| 2 | Very Important | Need to be strengthened | Increase practical projects |
| 3 | Common | Understand | Increase cross-border e-commerce courses |
| 4 | Understand but not implement | Know very well | Increase the cultivation of innovative thinking |
| 5 | Be not interested in | Have no idea at all | Increase the cultivation of innovative thinking |

The survey data are shown in Figure 3.

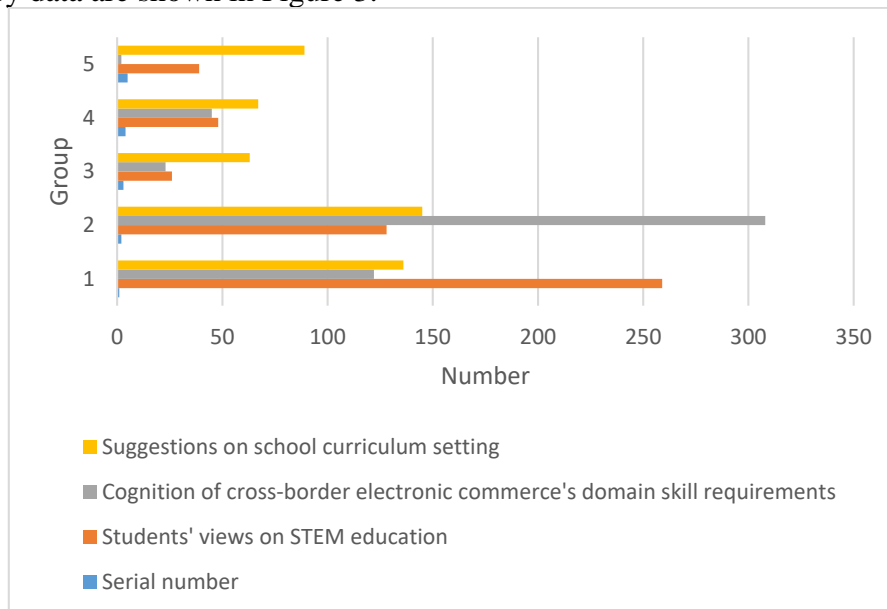


Figure 3: Statistical chart of questionnaire survey data

Based on the survey results, we can draw the following conclusions:

1) The importance of STEM education: 158 out of 500 students think STEM education is very important, and 259 people think it is important, which shows that they are aware of the importance of STEM fields and hope to receive more education in this area. However, their knowledge of STEM education is relatively low, which may require schools to provide more resources and opportunities to increase students' awareness of STEM education.

2) Awareness of skill requirements: The survey shows that most students believe that they need to strengthen cross-border e-commerce skills. This shows that students have a certain awareness of the skills they need for future employment and hope to acquire these skills through education. Schools can adjust the curriculum according to this demand and provide more courses and training related to cross-border e-commerce.

3) Internship opportunities and practical projects: Students generally recommend increasing internship opportunities and practical projects. This shows that they hope to apply what they have learned through practical operations and practical projects, and improve their practical capabilities

in the field of cross-border e-commerce. Schools can cooperate with relevant enterprises or organizations to provide more internship opportunities and practical projects to help students transform theoretical knowledge into practical skills.

To sum up, school A can carry out educational reform and curriculum design based on these survey results, and cultivate excellent talents suitable for the development of cross-border e-commerce industry.

4. The New Way to Cultivate Cross-Border E-commerce Talents Based on the Concept of STEM Education

Interdisciplinary integration: Cross-border e-commerce requires comprehensive knowledge and skills, including international trade, marketing, data analysis, logistics and supply chain management, etc. Based on the concept of STEM education, students' comprehensive abilities can be cultivated by integrating knowledge from different disciplines. Disciplines such as business, engineering and information technology can be integrated to provide interdisciplinary courses and projects.

Practice-oriented: Cross-border e-commerce is a highly practical field, and students need to have the ability to operate and solve problems. Based on the concept of STEM education, students can personally participate in the practical activities of cross-border e-commerce through practical projects, internships and field trips. This provides opportunities for students to come into contact with real business scenarios, developing their practical skills and problem-solving abilities.

Innovative thinking: The cross-border e-commerce industry needs talents with innovative thinking, who can continuously discover business opportunities, solve problems and promote the innovative development of the industry. Based on the concept of STEM education, it can stimulate students' imagination and spirit of exploration by cultivating their innovative thinking and creativity. Students' innovative ability can be cultivated by carrying out innovative projects, organizing entrepreneurial competitions and providing innovative resources.

Cooperation and communication: The cross-border e-commerce industry needs to have good teamwork and cross-cultural communication skills. Based on the concept of STEM education, students' cooperation and communication skills can be cultivated through team projects, cooperative learning and international exchanges. Students can be encouraged to participate in teamwork projects, so that they learn to cooperate with people from different backgrounds and cultures, and through cross-cultural communication activities, to enhance their cross-cultural communication skills.

5. Conclusion

The new way of cultivating cross-border e-commerce talents based on the concept of STEM education has importance and potential. These new approaches emphasize the principles of interdisciplinary integration, practice orientation, problem orientation, innovative thinking, and cooperation and communication, and cultivate students' comprehensive ability and innovative spirit. Through this training method, we can promote industry innovation and economic development. We can further research and practice new ways of cultivating cross-border e-commerce talents based on the concept of STEM education. This includes working with industry to develop practice-oriented courses and projects that provide students with real-world experiences and opportunities to develop their problem-solving and innovative skills. In addition, we can also strengthen teacher training, improve their professional knowledge and teaching skills in STEM fields, so as to better guide the development of students. Through continuous exploration and practice, we can cultivate more high-quality talents for the cross-border e-commerce industry and promote industry innovation and

development. This will bring more opportunity and growth to the economy, while also providing students with greater employment prospects.

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