Identifying Undergraduates' Learning Needs in Cross-Border E-Commerce Professional Training

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Cross-border e-commerce (CBEC) professional training programs jointly organized by enterprises and universities effectively reduce the CBEC talent supply-demand gap in China. Without understanding students' learning needs, it's hard to activate students' motivations to participate in these programs. This study investigates undergraduates' learning demands for knowledge and skills from the CBEC professional training program. A survey based on China CBEC Professionals Standards was conducted among four CBEC-related majors at Huaihua University located at an international inland port city of Huaihua in Central China. It was found that undergraduates of different grades and majors differed in their learning demands for CBEC knowledge topics and skills. Majors, rates, CBEC-related experience and CBEC knowledge levels could affect undergraduates' CBEC learning needs. These results suggested that universities and enterprises should jointly design a differentiated curriculum for the specific learning demands of students in different CBEC-related majors and grades. The findings of this study have provided references for Huaihua University and other universities in China to optimize curriculums for CBEC professional training programs. The study also significantly motivates students to participate in CBEC training programs.

Keywords: cross-border e-commerce training, learning needs, learning motivations, differentiated curriculum

INTRODUCTION

The burgeoning CBEC industry has become an essential tool for the Chinese government to stabilize foreign trade and guarantee the external circulation of the Chinese economy. The Ministry of Commerce of China revealed that, from 2015 to 2022, the State Council of the Chinese Central Government approved 132 comprehensive pilot zones for CBEC in 30 provinces, cities and prefectures. China has signed e-

commerce cooperation memorandums with 23 countries. Chinese government policies have facilitated significant import and export volume growth through the CBEC industry. The recent five years witnessed an average year-on-year increase of 15% of the transaction value from nine trillion yuan in 2018 to 15.7 trillion yuan in 2022. The market size of this industry is estimated to reach 16.8 trillion yuan (E-commerce Community, 2023).

In China, universities and colleges are the leading producers of CBEC professionals. However, the robust CBEC industry faced a considerable talent supply-demand gap of 4.5 million in 2018, with an annual growth of 30%. Even if each of the about 3000 colleges and universities certified by the Chinese Ministry of Education could produce an average of 100 CBEC graduates, the total talent supply is vastly less than the annual demand (Jun et al., 2021). To reduce the talent shortage, some universities and colleges decided to cultivate CBEC talents in related majors such as international economics and trade, e-commerce, logistics, business English, etc. Nevertheless, enterprises complained about graduates' lack of systematic CBEC professional skills.

Under China's "Road and Belt" Initiative, the CBEC industry has been promoted in more provinces and cities, even in inland areas, thanks to the rapid development of ports. Some colleges and enterprises in coastal cities proposed the "enterprise-university cooperative programs for CBEC talent cultivation" to tackle the talent quality problem. The launch of CBEC enterprises in inland cities increased the popularity of the enterprise-university cooperative programs. Under the guidance of enterprise supervisors, some elite students realized sales revenue by running CBEC shops. However, these programs targeted a limited number of senior students with definite CBEC career goals. Most partnership enterprises took these programs as pre-job training and recruitment, which could reduce human resource costs. This enterprise's profit-oriented cooperation program hindered the production of more qualified professionals from reducing the talent demand-supply gap.

CBEC talent training in China has become an important research focus due to the professional quality problem and shortage of talent. The CBEC talent training model has drawn attention to improving students' professional competence. Some researchers proposed and explored the university-enterprise partnership or industry-education integration model for CBEC talent training (e.g., Guang Yuan, 2019; Jiao et al., 2019; Luo, 2023). Restricted by the enterprises' pursuit of profits, the training programs under this popular model could only attract the participation of a small number of senior students. Many CBEC-related majors in colleges and universities competed in training CBEC talents to meet the market demand. However, these majors could not produce high-quality talents as different majors have different curriculum systems (Jun et al., 2021). Based on the general requirements of students, Cheng, Su and Zarifis (2019) designed a CBEC talent training model by integrating problem-based learning and social media. Zhou and He (2020) further suggested developing CBEC courses based on students' motivations. These two authors' suggestions have provided a reference for optimizing the development of the CBEC curriculum and increasing students' participation in training programs.

However, motivation is the desire to achieve people's needs (Pintrich, 2003; Usher and Kober, 2012). College students' learning needs were a vital research concern (Sandoval-Lucero, 2014), especially in foreign language learning (Aladdin, 2016; Andi & Arafah, 2017), medical education (Koren et al., 2008;), art and design education (Zeng et al., 2023). It's hard to arouse students' learning motivation in CBEC training programs if their needs are not explicitly identified. The assessment of learning needs is an effective tool to diagnose problems for curriculum planning and bring about changes in teaching practice (Grant, 2002). Therefore, this study aims to identify students' learning needs in CBEC training to facilitate universities in planning and designing the CBEC curriculum. Understanding students' needs would better motivate students to participate in the CBEC training programs. As a result, the quality problem and insufficient talent supply could be solved to some extent.

METHODOLOGY

Questionnaires and structured interviews are commonly used to identify students' learning needs (Grant, 2002). This study chooses questionnaires to assess students' learning needs in the CBEC

curriculum. This cross-sectional, descriptive needs assessment survey was the first phase of a more comprehensive triangulated investigation to analyze faculty and student perceptions of learning needs and motivations towards CBEC training for college students. The first phase of the more extensive study focuses on students' perceived demands for the knowledge learning and skills training involved in the CBEC curriculum.

A college student's learning needs assessment form was designed for this phase. The form aims to measure students' perceived learning needs and provide descriptive background information. Undergraduate students ranked their present knowledge of CBEC on a five-point Likert-type scale, with higher scores indicating more understanding. Besides, according to "China CBEC Professionals Standards," the questionnaire surveyed students' learning demands for ten CBEC knowledge topics and nine essential CBEC skills. We asked students to put a "1" before any issues they need and want to learn. Moreover, descriptive data were collected on each participant's major, grade and CBEC experience as shoppers or shopkeepers. The survey's content validity was assessed using expert judgment by research team members who were all experts in CBEC and research methodology. The form was pretested with ten students to ensure they could answer the questions. It provided additional evidence of the validity of the document.

The study survey was conducted at Huaihua University, located at the international inland port city of Huaihua in Central China's Hunan Province. The Business School of this inland local university has piloted to offer the optional CBEC training program since 2019. The implementation of this training program was divided into two stages. In the first stage, from 2019 to 2021, four CBEC workshops were carried out mainly by enterprise instructors. These workshops were similar to the previously mentioned enterprise-profit-oriented cooperation programs, mostly participated by some senior students with solid intentions to take CBEC positions.

In the second stage, from 2022, besides the workshops offered by the enterprise instructors, a team of teachers equipped with CBEC skills launched an optional CBEC training program open to all students of different majors from the Business School of the university. Additionally, some business school teachers, including the authors of this paper, also mastered the CBEC skills through their participation in the workshops. However, this program's popularity is much narrower than expected, as only a few students have enrolled. Therefore, assessing students' learning needs is essential to identify the problems and potential solutions before making curricular changes (Koren et al., 2008). The Business School of Huaihua University obtained approval for CBEC Major from the China Ministry of Education in April 2023. The findings of this study are also expected to guide the curriculum design of the new CBEC major at Huaihua University and other universities in China.

RESULTS

Sample Characteristics

The survey investigated 1,489 undergraduate students of four majors directly related to CBEC at the Business School of Huaihua University. The school offers the general course Introduction to CBEC Theory and Practice to students majoring in International Economics and Trade and Logistics Management in their third year. The CBEC knowledge would be incorporated into some courses in the majors of Investment and Accountancy.

According to Table 1, 1,369 students from these four majors participated in the survey, accounting for 91.9% of the total enrolled students. 51.5% of participants are juniors and seniors, 3% higher than the participation proportion of first- and second-year students. This result showed that, despite the almost balanced participation of students of the four years, the third and fourth years students responded to the survey more actively than those of the first and second years. Additionally, the enrolled students who majored in International Economics and Trade and Logistics Management have higher response rates than Investment and Accountancy majors. As for students' experience in the CBEC business, 35.6% of participants once purchased goods through or worked for CBEC platforms. The International Economics and Trade and Logistics Management majors were more engaged in CBEC business practice. When asked

about their interest in CBEC training, only 38.3% of the participants unveiled their interest in the training program, slightly higher than the percentage of participants who experienced CBEC shopping or work. Almost all students with CBEC experience desired to participate in the CBEC training program. International Economics and Trade and Logistics Management students showed more interest in the CBEC training.

TABLE 1
SAMPLE FEATURES

	Number of Participants				
Major	International Economics and Trade	Logistics Management	Investment	Accountancy	Total Participants and Percentage
First Year	76	92	54	104	326 (23.8%)
Second Year	75	98	58	107	338 (24.7%)
Third Year	80	99	72	105	356(26.0%)
Fourth Year	75	97	75	102	349 (25.5%)
Total Participants and Percentage	306 (95.0%)	386 (93.0%)	259(90.2%)	418 (90.1%)	1,369(91.9%)
CBEC Shoppers or Shopkeepers and Percentage	181 (59.2%)	176 (45.6%)	80 (30.9%)	50 (10.8%)	487(35.6%)
Participants' Interest in CBEC Training	197 (64.4%)	185 (47.9%)	83 (32.0%)	59 (14.1%)	524 (38.3%)
Total Enrolled Students	322	416	287	464	1,489 (100%)

Students' Knowledge of CBEC

Tables 2 and 3 reported participants' ratings of their perceived knowledge of CBEC. Table 2 shows that 51.4% of participants had good or some knowledge of CBEC. 48.6% of participants revealed their lack of CBEC knowledge, with 12.3% knowing nothing about this field. About half of the participants were generally confident about their understanding of CBEC.

As mentioned in the methodology, the higher scores indicate students' more knowledge of CBEC. It's easily found from Table 3 that the mean score of senior participants hit the highest while the mean score of first-year students was the lowest. The mean scores of juniors and seniors were essentially more elevated than those of first- and second-year students. These results indicated that students' knowledge of CBEC was closely related to their years in the university. It was previously introduced that the university offered special training programs and courses on CBEC to juniors and seniors. These measures directly led to students' knowledge increase in this subject. Furthermore, the higher standard deviation value of junior and senior groups implied the difference in participants' knowledge levels of CBEC. However, first- and second-year students' relatively lower normal deviation value reflected their general lack of CBEC knowledge.

Participants of different majors had different CBEC knowledge levels. Table 3 clearly shows that the mean scores of participants who majored in International Economics and Trade and Logistics Management were significantly higher than the other three majors. Besides, the knowledge levels of these two majors were 0.25 and 0.2, higher than the overall perceived level of 3.29, respectively. This finding could result

from the two majors' curriculum, which includes more courses directly related to CBEC. In addition, the standard deviance values of the International Economics and Trade and Logistics Management majors were noticeably higher than the other two majors. This result was similar to the standard deviation value difference between the higher and lower grades participants. The higher standard values indicated that students who majored in International Economics and Trade and Logistics Management differed in their CBEC knowledge levels. Nevertheless, the lower stand deviance values of the other two majors implied students' overall ignorance of CBEC.

TABLE 2
PARTICIPANTS' CBEC KNOWLEDGE LEVELS

Students' CBEC Knowledge Levels	Number of Participants	Percentage (%)
Good Knowledge	246	17.9
Some Knowledge	459	33.5
Not much knowledge	279	20.4
Little Knowledge	217	15.9
No Knowledge	168	12.3
Total	1369	100

TABLE 3
SCORES ON THE KNOWLEDGE OF CBEC PERCEIVED BY PARTICIPANTS IN DIFFERENT GRADES AND MAJORS (N=1369)

Students of Different Grades and majors	M	SD
First Year (Freshmen)	1.99	0.32
Second Year (Sophomores)	2.33	0.99
Third Year (Juniors)	4.27	2.45
Fourth Year (Seniors)	4.42	2.25
International Economics and Trade	3.54	2.14
Logistics Management	3.49	2.16
Investment	2.96	0.99
Accountancy	2.87	0.85
Overall Perception	3.29	1.42

Notes: Range of Scores=1.0-5.0

CBEC Knowledge Topics Students Need to Learn

Figure 1 and Figure 2 showed that the total frequencies of CBEC platforms, investment and risks, product selection and new product display exceeded 1,000. It means that these four topics attracted the most learning desires from students. The frequency of CBEC development was only 627, representing students' slightest desire to learn this topic. The general results of students' topic choices indicated that students perceived that the knowledge of CBEC platforms, investment and risks, product selection and new products display could be more critical to the success of CBEC operation than the knowledge of CBEC development.

Figure 1 demonstrates the frequency of CBEC knowledge topics chosen by participants of different grades. Most first-year students were eager to understand CBEC development and platforms, as they had little or no knowledge of this sector. Sophomores showed great interest in a broader range of topics except for the three issues such as CBEC shop operation, order management and CBEC account risk control. Juniors further paid equally due attention to all the problems except for the slightest learning interest in

CBEC development. However, seniors focused on more advanced topics such as CBEC product selection, new product display, shop operation, order management and account risk control. It could be quickly concluded from these results that students of different grades had different learning demands for CBEC topics. The students of lower rates chose issues related to basic CBEC knowledge, while students of higher grades wanted to learn in-depth CBEC knowledge. Figure 2 further presented the CBEC knowledge topics students in different majors wished to know. Participants who majored in International Economics and Trade and Logistics Management revealed their learning demands for all CBEC knowledge topics. Investment and Accountancy majors chose fewer CBEC knowledge topics to their learning demands. Their choice frequencies of CBEC shop operation, order management and CBEC account risk control were the lowest. It implied that very few students from these two majors were confident in their capabilities to understand these relatively tricky topics as they had much less CBEC knowledge.

FIGURE 1
FREQUENCIES OF CBEC KNOWLEDGE TOPICS CHOSEN BY PARTICIPANTS OF FOUR GRADES

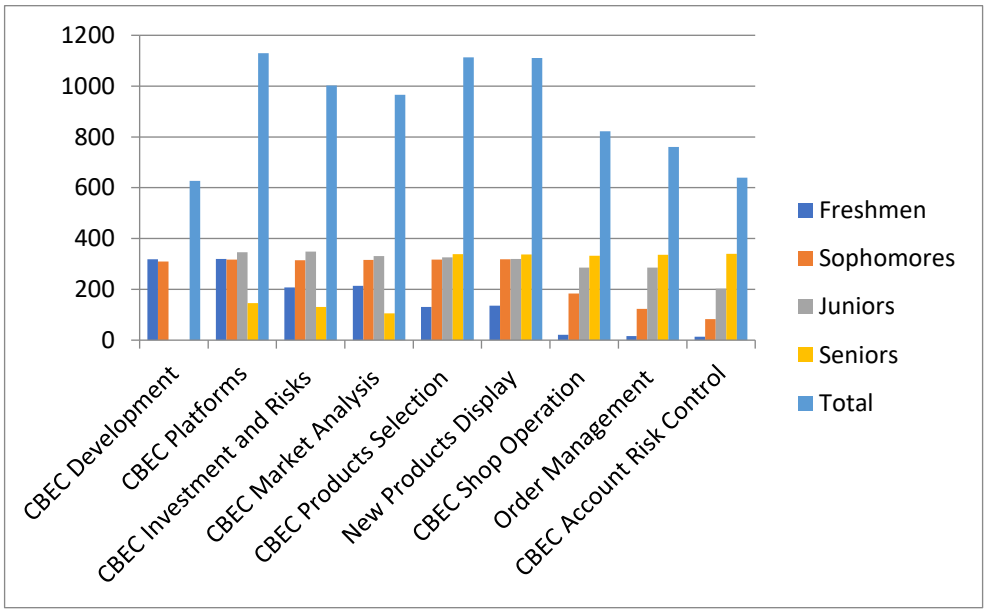
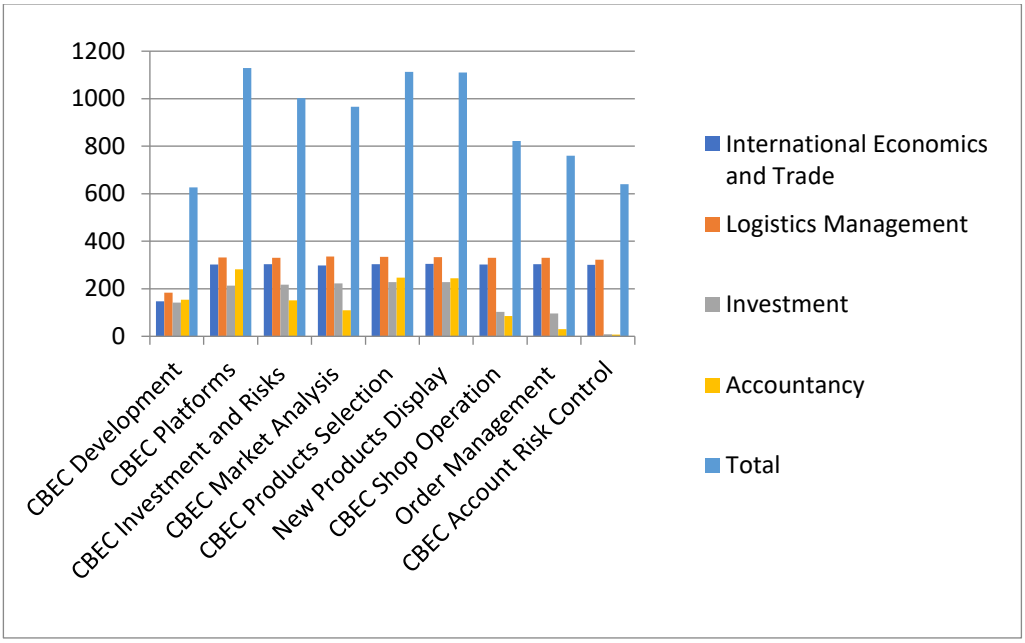


FIGURE 2
FREQUENCIES OF CBEC KNOWLEDGE TOPICS CHOSEN BY PARTICIPANTS OF FOUR CBEC-RELATED MAJORS



CBEC Skills Students Desire to Learn

This section further analyzed the learning desires of students from different grades and majors for CBEC skills. As CBEC skills are the focus of most enterprise-university cooperative CBEC training programs, the survey also identified the CBEC skills chosen by students interested in the training program.

Table 3 shows that undergraduates of various grades in CBEC had varying learning demands for CBEC skills. First-year students seemed to have no targeted CBEC skills they needed to learn, as their choices were quite dispersed and unfocused. Sophomores focused more on basic CBEC skills, such as CBEC platform management and product description. Juniors and seniors focused on CBEC marketing, market survey and product selection, photograph and shop operation and management. Moreover, these skills are more directly related to CBEC work or entrepreneurship. These results reflected that first- and second-year students had a shallow understanding of CBEC business. Therefore, they had few ideas of what CBEC skills they needed to learn.

On the other hand, Juniors and seniors have obtained some knowledge or even had a good understanding of CBEC from their courses or programs. Besides, junior students started to make their career plans while senior students are directly facing work. Naturally, they had more specific and targeted understandings of what CBEC skills they needed to learn or improve. By summing up the frequencies of participants' demands for different CBEC skills, the survey found that undergraduates attached the most important to the skills of CBEC marketing and market survey and product selection, with the frequencies of these two skills breaking 1,000. Product selection is the common focus of students' learning demands for CBEC knowledge and abilities. However, the essential skill of CBEC platform management has drawn the slightest interest from the participants, with its lowest frequency of 547.

Table 4 reveals that undergraduates of different majors differed in their learning demands for CBEC skills. Students of International Economics and Trade and Logistics Management focused more on CBEC skills than students of Investment and Accountancy. It was found that students of the two CBEC closely related majors had the similarly most significant interests in six of the seven listed skills except for their least attention to CBEC platform management. Students of Investment showed a more substantial number of attractions in CBEC skill learning than students of Accountancy. Besides their relatively common

interests in market survey and product selection and product description, students of investment seemed to be more curious about the other two skills, CBEC marketing and negotiation strategies. Figure 4 also presents the learning demands of students interested in participating in the CBEC training program. It was found that more than 90 % of these prospective participants of the CBEC training program chose all listed CBEC skills. 95% unveiled their learning desires for CBEC marketing, market survey, product selection, and shop operation and management. As found in Table 1, almost all students that had CBEC experience were interested in the CBEC training program. That's why the prospective participants of the CBEC training program showed a strong desire to learn all CBEC skills.

FIGURE 3
FREQUENCIES OF CBEC SKILLS SELECTED BY PARTICIPANTS OF FOUR GRADES

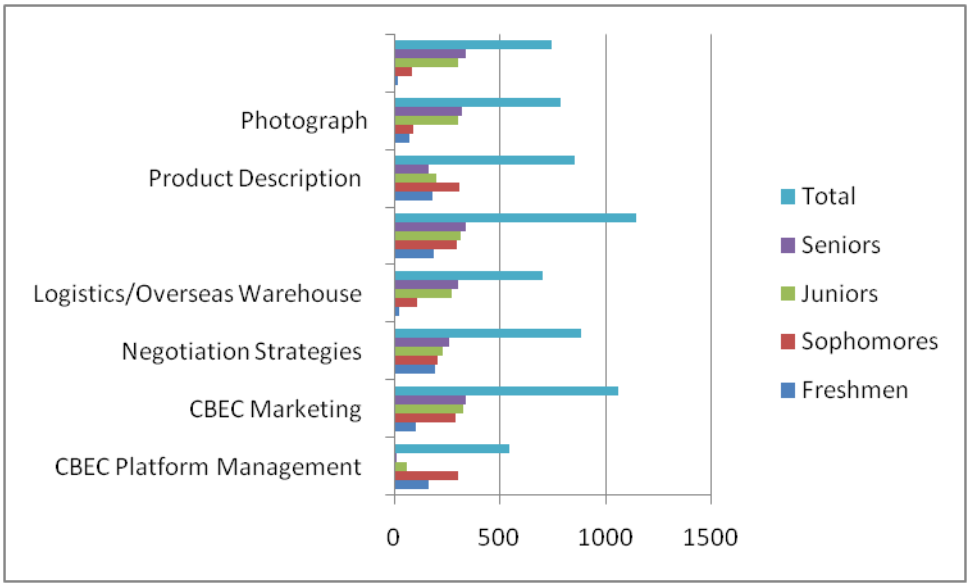
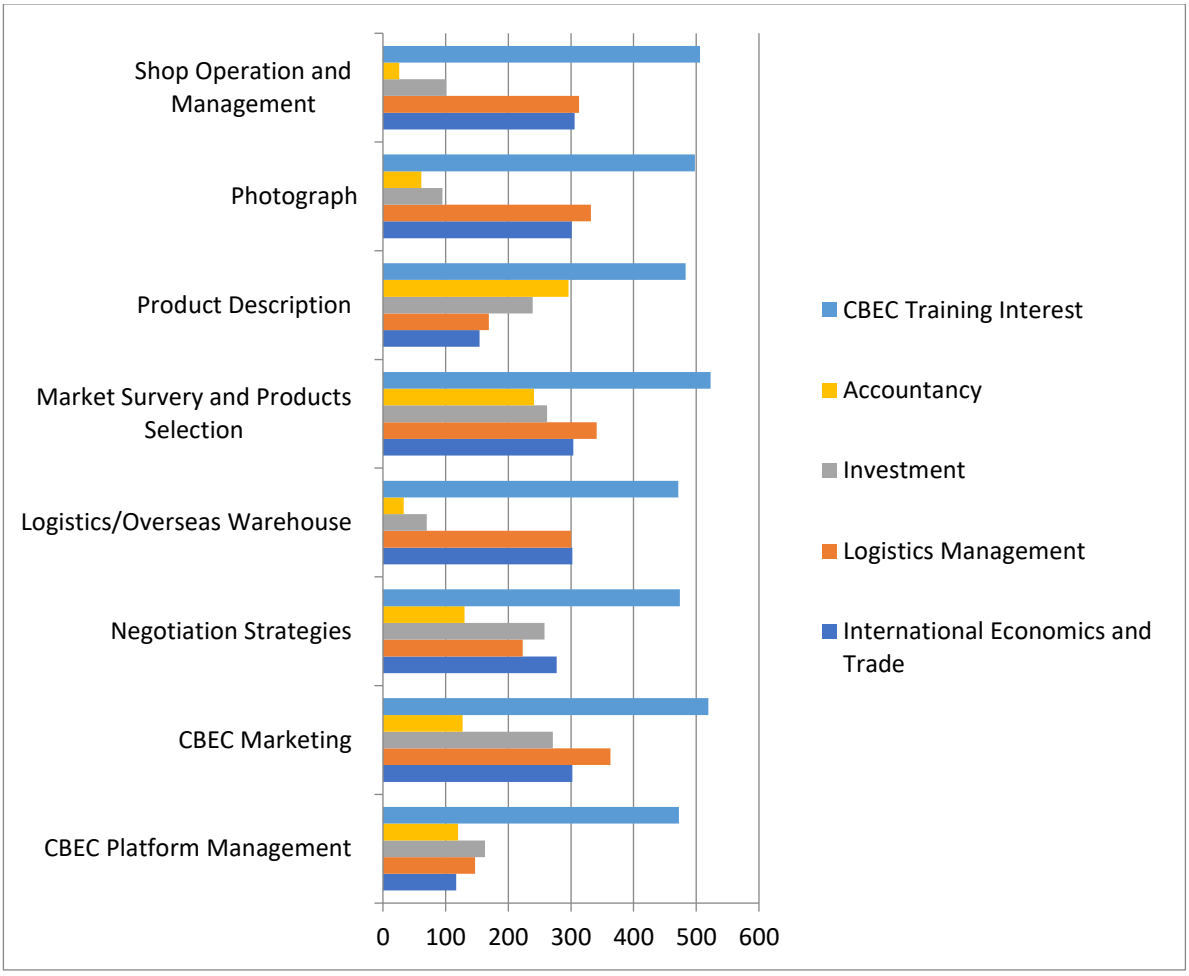


FIGURE 4
FREQUENCIES OF CBEC SKILLS SELECTED BY PARTICIPANTS OF FOUR CBEC-RELATED MAJORS AND CBEC TRAINING INTEREST



CONCLUSION AND RECOMMENDATION

CBEC is a new major, and only a few universities have obtained the qualifications for opening this major. The CBEC professional training program remains a feasible approach to alleviating the CBEC talent shortage and improving the professional capabilities of CBEC-related undergraduates in China. Some universities, like Huaihua University, piloted CBEC training through partnerships with CBEC enterprises to meet the market demand for CBEC talents. However, the CBEC training programs offered by Huaihua University face the problem of students' low participation, as the most cases in other universities in China. Identifying students' learning needs in CBEC professional training is a prerequisite to activating students' motivations to participate in CBEC training programs. Therefore, this study surveyed undergraduates' learning demands for CBEC knowledge and skills at the Business School of Huaihua University.

The sample characteristics analysis shows that students of different grades and majors had different response rates to the survey. Juniors, seniors, International Economics and Trade and Logistics Management majors responded more actively to the study than first-year, second-year, Investment and Accountancy students. Students with CBEC experience tended to be interested in the CBEC training program. The investigation on undergraduates' knowledge of CBEC shows that half of the participants had some knowledge of CBEC. Students' understanding of CBEC levels was closely related to their grades and

majors. Higher-rate students had more knowledge of CBEC than lower grades. While the International Economics and Trade and Logistics Management majors better understood CBEC than Investment and Accountancy majors. A possible reason for this result could be that some CBEC courses were offered in the curriculum from the third year for International Economics and Trade and Logistics Management majors.

The survey further revealed that undergraduates' learning demands for CBEC knowledge and skills varied as participants of different grades and majors had different CBEC knowledge levels. CBEC platforms, investment and risks, product selection and new product display, were the most popular CBEC knowledge topics students were eager to learn. Students in lower grades selected themes relating to the fundamentals of CBEC, whereas students in higher grades desired to gain in-depth CBEC knowledge. International Economics and Trade and Logistics Management majors had more comprehensive CBEC knowledge topics of interest than Investment and Accountancy majors. Limited by their little or no knowledge of CBEC, first-year students' choices of CBEC skills seemed untargeted and dispersed. Sophomores became interested in basic CBEC skills such as CBEC platform management and product description. Juniors and seniors focused on CBEC work or entrepreneurship-oriented skills such as CBEC marketing, market survey and product selection, photograph and shop operation and management. Similar to the findings of different majors' interest range in CBEC knowledge topics, most International Economics and Trade and Logistics Management students selected six of the seven listed CBEC skills, significantly more than the skills targeted by students of the other two majors. The survey finally found that most students interested in the CBEC professional training program desired to learn all CBEC skills, focusing on CBEC marketing, market survey and product selection, and shop operation and management.

It could be quickly concluded from the above findings that grades, majors, CBEC-related experience and knowledge levels of CBEC could affect undergraduates' learning demands for CBEC knowledge topics and skills in the CBEC professional training program. Optimizing curriculum design based on students' learning needs is necessary to encourage more CBEC-related students to participate in the training program. The findings of this study recommended that the training program at Huaihua University should not only target the few seniors with good knowledge of CBEC and strong intentions to work in this field. CBEC courses should be designed and optimized for all CBEC-related undergraduates of different majors and grades with varying knowledge of CBEC. For first-year students, sophomores, and Investment and Accountancy majors with little or no knowledge of CBEC, the program should offer introductory courses or activities to help them gain essential knowledge and skills. These courses and activities should center on arousing students' interest in CBEC.

In-depth courses could be offered to upper-level students majoring in International Economics and Trade and Logistics Management to help them improve and enhance their CBEC knowledge and skills. These students with a good understanding of CBEC could be encouraged to participate in various CBEC competitions to train their professional qualifications and meet and learn from CBEC elites. The knowledge and skills include CBEC marketing, market survey and product selection, photography, shop operation, and management. Lastly, students with CBEC experience and interest in the training program should be cultivated into the backbone and leaders of the trainees under the exceptional guidance of enterprise supervisors. The outstanding students should have more internship opportunities to enhance their understanding of the CBEC enterprise management and operation. In a word, under the guidance of China CBEC Professionals Standards, universities and enterprises should jointly design a differentiated curriculum for specific learning demands of students in different CBEC-related majors and grades. The findings of this study have provided references for Huaihua University and other universities in China to optimize the curriculum for the CBEC major or professional training programs. The study is also significant in activating students' motivations to participate in CBEC training programs.

ACKNOWLEDGMENTS

This study was funded by the Collaborative Education Program administrated by the Ministry of Education of China; the approved project is entitled "The Construction of International Trade Professional

Course System Based on the Core Competence of Cross-Border E-Commerce" (202002145046). It was also funded by the General Higher Educational Institution Teaching and Learning Reform Research Program administrated by the Education Department of Hunan Province. The approved project is entitled "Research on the Quality Evaluation of Teaching-Learning and Control System for the First-class Majors in Economics and Management" (HNJG-2020-0847). In addition, the Teaching Reform Program administrated by Huaihua University also supported the research project entitled "Optimization of University Cross-Border E-Commerce Talent Training Mode Based on Key Competencies."

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