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Original Paper

"LTCI" Mode Enables the Construction of Maker Teams of Foreign Language Majors of Application-Oriented Universities

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Abstract

From the perspective of "Learning, Training, Competition and Innovation" (LTCI) mode, this paper focuses on the construction of maker teams of foreign language majors of Baoding University, one of the typical application-oriented universities in Hebei province, China. It first introduces the background of the study, indicating the importance of carrying out innovation and entrepreneurship education, and the value of "LTCI" mode. Then a review of the literature shows the need for this study. After that, the paper analyzes the status quo of the foreign language maker teams at Baoding University. Based on the existing problems, the researcher proposes the framework and implementation plan on the construction of maker teams of foreign language majors with "LTCI" involvement. It is expected that the research will promote the innovation and entrepreneurial capabilities of the foreign language maker teams, and enhance the output of innovative foreign language talents.

Keywords

"LTCI" Mode, Maker Teams, Foreign Language Majors, Application-oriented Universities

1. Introduction

In 2015, the General Office of the State Council issued the Implementation Opinions of the General Office of the State Council on Deepening the Reform of the Education of Innovation and Entrepreneurship in Institutions of Higher Education (2015), which stresses that the move is to meet the need for the country to implement the strategy of innovation-driven development and improve the quality and efficiency of the economy. It is also an important measure to advance the comprehensive reform of higher education and promote higher-quality entrepreneurship and employment of college

graduates. The Implementation Opinions also makes comprehensive arrangements for the reform of innovation and entrepreneurship education in universities.

Guiding Opinions of the General Office of the State Council on Further Supporting College Students in Innovation and Entrepreneurship (General Office of the State Council, 2021) notes that as a vibrant force for entrepreneurship and innovation, college students should be provided with a more favorable environment and favorable financial support. The guidelines also urge universities to improve innovation and entrepreneurship education, thus making it extend throughout the whole process of talent training.

In the Report to the 20th National Congress of the Communist Party of China (Xi, 2022), "innovation" is one of the hot words. President Xi mentioned that China will join the ranks of the world's most innovative countries by the year 2035. We will fully implement the strategy for invigorating China through science and education, the workforce development strategy, and the innovation-driven development strategy. We will boost the overall performance of China's innovation system, nurture a culture of innovation and create an open and globally-competitive innovation ecosystem. We should inspire greater creativity and cultivate greater numbers of innovation teams, and we will improve the system for creating jobs by encouraging business startups.

The above documents and report all give high priority to the importance of innovation and entrepreneurship. Responding to the country's call, Baoding University, a typical local application-oriented university in Hebei province, has been offering a university-wide course named Foundation of Innovation and Entrepreneurship since 2022. Different colleges carry out innovation and entrepreneurship teaching based on the characteristics of different majors. Students at the College of Foreign Language Education and International Business have developed several maker teams, while they have their unique confusions and questions about the course. This is also the focus of this study.

"LTCI" mode refers to the mode of "Learning, Training, Competition and Innovation". Applying "LTCI" mode to promote the construction of maker teams of foreign language majors has great significance. It will not only optimize the teaching practices of the Foundation of Innovation and Entrepreneurship and enhance the efficacy of maker teams of foreign language majors, but also further encourage the spirit of exploration among students, thus fostering more innovative talents for society. Thus, this paper will mainly focus on how "LTCI" mode enables the construction of maker teams of foreign language majors of application-oriented universities.

2. Literature Review

By consulting the academic papers on CNKI (China National Knowledge Infrastructure), the researcher found that the current study suggests the following characteristics:

First, some scholars have noticed the "LTCI" mode and they have also applied this mode to the talents training in the majors of Geographic Information Science (Wu et al., 2021) and Electromechanics (Jia & Zhao, 2020), and also to the courses of Digital Media (Huang & Ding, 2017) and the Innovation and

Entrepreneurship Education. As to the latter course, Tan (2014) mentioned that "LTCI" mode is based on American educator Dewey's practical philosophy of "the unity of knowledge and action" and the view of dialectical materialism which suggests the fundamental purpose of knowledge is to practice. Huang (2020) analyzed the relationship of learning, training, competition and innovation, and points out the mode of innovation and entrepreneurship education with the integration of "learning, training, competition and innovation" is still inadequate. Thus, there's wide research space for the study combining "LTCI" mode with the course of Foundation of Innovation and Entrepreneurship.

Second, as to the construction of maker teams, Hu and Zhang (2017) suggested that college maker teams are the most active and creative group in various makers' organizations, so the construction of maker teams is of great practical significance. They also propose a role model for college student maker teams based on the team role theory of British management scientist Meredith R. Belbin. Li et al. (2022) analyzed the influencing factors of college student maker teams' creativity through empirical study and conclude that individual creativity, the characteristics of the overall team and the support from maker space all have a positive effect on the creativity of college student maker team. The above studies provide certain valuable insights for this study.

Third, by the end of January 2023, there is only one paper on CNKI that explores the training mode of innovative foreign language undergraduates by introducing the concept of maker education (Chen, 2022). Through this research, Chen aims to help more foreign language graduates not only grasp foreign language skills, but also other interdisciplinary skills. It is clear that maker education is important for the development of foreign language students. In addition, the study was based on foreign language courses, not the course of Foundation of Innovation and Entrepreneurship. At the same time, the study took foreign language undergraduates as the research object, rather than the foreign language maker team as the research object. At present, research on foreign language maker teams is still scarce.

Based on the above literature review, there is still a lack of research exploring the construction of foreign language maker teams in applied undergraduate colleges based on the innovation and entrepreneurship course. As "LTCI" mode can well assist the teaching of Foundation of Innovation and Entrepreneurship and students majoring in foreign languages have their own unique characteristics, the study in the field of "LTCI" mode enabling foreign language maker teams of application-oriented universities deserves special attention.

3. The Status Quo of Foreign Language Maker Teams of Application-Oriented Universities

In June 2022, a questionnaire was carefully designed and conducted to better understand the current status of the foreign language maker teams of application-oriented universities. The research respondents were 100 sophomores from three intact classes at the College of Foreign Language Education and International Business at Baoding University in Hebei province, China. The three intact classes were randomly selected from three different majors in the 2020 class, namely English, Business English and Japanese. The total number of respondents in the above majors was 30, 30 and 40,

respectively. All the respondents were aged between 19 to 20, and they had just completed the Foundation of Innovation and Entrepreneurship course. At the same time, they had no relevant training in innovation and entrepreneurship before taking the course. In total, 100 copies of the questionnaire were distributed to respondents. After the data analysis, a total of 96 copies of the questionnaire are valid. The results of the questionnaire are presented in Table 1.

Table 1. Questionnaire on the Status Quo of the Foreign Language Maker Teams at Baoding University (%)

Items	A always	B usually	C sometimes	D seldom	E never
1. Be willing to learn entrepreneurial thinking.	41.67	35.42	20.83	2.08	0
2. Think proactively about the innovative and entrepreneurial project.	9.38	20.83	42.71	25	2.08
3. Thinking about the project is difficult.	14.58	43.75	39.58	2.08	0
4. The project is relevant to the major.	1.04	17.71	48.96	32.29	0
5. There is adequate time for project implementation.	0	12.5	32.29	53.13	2.08
6. Reasonably utilize resources at hand.	4.17	31.25	61.46	3.13	0
7. Be able to bear the losses caused by the project.	4.17	17.71	38.54	32.29	7.29
8. Be willing to create projects with classmates.	34.38	51.04	11.46	3.13	0
9. Team members are in the same major.	20.83	61.46	17.71	0	0
10. Transform the risks of the project.	0	10.42	66.67	22.92	0
11. Control the future of the project through actions.	2.08	32.29	51.04	14.58	0
12. Be willing to participate in various innovation and entrepreneurship competitions and project applications.	5.21	12.5	60.42	21.88	0
13. Consider the writing of the business plan difficult.	54.17	36.46	9.38	0	0

14. Satisfied with the performance of the business plan roadshow.	1.04	23.96	53.13	21.88	0
15. Apply for a patent for the project.	0	6.25	17.71	55.21	20.83
16. The project mentor gives specialized guidance to the project.	7.29	39.58	50	3.13	0
17. Hardware and funding are provided.	1.04	4.17	38.54	56.25	0
18. Industry experts and distinguished alumni are invited to share their experience.	0	7.29	21.88	70.83	0

The questionnaire has 18 questions in total. Item 1 reflects 77.09% of respondents (41.67% always, 35.42% often) are willing to study the innovation and entrepreneurship course. However, the learning interest of 22.91% of respondents is expected to be enhanced.

Items 2 to 11 are designed to investigate the implementation of projects. Of these, items 2 to 5 are surveys from the macro perspective. Relevant data show that nearly 70% (42.71% sometimes, 25% seldom, 2.08% never) of respondents need to improve their initiative in thinking about their projects. The vast majority of respondents find it difficult to think about the project. Only 2.08% of respondents rarely feel the difficulty. These innovative and entrepreneurial projects are not closely related to the major of the respondents. 32.29% of respondents chose “seldom” in Item 4. Meanwhile, at least 55% of respondents (53.13% seldom, 2.08% never) agree that there is not enough time for the implementation of projects.

Items 6 to 11 are surveys from the micro perspective. In the implementation of the project, there is still room for improvement in the rational use of resources at hand, as 61.46% of respondents chose “sometimes” and 3.13% “seldom”. Nearly 40% of respondents (32.29% seldom, 7.29% never) cannot afford the losses caused by projects. It is nice to see that the vast majority of respondents are willing to create projects with their classmates. That will be beneficial for the construction of maker teams of foreign language majors. However, the members of those teams may be in the same major, as 20.83% of respondents chose “always” and 61.46% of respondents chose “often”. This does not facilitate team projects. In addition, respondents also need to promote their ability to transform project risks, as well as control the project’s future through actions.

Items 12 to 15 are surveys of expectations for innovation and entrepreneurship projects. Data from Item 12 shows that 21.88% of respondents rarely participate in innovation and entrepreneurship competitions and project applications, indicating that students’ enthusiasm for participation needs to be enhanced. At the same time, the researcher also investigated the two important aspects of innovation and entrepreneurship competitions. The result of Item 13 is not satisfactory. Almost all respondents

find it difficult to write a business plan. In Item 14, 21.88% of respondents are rarely satisfied with the performance of the business plan roadshow. These data provide the basis for improving the teaching of innovation and entrepreneurship. Item 15 is an investigation into the innovation of projects. 55.21% of respondents seldom consider applying for a patent for the project, and 20.83% of respondents chose "never". This has a lot to do with the quality of the project.

Items 16 to 18 are surveys of some other factors that influence the construction of maker teams of foreign language majors. Item 16 indicates that most of the respondents have recognized the guidance of project mentors. Meanwhile, 50% of respondents chose "sometimes", which indicates mentors still need to improve the quality and time commitment of instructions. Data from Item 17 reveal that the amount of hardware and funding invested in innovation and entrepreneurship is inadequate. 56.25% of respondents hold that the university seldom supports their project in terms of hardware and funding. Notably, 70.83% of respondents hold that industry experts and distinguished alumni are seldom invited to share experiences with them, indicating that students are eager to communicate.

In general, the questionnaire shows small progress in innovation and entrepreneurship teaching, but also reveals some serious problems. Therefore, the results of the questionnaire are of great significance for the subsequent reform of the course of Foundation of Innovation and Entrepreneurship and the construction of foreign language maker teams.

4. Construction of Maker Teams of Foreign Language Majors with "LTCI" Involvement

Since the respondents to the questionnaire only have this course for one semester from February 2022 to June 2022, the follow-up study is conducted on new sophomores in the class of 2021. In total, they are 92 students from the three classes, including 27 students in Business English, 29 students in English, and 36 students in Japanese. They still have no relevant education before taking this course, and they also take the course for one semester. That's from September 2022 to December 2022. Meanwhile, they are taught by the same teachers who have taught previous respondents of Grade 2020 in English, Business English and Japanese majors. But with the progress of the study, the teachers adopt the "LTCI" mode and conduct the teaching practice in accordance with the Pilot Program for the Construction of Maker Teams of Foreign Language Majors this time. Besides, some adjustments are made to the pilot program during the teaching period to make the study scientific and valid. With the involvement of the "LTCI" mode, the following strategies will contribute to the construction of maker teams of foreign language majors of application-oriented universities.

4.1 Improving Talent Training Program and the Curriculum System

First, the promotion of the maker team's innovation and entrepreneurship ability should be integrated into the talent training program for English, business English and Japanese majors. According to the questionnaire survey, 14.58% of respondents always feel that thinking about the project is difficult, and 43.75% of respondents often. So developing maker teams' ability of discovering, analyzing and evaluating problems is quite necessary. Through innovation and entrepreneurship projects, maker

teams can investigate the needs of enterprises and society, and make self-choices, self-monitoring and self-evaluation to actively adapt to new changes. At the same time, based on their own characteristics, maker teams can identify their career goals, make correspondent career planning, seek sustainable development of career.

Second, in the construction of the curriculum system, teachers should take the "LTCI" into account. The teaching content should cover innovation and entrepreneurship cognition, entrepreneurial thinking, design thinking, lean startup, the creation of business plans, business plan roadshow and comprehensive practice. Teachers need to integrate major-related knowledge into innovation and entrepreneurship teaching, which is also the most available resource. Apart from teaching the theoretical knowledge of innovation and entrepreneurship, teachers should allocate more time for maker teams' training, competition and innovation, thus forming a talent cultivation pattern in which learning, training, competition and innovation can interact with each other. That helps to improve maker teams' general competence in the construction of the curriculum system. Maker teams are not only able to master the knowledge of innovation and entrepreneurship, but the innovative thinking, innovative awareness, exploring spirit and corresponding innovation and entrepreneurial skills.

4.2 Enriching the Form and Atmosphere of Innovation and Entrepreneurship Training

First, in innovation and entrepreneurship training, teachers should not stick to the traditional method of classroom teaching, but try to adopt various methods, such as case analysis, students practice, group discussion, the teacher review method, and so on. Maker teams may participate in various activities, such as Belbin role test, business model canvas game, five Yuan challenge, risk pitching game, etc. Maker teams' practical skills and performance ability should be highly emphasized. In the generation process of projects, teachers should guide maker teams to reasonably make use of the resources at hand, encourage them to form groups based on their mutual interest, and suggest them to integrate innovation and entrepreneurship theory into practice. Meanwhile, teachers should pay attention to supervision and management of projects by tracking the progress of projects closely, and give constructive advice on specific project training, thus reducing the risks of projects and ensuring their feasibility and operability.

Second, to enhance their quality of innovation and entrepreneurship, maker teams should be provided with the on-campus training atmosphere and the off-campus training atmosphere. On-campus training involves classroom training of innovation and entrepreneurial thinking and extracurricular simulation training. The latter will further develop maker teams' innovation and entrepreneurial skills. As to off-campus training, maker teams will have some internship programs in some companies. Through field research, students can discover new business opportunities, develop new innovation and entrepreneurship projects and get the corresponding training during the internship. Through the mutual promotion of both inside and outside the university, a multi-dimensional training system of innovation and entrepreneurship will be constructed.

4.3 Activating Maker Teams' Creativity and Motivation through Competitions

At present, there are several competitions related to innovation and entrepreneurship, which are successively sponsored by China Association of Higher Education, the Ministry of Education, the Communist Youth League of China, the Ministry of Science and Technology, etc. As the results of the questionnaire show that at least 21.88% of the respondents are not very willing to participate in innovation and entrepreneurship competitions and project application, which is closely related to students' low interest, low creativity and low motivation.

First, before participating in those competitions, maker teams should realize the importance of the competitions and pave the way for future career development. They need to make full use of their existing expertise and social common sense to brainstorm innovation and entrepreneurship projects. Whether the innovation and entrepreneurship competitions or project declarations, interest comes first and topic selection is the key. By collecting and analyzing industry data, maker teams can find their interest and the breakthrough points, then select the topics rationally, thus creating more value for society. Teachers should play the guidance role in the selection of topics to help maker teams identify fake projects. The current innovation and entrepreneurship projects related to foreign language majors mainly involve bilingual or multilingual picture books, regional culture translations, red culture translation, cross-border e-commerce, cultural and creative products integrated with foreign language elements, etc. Since foreign language majors are not as easy and successful as science and engineering majors in the respect of innovation and entrepreneurship, and some projects link closely with science and engineering, the innovation and entrepreneurship teachers may communicate with teachers of related disciplines to find like-minded students to work together on projects to achieve the rational use of resources. Besides, students also have to think about the risks involved in financing the project, information access, resource management, etc. If they can bear those risks, they can carry out the projects immediately. If not, they need to abandon the project, adjust the goal or search for new partners.

Second, while participating in competitions, maker teams should develop their ability to transform those unexpected circumstances, which may happen every now and then during the innovation and entrepreneurship process. Students need to actively promote self-efficacy, adapt to the changes as soon as possible, and regard them as the source of creative action. The team leader should play the leading role well, which not only involves reasonably allocating projects so as to activate the team member's enthusiasm and sense of cooperation, and leading the whole team to actively develop projects, but involves controlling the direction of the entire project, and anticipate the effect of project implementation to avoid risks as much as possible.

Third, after the competitions, teachers should guide maker teams to objectively evaluate the whole aspects of the participation, acknowledge the agreements as well as discover some defects, thus forming a benign feedback mechanism. In order to maximize maker teams' enthusiasm, their confusions should be solved in time. Students need to realize that individual growth is closely related to

team growth, and growth is more important than success. Meanwhile, they need to reconsider how to better solve the pain points, optimize the implementation of the project, expand target customers, and enhance user experience. Different ideas are allowed in project iteration to make in-depth exchanges, so as to further activate the creativity and innovation and maintain competiveness of the whole team. Besides, when the right time comes, maker teams should be encouraged to turn their projects into patents.

4.4 Optimizing the Faculty Group and the Support System

Optimizing the faculty group and the support system is a favorable guarantee for the teaching of innovation and entrepreneurship. From the questionnaire, it can be seen that the results of Question 16 and Question 17 are not satisfactory. As the faculty group in College of Foreign Language Education and International Business are in foreign language majors such as English or Japanese. This teaching arrangement has both benefits and drawbacks. On one hand, foreign language teachers have a better understanding of foreign language students, which is conducive to the development of innovative and entrepreneurial projects related to foreign languages. While, on the other hand, foreign language teachers lack specialized training and knowledge of innovation and entrepreneurship, which require later efforts to achieve. Based on the above situation, relevant teachers should have professional training in innovation and entrepreneurship, activate innovative thinking, participate in seminars and teaching competitions to improve their teaching and research abilities. Sharing of teaching and scientific research achievements should be encouraged. Due to the specific nature of the course of Foundation of Innovation and Entrepreneurship, teachers should have some interdisciplinary knowledge and are capable of guiding students in interdisciplinary innovation and entrepreneurship projects. As a whole, the faculty group should be well-structured and cover different ages so as to achieve better effects in teaching and scientific research.

As to the support system, the university can take the following measures to support students' innovation and entrepreneurship. First, the university needs to gradually establish incentive mechanisms for teacher evaluation. Second, the university needs to seek cooperation with diversified bodies such as the local government, enterprises, research institutions, etc. Industry experts and distinguished alumni can be invited as mentors to share their innovation and entrepreneurship experience and provide specialized guidance. Third, since the Foundation of Innovation and Entrepreneurship is a relatively new course, the university should make greater efforts in software, hardware facilities and financial support so as to promote the incubation of projects by maker teams.

5. Conclusion

The application of "LTCI" mode to the construction of maker teams of foreign language majors can enable maker teams to truly realize the training in learning, competing in training, innovating in competition, and learning in innovation. As is a virtuous circle, "LTCI" mode helps to enhance maker teams' practical skills, comprehensive ability, and innovation and entrepreneurship ability. The

cultivation of maker teams of foreign language majors has achieved certain progress. For example, the number of maker teams participating in the 9th China International College Students' "Internet+" Innovation and Entrepreneurship Competition has increased by 14%, and the number of awards has increased by 6%. More and more maker teams are willing to apply for the Innovation and Entrepreneurship Program of Baoding University. The research results tend to be diverse, such as publishing papers, creating models, applying for patents, etc. It is expected that with the application of "LTCI" mode, maker teams of foreign language majors will achieve more and go farther. At the same time, the research results are also expected to be applied to the construction of maker teams at more application-oriented universities.

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