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The Path of Collaborative Innovation of Sino-foreign Cooperative Education Courses under the Background of Emerging Engineering Education

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Abstract: Under the current background of new engineering, new requirements are put forward for teaching work. The construction of new engineering has promoted a new round of scientific and technological revolution and improved the quality of engineering education. As one of the key carriers of education opening to the outside world, the implementation of curriculum collaborative innovation will further improve the overall teaching quality and cultivate more new engineering talents with international vision, innovation ability and good industrial adaptability. This paper will analyze the path of collaborative innovation of Sino-foreign cooperative education courses under the background of new engineering. Through a detailed understanding of the practical significance and various problems encountered in the implementation of curriculum synergy innovation in Sino-foreign cooperative education based on the background of new engineering, this paper puts forward the feasible countermeasures to promote the curriculum synergy of Sino-foreign cooperative education under the background of new engineering.

Keywords: new engineering, sino-foreign cooperation in running schools, curriculum collaboration, innovation path

1. Introduction

At present, the construction of new engineering adheres to the ' Fudan Consensus ' and ' Beijing Guide ' as the key program, and emphasizes the strategic and innovative nature of engineering education, so as to cultivate more compound talents with strong professional skills and high comprehensive quality for the society. Chinese-foreign cooperation in running schools has unique teaching advantages, which can realize the introduction of various high-quality teaching resources abroad, so as to provide more valuable resources for the cultivation of new engineering talents, and build an international platform. However, the curriculum coordination system is the premise and guarantee for the cultivation of excellent talents. According to the analysis of the curriculum coordination system used in Sino-foreign cooperative education, there are still various problems. How to implement it in the context of new engineering, promoting the curriculum coordination of Sino-foreign cooperative education has become the main problem to be solved.

2. The practical significance of implementing curriculum collaborative innovation in Sino-foreign cooperative education under the background of new engineering

Under the background of new engineering, it is of practical significance for Chinese-foreign cooperation in running schools to implement curriculum synergy, which is mainly reflected in promoting the service of national strategy and industrial transformation and upgrading. Under the background of new engineering, it will further focus on various strategic emerging industries such as new energy and new generation of information technology. Under the background of

realizing curriculum coordination, Sino-foreign cooperative education will further expand the teaching content, actively introduce various international cutting-edge knowledge systems and technical standards, and make up for the gap of technical talents in the upgrading of domestic industrial chain through this way. For example, at present, Beijing Union University and Ural Jiaotong University in Russia strengthen communication and cooperation, realize joint cooperation, set up rail transit specialty, and combine various advanced technology courses in Russia with the needs of China 's high-speed rail industry in the actual teaching process. In the traditional teaching work, there are easy to be subject barriers and lack of practical exploration. Under the background of new engineering, we pay more attention to reflecting the main position of students, improving teaching concepts and realizing output orientation. Under the background of collaborative design of interdisciplinary curriculum modules, Chinese-foreign cooperative education will reset the specific proportion of theoretical teaching and practical teaching, so as to ensure that teaching work gradually changes from " knowledge transfer " to " ability improvement. " In addition, the implementation of curriculum synergy in Sino-foreign cooperative education will enhance the international competitiveness of outstanding talents in a subtle process, because curriculum synergy will break through cultural barriers and cognitive differences, and have a profound impact on the development of students ' cross-cultural collaboration ability. For example, the Paris Academy of Sciences of Shanghai Jiao Tong University integrates French engineer education courses and craftsman spirit cultivation, so as to enable students to not only understand European technical standards in specific teaching work, but also master China 's industrial scene, and gradually let students develop into compound talents in multinational enterprises.[1]

3. Various problems encountered in the coordination of Chinese-foreign cooperative education courses under the background of new engineering

Although under the background of new engineering, Chinese-foreign cooperative education pays more attention to curriculum collaborative innovation, according to the analysis of actual teaching situation, there are also various problems to be improved, which are mainly reflected in the lack of perfect laws and regulations as support. According to the current laws and regulations, the definition of high-quality educational resources is not clear, and there is still a lack of detailed rules for the localization of curriculum. For example, according to the relevant requirements in the regulations on Chinese-foreign cooperation in running schools, the proportion of foreign courses should not be less than 1 / 3, but there is no clear standard for how to realize the reasonable connection with the needs of local industries, so that some colleges and universities blindly introduce courses. At the same time, the establishment of multi-agent coordination mechanism has not been implemented. For curriculum collaborative design, it is not only a project of colleges and universities, but also requires enterprises and industry organizations to actively participate in it to achieve multi-agent collaboration. However, for the current curriculum collaborative design link, there is a problem that foreign participation is not in-depth. Some foreign universities will provide some standardized course packages, but they fail to adjust adaptively according to Chinese students, and some enterprises can not be deeply integrated into the curriculum design link, resulting in the lack of connection between practical teaching work and real production scenes, and even the phenomenon of disconnection.[2]

4. The feasible countermeasures for the implementation of curriculum coordination in Sino-foreign cooperative education under the background of new engineering

4.1 Build a ' double cycle ' curriculum collaboration mechanism

Under the background of new engineering, in order to implement curriculum collaboration in Sino-foreign cooperative education, it is necessary to construct a " double-cycle " curriculum collaboration mechanism to avoid the phenomenon of " two skins " in curriculum collaboration, that is, Chinese colleges and universities should cope with inspection, and foreign colleges and universities should follow the script to realize the construction of a collaboration mechanism that enables students to truly participate in the learning process and master hard skills under the background of " double-cycle " curriculum collaboration mechanism as support. This requires that when conducting courses in foreign countries, a ' course partner ' of a Chinese university should be assigned. For example, the industrial robot teaching course carried out by a university in Shandong will teach students all kinds of theoretical knowledge such as the programming principle of the mechanical arm in Germany.After that, the Chinese teachers will immediately carry out the practical course of how to adopt this technology in the production line of new energy vehicles in China, and organize the students to carry

out the practical operation. At the same time, we should also implement the organization of student curriculum committee, through this way to regularly collect a variety of learning feedback, to understand the voice of students, according to the actual needs of students to timely innovation of teaching content. For example, the study of a college student 's feedback intelligent control theory course is too boring, some knowledge points cannot be understood, and cannot be internalized and absorbed. Chinese and foreign teachers should implement and adjust the course coordination according to the teaching suggestions of students ' feedback, and gradually transform the more abstract and complex theoretical formula into the practical learning project of " how to effectively control the campus street lamp, " and let students have the opportunity to carry out group practice operation and organize the " debugging sensor " learning link.

4.2 Pay attention to carry out ' curriculum transformation '

Under the background of new engineering, Sino-foreign cooperative education should implement the work of " curriculum transformation, " realize the transformation of western teaching materials into learning content with " Chinese flavor, " avoid students ' " acclimatization, " and make teaching work efficient through localization transformation. For example, when explaining the content of supply chain management to students, the ' Amazon ' case can be replaced by ' Jingdong Logistics Night Distribution ' in the actual teaching link, or when explaining the content of mechanical design, the ' Fuxing Bogie ' can be replaced by German ICE train drawings. At the same time, we must also realize the integration of Chinese and foreign cultures. For example, when foreign teachers explain the content of " luxury management " to students, Chinese teachers should then supplement students with China 's " explosive password of the Palace Museum 's cultural creation, " and then give students a certain amount of time. Let students design smart bracelets containing Hanfu elements in the form of groups, through this means to achieve Sino-foreign cooperation in running schools, and implement cultural integration in curriculum coordination.[3]

4.3 Implement the integration of production and education

The curriculum collaboration of Sino-foreign cooperative education should realize that excellent new engineering talents are not " tested out, " but are gradually trained in various practical operations, which requires the enterprise workshop to " move into " the campus and build a real classroom for students. Through this means, practical teaching and theoretical teaching are deeply integrated, and various real projects are used instead of test papers to construct a three-stage model of curriculum co-construction, that is, questions are made by enterprises. For example, the enterprise puts forward the learning topic according to the ' calculation of carbon emission in the whole life cycle of power battery ' proposed by the Ningde era. After that, the double teachers carry out professional guidance, requiring the engineers in the enterprise to strengthen cooperation and exchange with the university teachers, implement the joint design teaching work, and develop valuable teaching cases. After letting the students master the relevant theoretical knowledge, carry out the actual test, and apply the students ' scheme to the optimization of the enterprise production line, so as to test the students ' actual learning results [4].

5. Conclusion

Under the background of new engineering, in order to realize the curriculum collaborative innovation of Sino-foreign cooperative education, it is necessary to avoid only ' physical superposition ', but to truly form ' chemical change '. This requires a correct view of the problems encountered in the course collaborative work of Sino-foreign cooperative education, such as the lack of modern and professional laws and regulations as support, the failure to implement the multi-agent collaborative mechanism, the lack of deep integration of each course content and the weak quality assurance system. In the face of various problems, it is necessary to realize the construction of ' double circulation ' curriculum cooperation mechanism in the follow-up curriculum cooperation, attach importance to the development of curriculum transformation, implement the integration of production and education, and realize the establishment of a full-cycle quality assurance system, so as to promote the curriculum cooperation of Sino-foreign cooperative education under the background of new engineering, and lay a solid foundation for China to export more new engineering talents with new technology.

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