International Journal of Advances in Engineering and Management (IJAEM)
Volume 5, Issue 8 Aug 2023, pp: 685-689 www.ijaem.net ISSN: 2395-5252

Shortcomings in the Internationalization of Civil Engineering Talent Training in China

Shen Quan[1], Zhang Yidan[2], Yan yuan[3], Lv Yuhang[2], Tang Cong[2], Mo Jiajun[2]

[1]*Lecture,Hunan University of Technology, Zhuzhou, Hunan, China*
[2]*Student,Hunan University of Technology, Zhuzhou, Hunan, China*
[3] *Lecture,Hunan Automotive Engineering Vocational College, Zhuzhou, China*

Date of Submission: 20-08-2023 Date of Acceptance: 31-08-2023

ABSTRACT:With the advancement of China's "Belt and Road" initiative, there is a growing demand for internationalization in the field of civil engineering. Cultivating civil engineering professionals with a global perspective and competitiveness is crucial for China's position in the international market. However, at this stage, China still has weaknesses in the internationalization process of training civil engineering talents. This paper analyzes the current status and deficiencies of China's training of civil engineering talents from the perspectives of curriculum, faculty, practical teaching, and student exchanges, and specifically proposes a series of solutions to promote the international development of civil engineering talents.

KEYWORDS: Civil Engineering; Talent Training; Internationalization; "Belt and Road" Initiative; Solutions.

I. INTRODUCTION

In recent years, the advancement of China's "Belt and Road" strategy has created new opportunities for the development and cooperation of the global economy. The construction of the "Belt and Road" not only deepened the exchanges and cooperation between many countries in Asia, Europe, and Africa but also promoted interconnectivity between nations, laying the foundation for harmonious international relations and mutual prosperity. Infrastructure construction, an essential component of the "Belt and Road" initiative, serves as a bridge connecting different countries and regions and enhancing economic exchanges. As the core area of infrastructure construction, civil engineering plays a significant role in the "Belt and Road" strategy. To enhance the effectiveness and quality of the "Belt and Road" infrastructure construction, actively selecting and employing outstanding civil engineering professionals can significantly improve the quality of the initiative's infrastructure.

Considering that some countries along the "Belt and Road" are still in the initial stages of economic development with relatively low education levels, China can leverage its educational advantages. By establishing vocational technical schools in some of these countries specifically for training civil engineering talents, not only can it promote friendly cooperation with countries along the route, but it can also increase the supply of professional talents in China's "Belt and Road" projects, enhance talent training efficiency, and fill the talent gap.

However, in the current civil engineering education sector, China faces many challenges in internationalization. During the teaching process of civil engineering courses, many universities and teachers neglect the significance of the "Belt and Road" policy. They fail to integrate the content related to the "Belt and Road" construction into the civil engineering curriculum. This oversight affects the internationalization of civil engineering courses, limiting the competitiveness of Chinese civil engineering talents on the international stage. This article will analyze the shortcomings of the internationalization of civil engineering talent training in China from the following aspects.

II. INSUFFICIENT AWARENESS OF INTERNATIONALIZATION IN THE TRAINING OF CIVIL ENGINEERING PROFESSIONALS IN UNIVERSITIES

Many universities have an insufficient understanding of internationalizing the training of civil engineering professionals, mainly due to the following reasons:

International Journal of Advances in Engineering and Management (IJAEM)
Volume 5, Issue 8 Aug 2023, pp: 685-689 www.ijaem.net ISSN: 2395-5252

(1) Lack of Recognition by University Leadership:

Many school leaders do not fully recognize the importance of internationalizing professional talent training. As a result, the school's policies lack strategic planning for internationalization. This oversight makes it challenging to develop teaching and practical programs that meet international needs, affecting the overall international standard of the institution. If the school leaders don't prioritize internationalizing professional talent training, there will be insufficient financial resources, hindering the provision of adequate international resources and environments for teachers and students.

(2) Insufficient Quality of Teachers:

Teachers are a crucial force in higher education. However, if a teacher's own international standard is not high, it becomes challenging to introduce international elements into the classroom and practice. Moreover, some teachers lack experience in international exchanges and cooperation, making it hard to effectively guide students.

(3) Low Level of Internationalization of the School:

The internationalization level of a university directly impacts the international standard of professional education. If the school's internationalization level is not high, it will be difficult to provide sufficient international resources and environments, affecting the internationalization of teaching and practice.

(4) Unclear Talent Training Goals:

Some universities lack clear international training goals in the training of civil engineering professionals. This deficiency leads to a lack of international elements in the teaching and practice process, resulting in students who might be less competitive internationally.

(5) Lack of Industry Connection:

The industry is the primary demand side for training civil engineering professionals. However, there's a lack of close ties between some universities and the industry, leading to a disconnect between teaching, practice, and actual engineering projects.

III. THE EDUCATIONAL SYSTEM IS NOT ADAPTABLE TO INTERNATIONALIZATION NEEDS

The training of civil engineering professionals in our country mainly relies on the traditional education system, which has certain inadequacies in meeting international demands. Traditional education models emphasize the impartation of theoretical knowledge but lack the cultivation of practical skills and awareness of cross-cultural collaboration. Moreover, the evaluation system leans towards assessing scores and knowledge volume, neglecting the development of students' innovative abilities and international perspectives.

(1) Course Setting is Overly Traditional:

In the curriculum of civil engineering, there's a strong emphasis on conveying theoretical knowledge, overlooking the practical training of international cooperation and cross-cultural exchanges. Elective courses and projects related to the Belt and Road Initiative, essential for honing students' international abilities, are absent. Hence, there's a pressing need to optimize the civil engineering curriculum by adding foreign-related courses, international projects, and other practical sessions to enhance students' cross-cultural communication and collaboration skills.

(2) Teaching Methods Require Innovation:

Currently, teaching methods in civil engineering tend to be traditional, primarily relying on classroom lectures and textbook learning, lacking interactive and practical components. However, fostering students' international capabilities requires more hands-on opportunities and teamwork. Students should be encouraged to engage in international engineering practical projects. Implementing project-driven teaching methods offers students more genuine operational and international collaboration experiences, nurturing their applied abilities and team spirit.

(3) Strengthening the Faculty Team is Essential:

The faculty in civil engineering often lacks specialized knowledge and experience in internationalization. The absence of teachers with an international perspective and cross-cultural exchange experiences restricts students' training in international collaboration and communication. Therefore, bolstering teachers' international academic exchanges and collaborations, developing their global vision, and enhancing their teaching proficiency and professional qualities is crucial to better guide students in internationalized studies and research.

(4) Lack of Comprehensive International Support System:

International Journal of Advances in Engineering and Management (IJAEM)
Volume 5, Issue 8 Aug 2023, pp: 685-689 www.ijaem.net ISSN: 2395-5252

At present, the international training of civil engineering talents often depends on students' initiative and external voluntary participation, lacking systematic guidance and support. A well-established international support system should be created, including offering opportunities and financial aid for studying abroad, building international communication platforms, and cultivating students' language skills. Only with comprehensive support can the international development of civil engineering talents be promoted.

IV. COURSE DESIGN DOES NOT ALIGN WITH THE BELT AND ROAD INITIATIVE REQUIREMENTS

The curriculum of the civil engineering major should be adjusted and refined according to the actual needs of the countries along the Belt and Road Initiative (BRI). However, the current curriculum for civil engineering in our country is mainly based on domestic standards, lacking in-depth research and understanding of the international market needs. Therefore, under the backdrop of internationalization, there is a misalignment between the curriculum design of civil engineering and actual demands.

(1) Within the civil engineering curriculum, there is a relative lack of international courses.

The Belt and Road Initiative encompasses numerous countries and regions, necessitating talents with cross-cultural communication and international collaboration abilities. The current curriculum often focuses on traditional civil engineering theories and technical knowledge, with a dearth of elective courses and practical projects tailored for BRI countries. It is imperative to add BRI-related courses, such as country-specific studies, international collaboration, and project management, to cultivate students' understanding and adaptability towards BRI nations.

(2) The current curriculum doesn't fully consider the requirements and challenges of the BRI construction.

The BRI covers various areas like infrastructure development, sustainable growth, and environmental protection. The existing curriculum is rather singular and doesn't encompass all relevant knowledge and skills comprehensively. There should be the inclusion of courses like foreign engineering project management and sustainable infrastructure planning to meet the demands of BRI and foster students' problem-solving capabilities.

(3) Course design needs to emphasize interdisciplinary learning and the cultivation of comprehensive abilities.

The BRI touches upon the intersection and integration of multiple academic disciplines, and civil engineering talents should possess comprehensive qualities. The existing curriculum tends to lean towards imparting knowledge in singular disciplines, failing to foster students' interdisciplinary thinking and their abilities to tackle complex issues. The introduction of interdisciplinary teaching modules or electives, such as international economics, political science, and sociology, is necessary to nurture students' holistic abilities and global perspectives.

(4) The course design should prioritize practicality and team collaboration.

The essence of BRI construction emphasizes practical project collaborations and implementations. In contrast, traditional courses focus on theoretical learning, missing opportunities for hands-on practice. Practical projects or internship courses should be introduced, allowing students to engage in BRI project implementations and collaborations with multinational corporations, thereby honing their practical abilities and team spirit.

(5) Course design needs to be closely integrated with industries and corporations.

The construction of BRI demands support and collaboration from industries and companies. Therefore, the curriculum should align with real-world needs. Collaborative relationships can be established with industry associations and corporations. Inviting industry experts to participate in curriculum design and teaching activities, and incorporating real-world case studies into classroom instruction, can enhance students' professional acumen and practical abilities.

V. INSUFFICIENT LANGUAGE AND CROSS-CULTURAL COMMUNICATION SKILLS

Civil engineering professionals need to possess strong English capabilities and cross-cultural communication skills to collaborate with engineers, designers, and government officials from different countries. However, there's currently a deficiency in our country's cultivation of language proficiency and cross-cultural communication for civil engineering talents. During their civil engineering studies, many students receive limited training in specialized

International Journal of Advances in Engineering and Management (IJAEM)
Volume 5, Issue 8 Aug 2023, pp: 685-689 www.ijaem.net ISSN: 2395-5252

English and lack opportunities to work with foreigners.

Firstly, civil engineering students face language barriers in cross-cultural exchanges. With the Belt and Road Initiative involving numerous countries and regions, students need to interact with individuals from different cultural backgrounds. However, many students have limited proficiency in English or other foreign languages, making it challenging for them to communicate effectively and understand other perspectives. Hence, to enhance students' language skills, we should strengthen English education and offer language training courses related to BRI countries, such as Chinese and Arabic, to improve their speaking and listening skills and bolster cross-cultural communication.

Secondly, students lack cultural sensitivity and adaptability in cross-cultural interactions. Every country and region has its cultural background, values, and social customs, which influence people's behaviors and communication styles. However, many civil engineering students lack awareness of these cultural differences, leading to misunderstandings and conflicts. Therefore, we can introduce cross-cultural content in the curriculum, such as culture and communication, and international business etiquette. Through case studies and interactive discussions, we can foster students' cultural sensitivity and adaptability, enabling them to better understand and respect cultural differences.

Furthermore, students lack practical experience in handling cross-cultural conflicts and problem-solving. In cross-cultural interactions, conflicts and issues stemming from cultural differences are inevitable, and students need conflict resolution and mediation skills. The current curriculum focuses predominantly on theoretical knowledge, lacking practical training. Therefore, through role-playing in simulated cross-cultural scenarios, hands-on projects, or internships, students can firsthand experience the challenges of cross-cultural communication and hone their problem-solving skills in diverse cultural environments.

Lastly, students' limited international exposure and experience constrain their performance in cross-cultural interactions. Since most civil engineering students spend the majority of their time on campus with limited exposure to the outside world, their understanding of other countries and regions is restricted. To broaden students' international horizons, we can organize international exchange programs, student exchange visits, etc., allowing students to experience different countries' engineering projects, cultures, and social environments firsthand. This would cultivate their global awareness and international competitiveness.

In conclusion, to address the inadequacies in language proficiency and cross-cultural communication skills among civil engineering students, we can reinforce language education and training, heighten students' cultural sensitivity and adaptability, emphasize practical experience, and expand their international exposure. Through these measures, we can better cultivate civil engineering talents capable of cross-cultural communication, positively contributing to the international collaborations of the Belt and Road Initiative.

VI. SOLUTIONS

To address the shortcomings in the internationalization of training talents in our country's civil engineering field, the author proposes the following solutions:

(1) Promote Educational System Innovation:

Reform the educational system for training civil engineering professionals, focusing on nurturing students' innovative capabilities and team collaboration awareness. Further emphasis should be placed on practical teaching, allowing students to gain hands-on experience and grow in real-world settings.

(2) Fine-tune the Curriculum:

Adjust the curriculum according to the actual needs of the countries along the "Belt and Road" initiative. Incorporate more internationally-aligned course content, such as traffic planning and design, bridge engineering, and urban rail transit.

(3) Emphasize Cross-cultural Communication Skills:

It's essential not only to enhance students' English application skills but also to strengthen their cross-cultural communication education. We can introduce foreign instructors or collaborate with overseas universities to launch bidirectional language and cultural exchange programs.

(4) Deepen International Exchanges and Cooperation:

Proactively establish close partnership relations with educational institutions, research institutes, and enterprises in countries along the "Belt and Road" initiative. Carry out student exchange programs and joint research projects.

(5) Encourage Students' Passion for Practical Participation:

Motivate students to deeply engage in actual engineering projects related to the "Belt and Road" initiative. Through hands-on activities, students' practical operation skills and problem-solving abilities can be cultivated.

VII. CONCLUSION

China has some deficiencies in the international training of talents in the field of civil engineering. However, these issues can be effectively addressed through a series of measures, including reforming the educational system, adjusting the curriculum, and enhancing language skills and cross-cultural communication training. Only by cultivating civil engineering professionals with global perspectives and cross-cultural collaboration abilities can we better adapt to the needs of the "Belt and Road" strategy and inject new vitality into the prosperity and progress of China's civil engineering field.

REFERENCES

[1]. Lin M L. Research on the cultivation of international applied talents in civil engineering [J].Sichuan Building Materials,2023,49(02):245-247.

[2]. Nan Q C. Research on the training mode of international talents in civil engineering in private universities under the background of internationalization[C].Proceedings of 2022 2nd International Conference on Higher Education Development and Information Technology Innovation.HONGKONG NEW CENTURY CULTURAL PUBLISHING HOUSE,2022:4.(DOI:10.26914/c.cnkihy.2022.062284)

[3]. Huang H, Ye Y X, Wu T, et al. Reform and practice of civil engineering talent training from the perspective of "new engineering"[J].Western China Quality Education,2022,8(01):10-12.(DOI:10.16681/j.cnki.wcqe.202201004)

[4]. Li Y, Yang H Y.Construction of the Curriculum System for lnternational Engineering Talents Training under theBackground of the Belt and Road Initiative[J].Education and Teaching Forum,2021(08):14-17.

[5]. Han X N.Study on the lnternationalization Talents Training of Civil Engineering Specialty under the Background of "The Belt and Road Initiative"[J].Education and Teaching Forum,2020(50):52-54.

[6]. He J F.Study on the training problems of Internationalizedtalents of Civil Engineering Specialty in Higher Vocational Collegesunder the background of"The Belt and Road Initiative"[D].East China University of Technology,2020.(DOI:10.27145/d.cnki.ghddc.2020.000326)

[7]. He J F, Zhang G P.Situation, Problems and Paths of Internationalized Talents Training for Civil Engineering Specialty in Higher Vocational Colleges[J]. Vocational Education Research,2020(06):24-29.

[8]. He J F, Ning X T.On the Cultivation of Civil Engineering Talents in China under the Background of "Belt and Road'[J].Journal of Science and Education,2018(19):67-69.(DOI:10.16871/j.cnki.kjwha.2018.07.029)

[9]. XuD. Research on Internationalized Teaching Methods of Civil Engineering Specialty in Applied Universities Based on Network Cloud Platform-Taking the Course of “Engineering Mechanics” as an Example[J]. Journal of Physics: Conference Series,2021,1744(3).

[10]. Su X P, Jun C, Chen Z Y, et al.The exploration and practice of promoting the internationalization progress in civil engineering specialty construction[J].Journal of Changchun Institute of Technology(Social Sciences Edition),2018,19(01):66-68.