

Exploring the Digital Talent Training Mode of Project Cost Specialty in Higher Vocational Colleges

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Abstract: Project construction, design, management, operation, and maintenance are all undergoing digital transformations, and project cost professionals' working mode and content will change as a result. This paper reviews the existing challenges in traditional talent training and adjusts training ideas as well as training modes to conform to the industry's digital transformation trend as a training base for project cost talents.

Keywords: Digitization; Talent training; Project cost specialty; Higher vocational college

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1. Introduction

Every industry, enterprise, and individual are undergoing digital transformation as a result of the digital era. Digital transformation is not a collection of technologies, but the profound integration between digital technology and industry.

Project construction, design, management, operations, and other phases are integrated into the digital model of development. Digital cost management incorporates the theory and method of total cost management, integrates personnel, process, data, technology, and business systems, realizes the optimal comprehensive value of the entire process, every element, and all participants of engineering projects through data structuring and real-time online and intelligent application, as well as constructs a new digital ecology of cost industry. From computer-aided valuation to intelligent valuation, from extensive management to digital management, and from special supervision to precise service, the working mode and content of project cost professionals will evolve accordingly. In riding the digitalization wave, only by having profound understanding of the impact of digitalization on individuals, enterprises, and the industry, actively learning digital architectural concepts and knowledge, as well as improving digital skills, can we hold a place in the future. As a training base for project cost talents, there are still many issues in digital talent training. It is an urgent matter to figure out how to modify training ideas and methods in such a way to adapt to the industry's digital transformation trend.

2. Deficiencies in the traditional talent training mode

(1) An urgent need to revise the talent training plan

The current education mode of graduate cultivation specifications and requirements will be overturned as digital technology continues to advance. Under the background of digitization, project cost personnel

training should emphasize on compound knowledge structure, strengthening the penetration of new technologies, such as artificial intelligence, building information model, chain blocks, cloud computing, and big data, reconstructing a new knowledge structure, as well as improving professional quality. At the same time, relevant supporting reform measures should be applied to promote and improve the quality of professional talent cultivation ^[1].

(2) The need to update the curriculum system

Many construction colleges and universities have come to realize the impact and value of BIM on the industry and related majors as an important technical means of enterprise informatization and have made corresponding adjustments with the needs of project cost informatization construction. In professional courses, “Application of BIM Technology in Engineering Cost Management,” “BIM Modeling and Application,” and “BIM Comprehensive Practical Training” are required. However, the contents of traditional theory teaching and practice teaching in digital construction are relatively weak. Therefore, it is imperative to establish a reasonable and systematic digital curriculum system ^[2].

(3) The need to transform the teaching forms

Traditional curriculum education involves the silent transmission of ideas. Upon the integration of digital technology into the curriculum system, the curriculum types, curriculum delivery methods, and curriculum evaluation methods will all change, and the requirements for teachers’ ability will be far beyond knowledge conservation and their ability to understand. Teachers need to combine curriculum theory with their own practice, reconstruct curriculum based on digital technology, rearrange curriculum resources, design curriculum contents, and realize the value transfer effect behind curriculum resources ^[3].

(4) The need to form teaching conditions

Only by combining the course characteristics and teaching practice resources of project cost management, optimizing and upgrading the on-campus and off-campus training bases, constructing an online teaching platform for the project cost specialty, promoting the sharing of superior teaching resources, and facilitating teachers to realize process-based teaching, can the digital teaching of project cost management be truly realized, thus forming a digital curriculum system and teaching pattern that focuses on professional core abilities as well as realizing digitalization, visualization, modularization, and sequencing of the curriculum content.

3. Implementation ideas for constructing a talent training mode suitable for digital transformation

(1) Strengthen the cooperation between universities and enterprises, and explore the mechanism of industry-university-research integration

In view of the current state of the construction industry, enterprises have established certain needs for professional skills training, and schools and enterprises have collaborated to develop talent training standards and programs. Enterprise resources, including technical resources, human resources, and project implementation resources, should be integrated into teaching. As an example, enterprise experts and senior technical personnel can be invited as part-time teachers to carry out course teaching and practical training with teachers, introduce the production, management, and BIM implementation of enterprises to the classroom, as well as to discuss cost management theory and practice; internship positions can also be offered to students, and a BIM technology training room can be set up; it is also important to ensure the quality of talent training through practical cooperation. It is necessary to emphasize the role of enterprises in assessment, hire enterprise and industry experts, and establish teaching quality assessment departments, such as those responsible for the proposition of evaluation standards. Enterprises should adopt the long-term teaching quality guarantee system of “quality + construction, monitoring + inspection” to strengthen supervision and guidance.

- (2) Build a course-certificate integrated mode led by the “1+X” architectural drawing recognition and BIM
According to the “Assessment Plan for Vocational Skills Grade Certificate of Architectural Drawing Recognition” and “Standard for Vocational Skills Grade of Building Information Modeling (BIM),” students will gradually improve their professional learning depth according to their learning levels, while meeting the requirements of vocational skills in order to obtain relevant vocational skills grade certifications. Centering on the idea of promoting the integration of the industry and education with “1+X,” the certificate’s skill points and moral points are integrated into the talent training program through the sorting and selection of target positions, the drafting of the connotation of vocational ability, the confirmation of vocational ability, and the symbiotic relationship between vocational ability and courses. The proposal of the “1+X” certificate system is to integrate the ability demand by enterprises into the assessment of the certificate. Therefore, the “1+X” certificate examination can also be used as an effective way to review the training level. The graduation standards from the talent cultivation plan should be improved. In addition to meeting the credit requirements of “1” basic and professional course, the credits of “X” vocational certificate courses should also be obtained.
- (3) Reconstruct the course system of project cost specialty based on digitization
Digital information and network should be used to realize the digitalization of equipment, classrooms, resources, and applications as well as improve teaching efficiency. The original curriculum system was reconstructed based on the core competencies of informatization, engineering technology, project measurement and pricing, engineering contract and bidding management, international cost management, innovation and entrepreneurship, professional ethics judgment, and so on.
- (4) Optimize the course content of project cost specialty based on digitization
Knowledge regarding digital information technology should be integrated into the traditional curriculum. For measurement and valuation courses, BIM modeling should be integrated into classroom teaching and practical training. In basic courses, such as architectural map recognition and construction, Autodesk Revit and BIM 3D model cases can be introduced. In CAD and BIM course training links, BIM 3D building models can be used. For architectural map recognition, MagiCAD and other software can be incorporated in the course.
- (5) Strengthen the ability of digit-based project cost teachers
Teachers should actively participate in the learning and communication of digital technology, fully understand “digital technology” on the ideological level, redefine the talent demand specifications of the project cost industry, and conduct accurate positioning of talent training on this basis. Based on digital technology, the curriculum can be reconstructed, the curriculum resources can be adjusted, the curriculum content can be designed, and the value transfer effect behind the curriculum resources can be realized, so as to promote the development of the industry from the source as well as the reform and development of the digital talent training mode.
- (6) Establish a digital teaching platform for project cost specialty
It is necessary to combine the characteristics of project cost courses and teaching practice resources to construct an online teaching platform and realize the digitalization of teaching in the project cost specialty. The online teaching platform integrates teaching resources, faculty resources, and laboratory resources, optimize resource allocation, and provide technical support for the teaching reform of project cost management.

4. Conclusion

Project cost personnel should continuously explore digital transformation under the background of professional project cost training, focusing on compound knowledge structure, strengthening the penetration of new technologies, such as artificial intelligence, building information model, chain blocks,

cloud computing, and big data, promoting in-depth cooperation between colleges, as well as exploring the integrated mechanism of production, teaching, and research, so as to cultivate new compound talents with strong practical ability and innovative thinking to meet the development needs of the construction industry.

Project

Teaching Reform Project of Chongqing Energy Vocational College, “Research on the Training Mode of Engineering Cost Talents in Higher Vocational Colleges Under the Background of Digital Transformation.”

Disclosure statement

The author declares no conflict of interest.

References

- [1] Wang X, Liu J, Wang D, et al., 2018, Research on The Construction Cost Personnel Training Mode Under the Background of “Internet +”. *Project Management Technology*, 16(11): 38-43.
- [2] Gao Y, Shi X, 2018, Research and Practice on The Teaching Reform of “Engineering Cost” Course Under the Background of “Internet +”. *The Science Education Article Collects*; 2018(31): 46-47, 62.
- [3] Yuan J, 2021, Training Teachers’ Curriculum Ability Under the Trend of Digital Technology. *The Science Education Article Collects*, 2021(8): 68-69.

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