

7019 Assessment 1: Plan and justify

Planning

Issue in education

In vocational universities/colleges in China, the Building Construction course for Architectural, Engineering, and Construction (AEC) majors faces several challenges that affect its effectiveness in preparing students for the industry.

The research will focus on this issue in education considering outdated curriculum and teaching methods, insufficient industry integration, limited use of digital tools and emerging technologies, and assessment and skill development issues.

Why the issue is important

To improve the Building Construction course for AEC majors in vocational universities/colleges in China, it is essential to modernise the curriculum, integrate more hands-on and industry-relevant experiences, incorporate digital construction tools, and adopt interactive teaching methodologies that align with the evolving needs of the construction industry. Addressing these issues will enhance students' employability and ensure they are better prepared for industry challenges.

Key themes and debates

1. Pedagogical approaches and teaching methods in vocational education
2. Integration of digital tools and emerging technologies in construction
3. Industry collaboration and work-based learning in vocational universities/colleges in China
4. Skills assessment and graduate employability in vocational universities/colleges in China

Scope of literature

The literature review will draw from seminal works, recent studies, theoretical frameworks, and policy documents to provide a comprehensive understanding of how to improve the Building Construction course for Architectural, Engineering, and Construction (AEC) majors in vocational universities/colleges in China.

Criteria for selecting sources

1. Relevance to the research topic

The sources must directly address key aspects of Building Construction education, vocational training, curriculum design, industry collaboration, and technological advancements in AEC education.

2. Credibility and authority

There is a preference for peer-reviewed journal articles, books, and government reports authored by recognized scholars, policymakers, or industry experts, and published by reputable institutions.

3. Publication date

There is a priority for studies published in the last five to ten years, especially for technological and policy-related discussions, while older seminal works are included for theoretical foundations but supplemented with newer research.

4. Geographic relevance

Since the research focuses on vocational universities/colleges in China, sources should reflect both global practices and local realities.

Organizational framework

1. Introduction

2. Vocational education in the construction industry

3. Curriculum development and industry alignment

4. Teaching methodologies in construction education

5. Integration of digital tools and emerging technologies

6. Work-based learning and industry collaboration

7. Assessment methods and graduate employability

8. Challenges and barriers in vocational education reform in China

9. Summary, research gaps, and conclusion

Justification

Significance and rationale of the review

The literature review provides an overview of vocational education policies in China, industry requirements, and global trends. It also highlights the importance of hands-on learning, work-based training, and digital tools in construction education.

The literature review helps review case studies on vocational training models in construction education, and analyse curriculum effectiveness and identifies areas needing improvement, which could lead to curriculum reform recommendations.

The construction industry is rapidly adopting Building Information Modeling (BIM), AI, automation, and VR-based training tools. The literature review helps identify barriers to implementing digital tools in vocational universities/colleges, and supports recommendations for upgrading teaching methodologies and integrating new technologies.

Conceptual underpinnings of the research

Constructivist learning theory

Constructivist philosophy could be applied to problem-based learning (PBL) in construction projects (Hendry, Frommer, and Walker, 1999).

Constructivist learning theory could also be applied to collaborative learning and teamwork in vocational training. Collaborative learning is “related to social constructivist epistemology, with the goal of acculturating students into the immediate community of learning” (Amalia, 2018).

Key definitions or debates

Essential definitions and ongoing debates, like “Higher vocational education” “Smart construction” “Vocational education and training (VET)” “Building Information Modeling (BIM)” “Digital Pedagogy”, relevant to improving the Building Construction course in vocational universities in China. These concepts provide a foundation for discussion and help position the study within broader academic and industry discourses.

Summary

This literature review examines the course design and instructional improvements needed for the Building Construction course in vocational universities/colleges in China. It explores key educational theories, industry demands, and global practices to inform a more practical, industry-aligned, and technology-driven higher vocational education system in China.

Main research question

How can the design of the course Building Construction in Architectural, Engineering and Construction majors be improved for vocational universities in China?

Sub-questions

- What do regional employers think of the course Building Construction in AEC industry?
- What are the current shortcomings and challenges in the course Building Construction at higher vocational colleges?
- How can innovative teaching methodologies enhance the learning experience in the Building Construction course?

Reference

- [1] Amalia, E. R. (2018) 'Collaborative Learning: The concepts and practices in the classroom.'
- [2] Hendry, G. D., Frommer, M., and Walker, R. A. (1999) 'Constructivism and problem-based learning', *Journal of further and higher education*, 23(3), 369–371.