

My research is “Improve the Building Information Modeling (BIM) course for Architectural, Engineering and Construction (AEC) majors in vocational colleges in China”.

And I will be delivering the following contents.

The main research question guiding this study is: "How can the design of the BIM course in AEC majors be improved for vocational colleges in China?" This issue is important because vocational colleges play a crucial role in bridging the gap between education and industry. Ensuring that BIM courses meet industry expectations will improve students' employability and enhance the overall quality of AEC education.

This research aims to identify gaps in the current BIM curriculum, assess the perspectives of different stakeholders, and propose improvements to better align vocational BIM education with industry needs. The objectives are examining the industry needs, the students' and teacher's perception, also, proposing possible strategies and course framework.

BIM has become a critical tool in AEC industry, streamlining workflows and improving efficiency. However, despite the growing demand for BIM skills, vocational colleges in China face significant challenges in delivering effective BIM education. Educators and researchers are integrating BIM into AEC curricula using innovative methods and themes. Some are using open resources, collaborative learning, project-based approaches, and industry partnerships to enhance BIM education.

The key definitions and common themes are as follows.

Today I will review one highlighted theme from two targeted papers. Paper 1 is A Case Study on University Architecture Professors' Experiences Teaching Building Information Modeling Technology. Paper 2 is A Review of Tertiary BIM Education for Advanced Engineering Communication with Visualization. My highlighted theme is the Obstacles and Strategies in BIM course in AEC majors at vocational colleges. Well, Both papers explore the challenges and solutions in integrating Building Information Modeling (BIM) education into higher education.

For obstacles in BIM education, both papers acknowledge that BIM education faces significant obstacles, affecting its implementation and effectiveness in higher education. They identify barriers related to institutional, technological, and pedagogical factors. Both papers stress that BIM education should be better aligned with industry needs. The gap between academic instruction and real-world industry practices is a persistent challenge. However, there are several differences in the way the two papers deliver the discussion. Paper 1 uniquely categorises BIM education challenges into external (such as Digital Literacy, integration with other courses, student experiences) and internal (like faculty preparedness, team-based collaboration in BIM education) obstacles. This structured classification provides a clear framework for analysing barriers. Paper 2 classifies the obstacles based on different stakeholders instead, students' perspective and lecturers' perspective. Paper 2 also focuses on technology-driven and pedagogical challenges, particularly emphasizing the role of visualization and digital tools.

For strategies in BIM education, both papers emphasize strategies that involve institutional policies, industry collaboration, faculty training, and pedagogical improvements. Paper 1 outlines a range of strategies to address challenges categorised into external challenges and internal barriers as before, emphasising improving industry alignment, incorporating diverse teaching methods, and fostering a more student-driven learning environment from a teacher's perspective. While paper 2 indicates three top recommended strategies according to its quantitative data, which are training lecturers with new digital technology, realizing value from facilitating the construction process, purchasing software and technology.

For strengths, paper 1 effectively highlights internal and external obstacles, such as Time Allocation, integration with other courses, and student experiences. The study provides firsthand experiences from architecture professors, offering valuable qualitative insights into the challenges and successes of BIM education. It provides detailed insights into the difficulties professors face in adopting BIM, including lack of expertise and difficulty integrating BIM into existing courses. The study suggests strategies like faculty training programs, interdisciplinary collaboration, and hands-on project-based learning, making the findings actionable for educators. While paper 2 provides a broad analysis of existing research on BIM education, summarizing trends, challenges, and best practices. Unlike Paper 1, this review considers both lecturer and student challenges, offering a more holistic view of BIM education barriers. For weaknesses, paper 1 mainly focus on faculty issues, with less emphasis on student struggles. Since the study is based on a small sample of university professors, the identified obstacles and strategies may not be broadly applicable to other institutions or disciplines. Also it does not provide quantitative data or comparisons to confirm effectiveness. While paper 2 reviews existing research but does not provide first-hand data or case studies to test the effectiveness of the proposed strategies. The study suggests various pedagogical improvements but does not test or measure their effectiveness in real classroom settings. Additionally, The unique aspect of paper 1 is the specific way it defines and applies two categories-external and internal factors of obstacles-in the context of BIM education, and the mention of Mindset Reframing. This is not mentioned in other researches according to the literature I have examined. And I think this is a quite useful perspective of improving teaching strategies as normally the mindset could be ignored.

Both papers contribute valuable perspectives to BIM education. Paper 1 stands out for its structured classification of obstacles and emphasis on institutional and pedagogical challenges, while Paper 2 is unique in its focus on visualization and digital tools as key enablers of BIM education. However, both studies could address student perspectives in greater depth. For a more comprehensive understanding of BIM education challenges and strategies, future research could adopt the structured classification from Paper 1 and consider the visualization aspect in Paper 2, bridging the gap between theoretical obstacles and practical digital strategies.