

# The Teaching and Practical Exploration of the Introduction of BIM Technology into Construction Project Management Courses

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**Abstract:** With the continuous acceleration of the urbanization process, the construction industry has achieved rapid development, and the demand for construction talents is also increasing. “Construction project management” is one of the core courses of the architectural profession. The quality and level of the course teaching are directly related to the effect of the cultivation of talents. This paper focuses on the issues related to the teaching reform of construction project management courses based on BIM technology.

**Keywords:** BIM Technology; Construction Project Management; Course Teaching; Practical Exploration

The course of “construction project management” has strong practicality and a wide range of knowledge. The traditional “indoctrination” theory teaching mode cannot meet the needs of talent training. It is necessary to highly integrate teaching and construction management sites. With the application of BIM technology in teaching, it effectively improves the teaching effectiveness, and improves the quality and level of industry development. Next, I will discuss some reflections on the teaching and practical exploration of the introduction of BIM technology into the construction project management course.

## 1. Problems in BIM course teaching in the construction project management course teaching

### 1.1 There are few courses

At this stage, the application of BIM technology in China’s higher education is still at the primary stage of development, and there are many problems in technology integration. Many professional teachers are not familiar with the development process, application scope and penetration experience of BIM technology. Besides, because of the restriction of the traditional professional construction system, they are unable to update the curriculum system in time, worrying there are too many BIM courses, which may affect the professional teaching, so they limit the curriculum, which ultimately affects the quality and level of teaching.

### 1.2 The setting of the course is not perfect

In the teaching process, although many colleges and universities carry out BIM teaching in the form of required courses and elective courses, the lack of courses, projects, teachers and other teaching resources has led to the basic content of BIM courses, such as the common used software and development background of BIM. Secondly, college teachers neglect the importance of BIM teaching. During the teaching process, they simply teach some theoretical knowledge and model drawing, and ignore the importance of learning BIM information integration ability, which greatly reduces the penetrating quality and level of BIM technology in the teaching of construction project management courses.

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### **1.3 The integration of BIM technology and courses is not enough**

As we all know, the application of BIM technology in teaching requires strong Internet technology, complete software and hardware equipment for support. However, the performance and level of teaching hardware in colleges and universities in our country still need to be improved. Besides, because the research and development of BIM technology-related software in our country is not perfect, the application of BIM technology in the teaching of construction project management courses is very weak.

## **2. The specific countermeasures for the teaching and practical exploration of the introduction of BIM technology into construction project management courses**

### **2.1 Actively change the teaching concept, fully respect the student's teaching subject status**

As importers of knowledge and skills, teachers' words and deeds directly affect students' learning interests and learning effectiveness. It can be seen that the core of infiltrating BIM technology in the teaching of construction project management courses is to change the teaching concept, to fully respect the student's teaching subject status, to walk down the altar of authority, and to provide high-quality and high-level teaching services. First of all, it is necessary to clarify the teaching objectives, make perfect teaching plans, design reasonable teaching activities, broaden students' horizons, guide students to diversify their thinking, cultivate students' creative thinking ability, and cultivate students' core literacy at the same time. Secondly, in order to improve the effectiveness of the application of BIM technology, teachers must fully master BIM technology, strengthen the learning and application of professional knowledge of BIM technology, achieve the effective integration of existing teaching resources and the advantages of BIM technology, and innovate teaching models. For example, when explaining the construction project management knowledge of building projects, teachers should establish a three-dimensional visual building model through BIM technology to create opportunities for students to directly contact "buildings" and to understand and master project management expertise in real situations. Teachers should guide students to experience the construction site personally, and realize the deep integration of theoretical teaching and practical teaching, continuously improving the quality and level of teaching, which lays a solid foundation for improving students' professional knowledge and ability.

### **2.2 Stimulate students' interest and enthusiasm in learning BIM technology**

With the advent of the "Internet+" era, earth-shaking changes have taken place in the field of higher education. When carrying out construction project management teaching, in order to continue students' classroom attention and effectively improve teaching effectiveness, teachers must focus on tapping students' interests, stimulating students' interest in learning BIM technology, stimulating students' curiosity and exploration, and giving full play to the role of multimedia technology and multimedia classrooms to create a relaxed and harmonious learning atmosphere for students. Teachers also should fully master BIM technology, and better play the role of BIM technology in the construction project management. Secondly, teachers should also pay attention to strengthening students' practical ability and cultivating students' comprehensive ability in the construction project management through BIM technology. For example, when explaining the building level and quality management knowledge points of construction projects, teachers should build a three-dimensional model through BIM technology and comprehensive building material information, and build the model based on the actual construction process to ensure that the construction project can be fully and truly reproduced. Therefore, during the construction process, students can intuitively feel the relationship between different components of the building in the actual construction atmosphere.

### **2.3 Focus on improving the teaching system of BIM technology courses**

Under the new situation, in order to give full play to the role of BIM technology in the teaching of the construction project management, it is crucial to establish a perfect curriculum system. First of all, add BIM technology professional courses. The aim is to comprehensively and systematically explain the application of BIM technology in the construction project management, and explain how to infiltrate BIM technology in the whole process of the construction project management, guiding students to master BIM technology systematically and comprehensively. Secondly, the BIM technology practice courses were added in a targeted manner. As we all know, in the process of cultivating construction talents, it is essential

to cultivate their comprehensive ability. The construction project is a very practical major. Therefore, teachers should pay attention to increasing the proportion of practical teaching, through carrying out diverse practical teaching activities, letting students verify the knowledge they learned in practice, so as to deepen the understanding and mastery of knowledge, which effectively cultivates students' comprehensive ability.

#### **2.4 Carry out practical teaching through BIM technology**

As we all know, due to the high cost of construction project facilities and equipment, and the high cost of practice, and the update cycle of those high-end instruments and equipment is very short, which requires a lot of manpower, materials and financial resources. but the teaching funds of colleges and universities are still very limited. Therefore, carrying out the practical teaching of construction project management has greater difficulty. Based on this, teachers should scientifically plan teaching according to the characteristics of the construction project management, pay attention to improving teaching instruments and equipment, and effectively improve the utilization efficiency of these instruments and equipment. Secondly, teachers can also use BIM technology to simulate the real construction site, construction schedule and project cost, etc. By constructing a visual three-dimensional model to save a lot of manpower, materials and financial resources, students can also intuitively feel the construction site. It can effectively activate the classroom atmosphere, concentrate students' classroom attention, deepen the memory and mastery of the teaching content of the construction project management. While enhancing students' practical ability, it can also cultivate students' core literacy and achieve comprehensive development.

### **3. Conclusion**

In summary, with the rapid development of technology, BIM technology has been widely used in the field of the construction project at home and abroad, and has achieved remarkable results. In the teaching process of college construction project management courses, the role of BIM technology should be correctly recognized, the teaching concept should be changed, and the shortcomings of the traditional exam-oriented education system should be corrected. Colleges should reform from the aspect of teaching contents, teaching methods, and teaching modes, increase the proportion of the practical teaching, improve the penetrating quality and level of BIM technology, and eventually trains high-quality and high-level construction industry talents that meet the needs of social development.

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