Education Reform and Development, 2025, Volume 7, Issue 2
https://ojs.bbwpublisher.com/index.php/ERD
Online ISSN: 2652-5372
Print ISSN: 2652-5364

Exploring Practical Pathways for the Cultivation of Application-oriented Talents in Intelligent Building under the Context of Smart City Construction

Hongli Ma*

Shanghai Sanda University, Shanghai 200000, China

***Corresponding author:** Hongli Ma, mahongli@sandau.edu.cn

Abstract: As higher education reform deepens, the training of application-oriented talents in Intelligent Building majors should be further optimized. Teachers need to actively introduce new educational concepts and teaching methods to better stimulate college students' interests, enhance their understanding and application level of professional knowledge, and improve the effectiveness of talent training. In this regard, this paper will analyze the practical path of applied talent training in Intelligent Building majors under the construction of smart cities, and propose some strategies for the reference of fellow researchers.

Keywords: Smart city; Intelligent Building; Application-oriented talents; Training

Online publication: March 12, 2025

1. Values of training applied talents of Intelligent Building under the construction of smart cities

1.1. Stimulating students' potential

In the grand blueprint of smart city construction, in order to effectively improve the quality and level of applied talent training in Intelligent Building majors, teachers should continuously deepen educational reform and constantly optimize the talent training model. While solidly carrying out theoretical knowledge teaching, it is necessary to actively expand the breadth and depth of practical education, make full use of the advantages of information technology and the empowerment of big data technology, and promote the comprehensive quality and ability development of college students in an all-round way. This will guide them to establish a correct, positive, and upward learning attitude and professional concept [1].

1.2. Aligning with the development needs of the times

Professional construction will integrate urban construction cases from the 40 years of reform and opening up [2], such as the "Restoration of the Site of the First National Congress of the Communist Party of China," "Daxing Airport—A Smart Construction Unifying Form and Mathematical Principles," and "Shanghai Shimao Skyfall Hotel—A Smart Hotel," as well as the application of China's independent innovation in Building Information Modeling (BIM) technology and green building technology into the curriculum system. This approach enables students to deeply appreciate China's efforts to actively respond to the new round of technological revolution and industrial transformation, implementing the fundamental task of cultivating virtue and nurturing talents. It emphasizes not only the theoretical foundation but also focuses on students' comprehensive intelligence abilities, assisting young students in becoming outstanding scientific and technological talents who love the Party and serve the country [3].

1.3. Promoting educational reform

When deeply analyzing the current construction status of the applied talent training model in the field of Intelligent Building, teachers can clearly perceive that some educators, in the process of implementing educational practices, pay insufficient attention to the integration of theoretical knowledge and practical segments. The boundary between the two has become increasingly distinct, gradually forming two relatively independent systems [4]. Driven by the wave of smart city construction, teachers urgently need to continuously optimize the training mechanism for applied talents in Intelligent Building majors, achieving a fundamental renewal of the existing educational models and content. This initiative aims to break through traditional frameworks, forge new paths and forms of talent cultivation, inject strong momentum into the training work of applied talents in Intelligent Building majors, accelerate the deepening pace of educational reform, and ensure that talent training remains in sync with the development of the times.

2. Analysis of the current situation of application-oriented talent training for Intelligent Building majors

2.1. Lack of student motivation and ambiguous talent training goals

Under the macro background of smart city construction, in order to effectively enhance the effectiveness of applied talent training in the field of intelligent building, teachers must strive to stimulate the intrinsic learning interest of college students. This is not only a solid foundation for optimizing the effectiveness of talent training, but also a key link in cultivating professional talents needed by future society [5]. However, in the current practice of applied talent training in the field of intelligent building, some teachers face a significant challenge—students' low self-learning initiative. In the classroom, there are occasional improper behaviors such as students being distracted and chatting. These phenomena not only weaken the efficiency of students' learning of building intelligence knowledge but also potentially erode the overall talent training environment. In addition, the teaching staff also needs to reflect on whether they have established clear and explicit educational goals in the practice of applied talent training in the field of intelligent building. The ambiguity or absence of educational goals can easily lead to the deviation of the direction of talent training work, thereby restricting the improvement of the overall training quality [6]. Therefore, the training target should be oriented towards cultivating excellent engineers who are "reliable, applicable, and far-reaching." The "one basis, two combinations, and three integrations" model should be used to integrate the school's talent

training, engineering talent training, and social talent training in the same direction. A logical link between the modularization of intelligent engineering projects and ideological and political elements should be constructed (**Figure 1**).

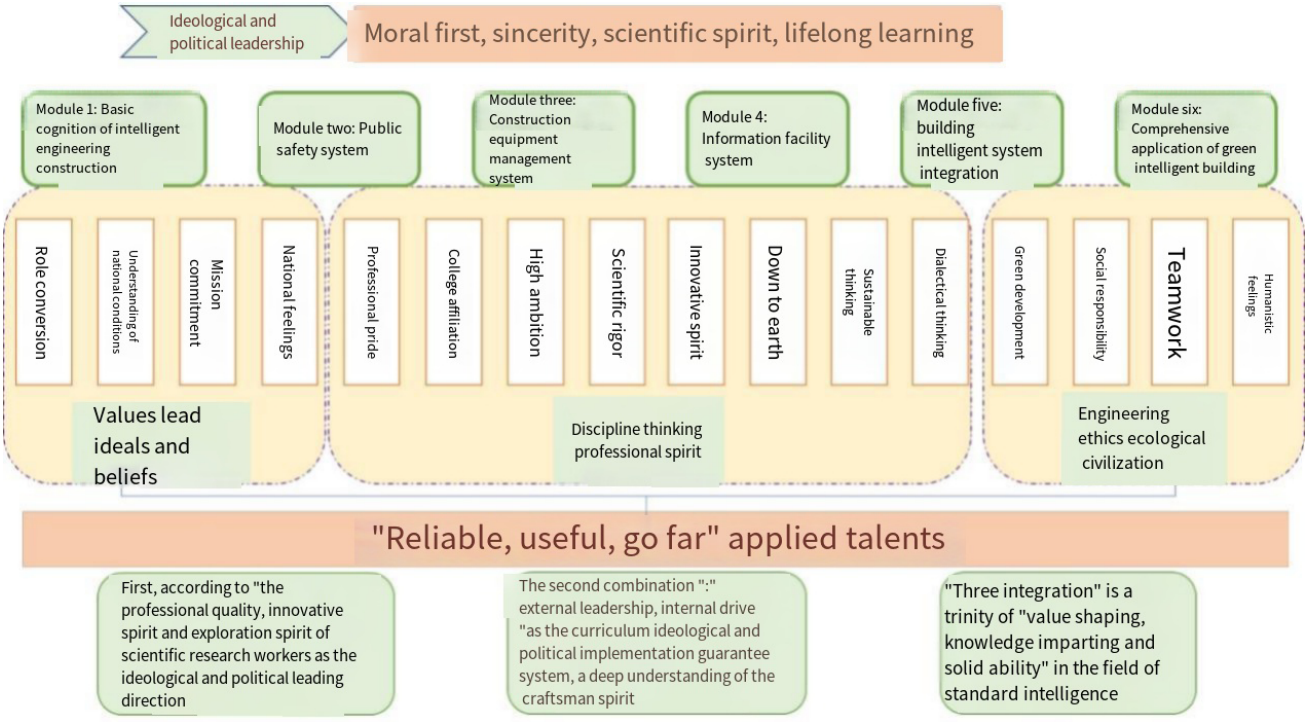

Figure 1. Overall framework of intelligent professional curriculum construction

2.2. Outdated education model and imperfect curriculum system of talent training

At present, some teachers are inclined to adopt the traditional spoon-feeding education mode in the training of applied talents of intelligent building specialty. Under this mode, few teachers can deeply expand the breadth and depth of talent training, which undoubtedly constitutes a certain degree of restriction on college students' comprehensive construction of intelligent building knowledge systems [7]. At the same time, the old education mode also leads to the low efficiency of students' learning knowledge and skills, which hinders the effective promotion of the training activities of applied talents for intelligent building majors. In addition, the imperfection of the curriculum system also has a negative impact on the quality of the training of applied talents for intelligent building majors. Due to the lack of curriculum content, the knowledge repository of some college students in the field of intelligent building is difficult to fully meet the needs of actual jobs, which not only intensifies the disconnect between college students and market demand, but also has a negative impact on their future career development, thus restricting the overall improvement of talent training quality [8].

2.3. Inappropriate course design and low knowledge application level

Currently, in the practice of teachers committed to the training of applied talents of intelligent building majors, there exists the problem of unreasonable curriculum design. Specifically, some teachers fail to deeply analyze the actual situation of college students and lack the necessary thinking and analysis, which makes it difficult to accurately match the designed course content with the actual needs of college students, and thus constitutes a significant restriction on the continuous improvement of the quality of talent training [9]. Therefore, the

two-wheel driving model of "external leading and internal driving" is adopted to introduce enterprises into the school, and pay attention to the formation of students' professional values; make use of the Ministry of Education's industry-university cooperative education project, publish loose-leaf teaching materials, and build resource libraries.

3. Training paths for application-oriented talents of Intelligent Building under the construction of smart cities

3.1. Clearly defining the goal of education based on market demand

Under the macro background of smart city construction, teachers are committed to promoting the training of application-oriented talents of intelligent building professionals. They must pay attention to the continuous optimization of the education model and establish specific education goals to ensure the clear direction of talent training, so as to improve the quality and efficiency of educational activities [10]. In daily teaching practice, teachers should make full use of Internet resources, accurately grasp the market dynamics and talent needs, and on this basis, scientifically set education goals to ensure the precision and foresight of talent training paths. At the same time, in order to better perceive the market, teachers should actively visit enterprises related to intelligent building, deeply understand the specific work content, requirements, goals, and processes of each post, conduct extensive exchanges with enterprise employees and management, and dynamically adjust and optimize the existing talent training program in view of practical problems to ensure that the education activities are closely aligned with the market demand, thus providing high-quality intelligent building professionals to the society.

It is also necessary to establish a "learning community" to create an environment of autonomy, cooperation, and inquiry-based learning. Teachers cultivate a team of shared values and achieve an engineering ethics perspective, fostering good professional ethics. Throughout the process, the principles of "what kind of people to cultivate, how to cultivate them, and for whom to cultivate them" are implemented. Students are guided to build and elevate their dreams of becoming future engineers.

3.2. Optimizing the curriculum system based on the work process

Under the macro background of smart city construction, in order to effectively enhance the training effectiveness of professional applied talents in the field of intelligent building, teachers are committed to promoting the deep integration of theoretical knowledge and practical skills among college students, ensuring a significant improvement in learning effectiveness. Therefore, teachers must plan and implement talent training strategies based on the actual job needs and work processes, and carefully build a more complete Intelligent Building curriculum system [11]. This system aims to enhance college students' professional quality, comprehensive ability, and knowledge repository in an all-round way, laying a solid foundation for their long-term career development.

Based on the cooperation between college and enterprise, schools need to establish an outcome-oriented curriculum system of "talent training (students, schools)–social evaluation (enterprises, social level)–feedback improvement," forming a closed-loop promotion teaching model of "major–profession–job," as shown in **Figure 2**.

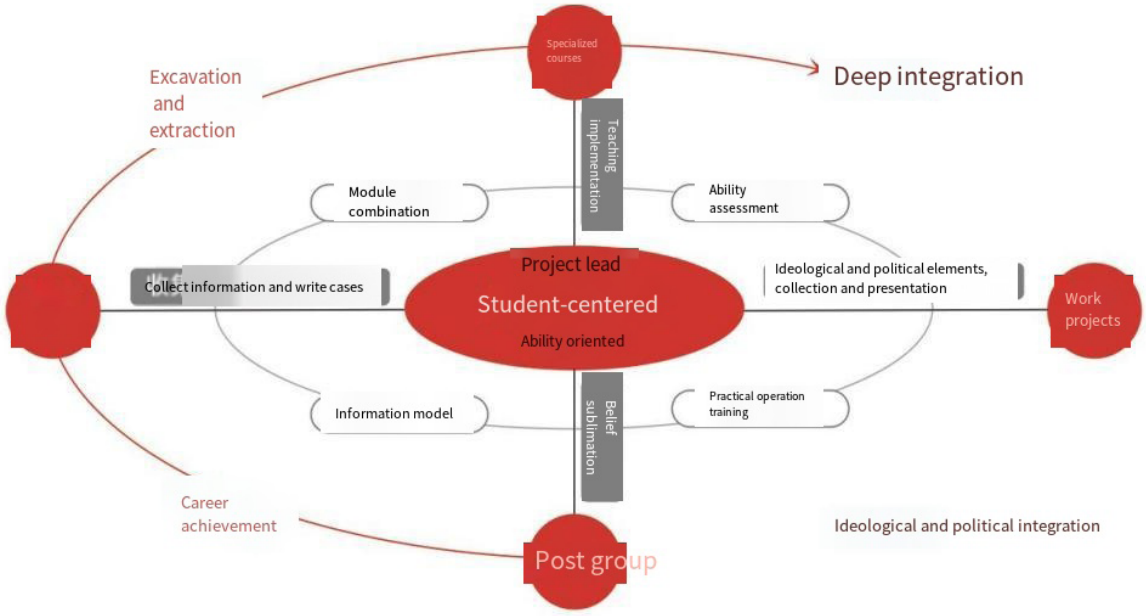

Figure 2. Construction of "student development-centered" teaching system

3.3. Deepening cooperation between schools and enterprises and building a team of teachers with dual qualifications

In the wave of smart city construction, in promoting the training of applied talents in the field of intelligent building, teachers need to place great emphasis on the continuous optimization and improvement of the educational environment. They should actively adopt and introduce various practical and efficient information-assisted teaching equipment and software. This ensures that teachers can more effectively integrate cutting-edge technologies and innovative methods into classroom teaching, thereby improving the efficiency and quality of talent training [12].

To further enhance the development level of the teaching staff, it is exploratory to send teachers to building intelligence enterprises for in-depth exchanges and cooperation, making enterprises an important platform for teachers' practical training and theoretical deepening [13]. In enterprise practice, teachers can not only analyze and solve the actual problems faced by enterprises, but also learn the latest building intelligence economic theories, advanced equipment, and frontier ideas in this process. This will undoubtedly lay a solid foundation for teachers to carry out more efficient talent training work in the future. At the same time, enterprises should also actively send outstanding employees to campuses to share their valuable work experience and profound insights, thereby further broadening the horizons of teachers, enriching educational resources, and achieving complementary advantages and win-win development between schools and enterprises.

Engineering practice is a fast track for growth. Teachers must deepen the school-enterprise cooperation mechanism to enable college students to experience the front line of enterprises and face actual problems directly, laying a solid foundation for their comprehensive development [14]. Before students officially enter the enterprise, teachers need to closely focus on job requirements and the actual situation of students, deeply analyze their core elements such as knowledge structure and cognitive ability, and implement precise professional training. This ensures that every student can master the key skills and knowledge system required

for the job proficiently, which is of great value in shortening the students' job adaptation period.

3.4. Improving the evaluation mechanism to enhance the effectiveness of education

Under the grand backdrop of smart city construction and in the process of applied undergraduate major construction, a "project-led, task-driven" case teaching approach is adopted; school-enterprise cooperation is implemented through a situational model, allowing students to act as engineers, engage with real projects, understand the construction process, and complete design plans. Therefore, the overall course grade is obtained through formative assessment, focusing on project training reports (peer evaluation) and engineering case design (joint evaluation by teachers and enterprise engineers), effectively enhancing the quality of talent cultivation.

When constructing a talent training evaluation system, teachers should not only play a leading role in objectively evaluating college students but also advocate and encourage mutual and self-assessment among them, thereby broadening the evaluation channels and enhancing the comprehensiveness and depth of the evaluation work [15]. At the same time, teachers should continuously optimize the content and methods of evaluation to more accurately grasp the growth dynamics of college students, providing strong support for the cultivation of high-level intelligent building professionals.

In summary, based on the construction of an applied talent training system for Intelligent Building majors under the context of smart city construction, teachers can start from the following aspects: combining market demand to clarify educational goals; optimizing the curriculum system based on work processes; emphasizing environmental construction to cultivate a dual-qualified team; deepening school-enterprise cooperation to enhance application capabilities; and improving the evaluation mechanism to enhance the effectiveness of talent cultivation. This will invisibly promote the quality of applied talent training in Intelligent Building majors under smart city construction to a new height.

Funding

Special Research on Employment and Entrepreneurship of Shanghai College Graduates in 2024 (No. Z19004.24.001); Key Research Fund Project of Shanghai Shanda University in 2022 (No. 2022ZD01); Key Teaching Reform Project of Shanghai Vocational Education in 2023 (No. A020203.23.014); Shanghai Key Curriculum in 2023 (No. A020201.23.604); Research on the Implementation Strategy for New Engineering Practical Training Course Group from the Perspective of Industry and Education Integration 2024 (Project No. 1QYB24144)

Disclosure statement

The author declares no conflict of interest.

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