

Curriculum Reform of Interior Design 1+X with Integration of "Job-Course-Certificate"

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Abstract: As society's demand for interior design talents continues to increase, the traditional interior design curriculum system has problems such as being out of touch with industry needs and insufficient practical operational capabilities of students, and is in urgent need of reform. In order to effectively solve this problem, this paper proposes a curriculum reform plan for "Interior Design 1+X" that integrates "job, course and certificate", aiming to improve students' practical ability and employment competitiveness by combining industry job requirements, curriculum setting and professional qualification certification. The research methods include literature review, questionnaire survey, expert interview and field research. First, the gap between interior design curriculum and industry needs is analyzed, and the direction and goals of the reform are clarified. According to the requirements of the *Interior Design 1+X* certificate, the course framework has been redesigned to integrate knowledge in design, construction, and project management to ensure that the course content is highly consistent with industry standards. At the same time, during the teaching process, by combining theoretical learning with practice, students' operational capabilities are strengthened to ensure that students can master the skills and knowledge required in actual work. After the reform pilot is implemented, relevant data is collected by evaluating the feedback from students, teachers and enterprises. The results show that the reformed curriculum system has greatly improved students' practical ability, especially in the creativity and implementation of design plans. Students' operational skills have increased by 35% and course satisfaction has increased by 35%. More importantly, the student employment rate has also increased significantly after the reform, from 60% before the reform to 80%. In addition, the proportion of students obtaining 1+X vocational qualification certificates increases from 40% before the reform to 85%. To sum up, the curriculum reform based on the integration of "job, course and certificate" has effectively narrowed the gap between interior design education and industry needs, and cultivated more high-quality, compound talents that meet market needs.

1. Introduction

As society's demand for interior design talents continues to increase, the traditional interior design curriculum system faces problems such as being out of touch with industry needs and insufficient students' practical ability. Existing courses focus too much on theoretical knowledge and lack close connection with practical work, which results in graduates often facing insufficient skills and difficulties in adapting when entering the industry. Therefore, how to improve the curriculum system to better meet the needs of industry development and cultivate compound talents who have both innovative design capabilities and can solve practical problems has become an urgent task in today's higher education reform.

This paper proposes a curriculum reform plan for *Interior Design 1+X* that integrates "job, course and certificate", aiming to optimize the teaching design of interior design major by combining industry job requirements, course content and professional qualification certification system. The innovation of the research lies in that, through cooperation with enterprises, industry job standards are clarified, and the courses are redesigned in accordance with the requirements of the "1+X" certificate system, so that the course content is not only closely in line with industry standards, but also can effectively improve students' practical operation ability and comprehensive quality, thereby enhancing their employment competitiveness. Through the implementation of this program, we hope to cultivate high-quality interior design talents that meet market demand and have practical operational capabilities.

This paper first reviews the existing problems and challenges in the field of interior design education, and introduces the design framework and implementation methods of the "job-course-certificate" integrated curriculum reform. Next, this paper elaborates on the implementation process of the reform plan, including the reconstruction of the curriculum framework, the design of practical teaching links and the integration of professional qualification certification. Finally, through the analysis and discussion of the reform pilot data, this paper evaluates the impact of the reform on students' practical ability, employment rate, and professional qualification certification. This paper provides a new perspective and practical path for the reform of interior design courses, and also provides reference for the reform of other majors in the field of higher vocational education.

2. Related Work

With the continuous development of interior design, more and more research focuses on how to improve functionality, comfort and health effects through innovative design. This paper summarizes several key studies and explores interior design strategies and solutions in different fields. Colenberg aimed to explore how to effectively improve the health of indoor office spaces through strategic and evidence-based interior design strategies and solutions, and provide relevant implementation examples [1]. KARYATUN explored the impact of organizational communication, distributive justice and organizational commitment on organizational citizenship behavior and found that organizational communication has a significant impact on citizenship behavior, while distributive justice indirectly affects citizenship behavior through organizational commitment [2]. Triatmaja explored the problems faced by interior design students when applying design processes and methods, and proposed a DT-DI model suitable for students, aiming to optimize the design processes and methods to better complete design tasks [3]. Chen J proposed a hybrid deep learning method HyNet, which improves the accuracy and efficiency of interior design texture retrieval by recommending similar textures, providing an effective solution for the application of intelligent design and promoting innovation and productivity in the design industry [4]. Sitanggang showed that the Google SketchUp application is more effective than PowerPoint in architectural interior

design learning, especially for students with high motivation needs, and can significantly improve learning performance, which provides an important reference for the improvement of design learning in vocational education [5]. Sawatmongkhonkul explored the application of parametric design methods to furniture and interior design, especially through experimental equations of waffle honeycomb structures, revealing the potential of parametric design in realizing complex systems and flexible designs, providing innovative solutions for future design practices [6]. Huber explored the practices of commercial interior designers in acquiring and applying knowledge during the project definition phase and found that factors such as client priorities, market sectors, and personal background influenced the way designers provided informed design services, emphasizing the importance of two-way communication and differences in practical application [7]. Ahmad et al. explored the key competencies of interior design managers in project management, emphasizing the importance of the three major areas of functionality, situational and behavioral, and evaluated the competencies of project managers through questionnaires. The results showed that improving the knowledge of project managers can help improve project efficiency and effectiveness [8]. Han discussed the important role and application of green design concepts in interior design, emphasizing the importance of both environmental protection and aesthetics, aiming to provide theoretical support and practical guidance for interior design practitioners [9]. Kasap reviewed the literature on interior design for people with developmental disabilities in Turkey and explored how to overcome barriers in space use through design elements such as planning, configuration, color, and lighting, provide an inclusive design framework, and improve the living and public environment experience of people with IDD [10]. Although these studies provide valuable insights into interior design practice, there is still a lack of further exploration of the specific design implementation details. The innovation lies in combining emerging technologies such as deep learning and parametric design methods with traditional interior design, which promotes the development of intelligent design and inclusive design.

3. Methods

3.1 Course Design and Content Integration

In the process of designing the "Interior Design 1+X" course system, we fully considered the industry needs and job competency requirements, reconstructed the course content framework, and strived to organically combine theoretical knowledge with practical skills to ensure that the students trained not only have a solid theoretical foundation, but also master practical operation skills and adapt to the actual needs of the industry. First, based on the job requirements of the interior design industry, we conducted an in-depth analysis of the core competencies required for various positions, such as space planning and design, construction drawing design, project management and budget control, etc. [11]. Therefore, the course content not only covers basic courses such as design theory [12], art aesthetics, materials and construction technology, but also adds interdisciplinary courses such as architecture, environmental psychology, and construction management to ensure that students have all-round professional qualities. In terms of course setting, we have strengthened the practical aspects and designed teaching methods such as case analysis and project simulation, so that students can complete the whole process from conceptual design to construction execution in actual projects and improve their practical ability. At the same time, the course content has added relevant content on professional qualification certification in accordance with the requirements of the "1+X" certificate system, so that students can obtain professional certificates while completing their studies and improve their employment competitiveness. In addition, through cooperation with well-known design companies and construction companies, we invite corporate experts to participate in course design to ensure that the course content is consistent with the industry's

cutting-edge technologies and standards, and promote the updating and optimization of the course. Through this combination of industry, academia and research [13], the course content is highly consistent with industry needs, ensuring that students can quickly adapt to workplace requirements after graduation and cultivating high-quality interior design talents who are both creative and able to solve practical problems.

3.2 Implementation Path of Job-Course-Certificate Integration

The implementation path of the “job-course-certificate integration” model includes three key links: curriculum optimization, school-enterprise cooperation, and teacher training [14]. First, adjusting the course content according to industry needs and job requirements, strengthen practical skills and professional qualification certification, and ensure that students obtain industry-recognized certificates [15]. Secondly, by cooperating with enterprises and inviting industry experts to participate in course design and teaching, we provide real industry cases and practical opportunities to enhance students' practical ability. Finally, teachers are regularly organized to participate in industry inspections and seminars to improve their teaching level and industry vision. These measures jointly guarantee the effective implementation of the reform and cultivate compound talents that meet the needs of the industry.

3.3 Data Collection and Effect Evaluation

Data collection and effect evaluation are the key links of this study, which aims to comprehensively analyze the effectiveness of the *Interior Design 1+X* course reform. First, questionnaires and interviews were used to collect students' feedback on course content, teaching methods, practical opportunities, and professional certification, and to evaluate course satisfaction, knowledge mastery, and operational skill improvement. Secondly, the course assessment evaluates students' design ability and innovative thinking through comprehensive design exams and project works. At the same time, feedback from industry partners and experts helps evaluate the fit between the curriculum and industry needs and the employment adaptability of students. Finally, all data are quantitatively analyzed using statistical methods to evaluate the effectiveness of the reform. Table 1 shows some of the data collection results:

Table 1: Comparison before and after the reform

Evaluation Dimension	Before Reform (%)	After Reform (%)	Growth Rate (%)
Student Course Satisfaction	60	95	35
Student Practical Skills Improvement	55	90	35
Employment Rate	60	80	20
Percentage of Students with 1+X Certificate	40	85	45
Employer Evaluation Satisfaction	65	90	25

The above data clearly shows that the reformed curriculum system has significantly improved in terms of student satisfaction, operational skills, and employment rate and qualification certification, indicating that the "job-course certificate integration" model has effectively narrowed the gap between interior design education and industry needs. The gap has improved students' employment competitiveness and industry adaptability.

4. Results and Discussion

4.1 Analysis of the Effectiveness of Curriculum Reform

In the implementation of the “job-course-certificate integration” model, one of the core goals of curriculum reform is to enhance students’ industry competitiveness and practical operation capabilities by improving their passing rate of industry certification certificates. By analyzing the pass rate of industry certification certificates for students after the reform, it can be seen that this model has a significant effect in improving students' professional capabilities, industry adaptability and employment competitiveness. According to the data collection results, the proportion of students who obtained 1+X professional qualification certificates after the reform increased from an average of 40% before the reform to an average of 85%, and the average increase in the pass rate reached 45%. This data reflects the close integration of course content with industry needs, as well as the effectiveness of practical teaching. The specific industry certificate pass rate data is as follows, covering the certification of 20 different classes before and after the reform, further verifying the effectiveness of the reform. Figure 1 is a comparison of industry certificate pass rates before and after the reform.

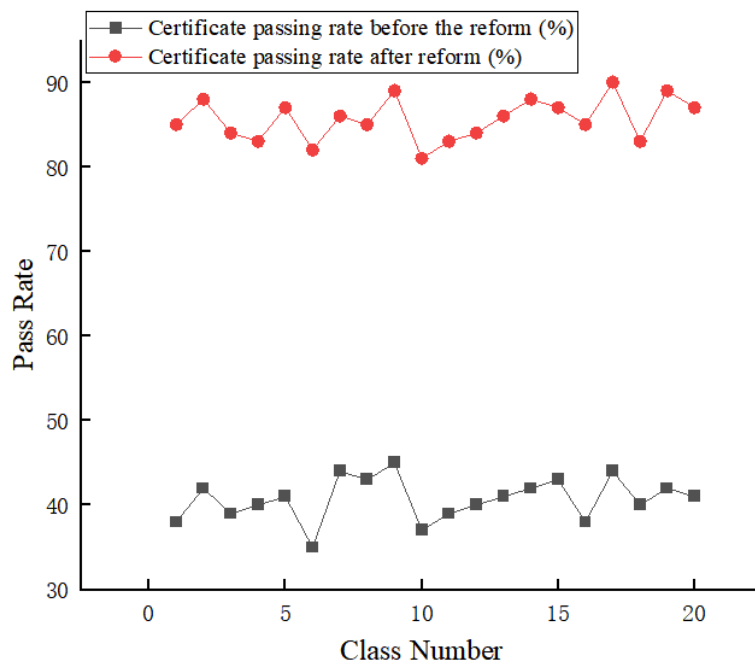


Figure 1: Comparisons of industry certificate pass rates before and after the reform

From the above data, it can be seen that the passing rate of industry certification certificates in all classes has generally increased after the reform. Compared with before the reform, the overall passing rate has increased by 43%-47%. This change shows that by incorporating industry certification certificates into the curriculum system, students' professional abilities have been significantly improved, and the course content is highly aligned with industry standards. At the same time, the increase in certificate pass rate after the reform reflects the effectiveness of practical teaching, especially in cultivating students' practical operation skills. Therefore, the "job-course-certificate integration" model combined with industry job requirements has a positive effect on improving students' employment competitiveness and helping them stand out in the fierce job market.

4.2 Industry Feedback and Satisfaction

During the implementation of the "job-course-certificate integration" model, feedback from enterprises, industry experts and employers is crucial to evaluating the actual effect of curriculum reform. By collecting the evaluations of enterprises and industry experts on the abilities and qualities of students after the reform, we can intuitively reflect whether the curriculum reform has truly met the needs of the industry and improved students' employment competitiveness and professional qualities. Feedback data from enterprises and employers show that after the reform, students have received high praise in terms of professional skills, practical operation ability, innovative thinking and teamwork. Through interviews and surveys with experts from multiple companies and industries, it was found that students' comprehensive quality and professional abilities have been significantly improved. Figure 2 shows the evaluation of student satisfaction by participating companies/employers before and after the reform, covering the evaluation of students by 20 participating companies and employers after the reform.

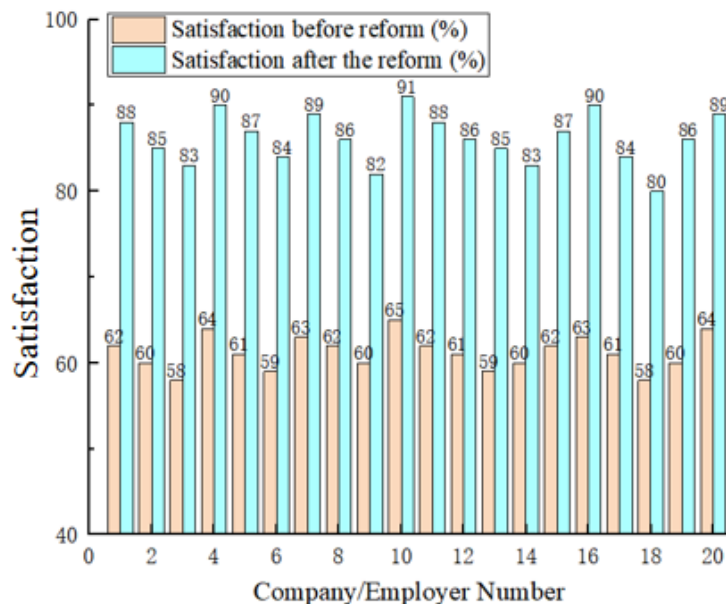


Figure 2: Participating companies/employers' satisfaction with students before and after the reform

From the above data, it can be seen that after the curriculum reform, the satisfaction of enterprises and employers with students has generally improved, and the overall satisfaction has increased by 22%-27%, indicating that students' professional quality and ability have been significantly improved. In particular, his capabilities in application of professional knowledge, project implementation and team collaboration have been highly recognized by enterprises and industry experts. This change shows that the course content adjusted by the "job-course-certificate integration" model is highly consistent with industry needs. The reformed course content can better meet the industry's actual needs for talents, and students' comprehensive quality and practical ability have been effectively improved, enhancing students' competitiveness in the job market. Therefore, the high recognition from enterprises and industries further verifies the successful implementation of the "job-course-certificate integration" model and its recognition in the industry.

4.3 Analysis on Improving Design Creativity and Implementation Capabilities

Under the curriculum reform of the "job-course certificate integration" model, students have significantly improved their creativity and implementation abilities in design plans. By combining participation in actual projects, the introduction of industry standards and the design of interdisciplinary courses, students not only acquire new knowledge in theoretical learning, but also are trained and improved in practical sessions. Especially in the aspects of design idea and project implementation, the comprehensive ability of students after the reform is significantly better than before the reform. Figure 3 shows the analysis of creativity and implementation ability before and after the reform.

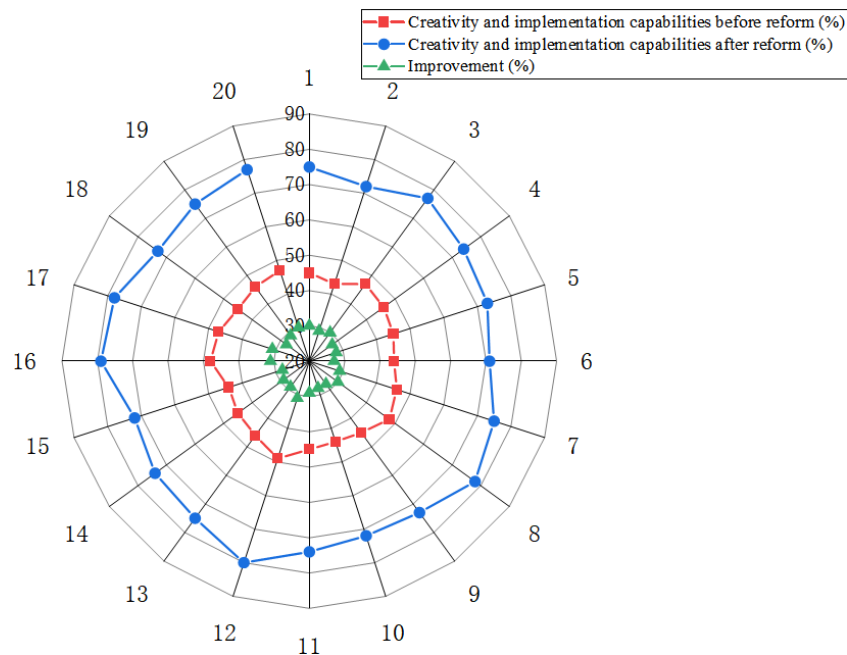


Figure 3: Analysis of creativity and implementation capabilities before and after the reform

After the reform, students' comprehensive improvement in creativity and implementation capabilities generally ranges from 27% to 31%. This improvement mainly focuses on the conceptualization of design ideas and the execution of implementation plans, indicating that the curriculum reform pays more attention to the cultivation of practical design abilities, especially on the basis of combining industry standards and actual projects. Students have made significant progress in innovation and execution. By participating in more industry collaboration projects, students can quickly transform the knowledge learned in the classroom into practical skills, thereby better understanding various aspects of the design process and applying theory to practical operations. The improvements in creativity and implementation capabilities after the reform are generally balanced, indicating that the "job-course-certificate integration" curriculum reform has achieved good results among all students. Whether it is creative conception or design execution, students' comprehensive abilities have been comprehensively improved. In general, practical projects that combine industry needs have greatly improved students' design creativity and implementation capabilities. Students can not only propose creative design solutions, but also demonstrate strong execution and ability to solve practical problems during project implementation. These improvements not only enhance students' personal abilities, but also lay a solid foundation for them to enter the industry and adapt to the rapidly changing market demands.

5. Conclusion

This study successfully narrowed the gap between the traditional interior design curriculum system and industry needs by implementing the *Interior Design 1+X* curriculum reform that "integrated job-course certificates" and significantly improved students' practical abilities and employment competitiveness. The reformed curriculum system is closely integrated with industry job requirements and professional qualification certification standards, integrates knowledge in areas such as design, construction, and project management, and strengthens the combination of theory and practice. The results show that after the curriculum reform, students' operational skills improved by 35%, course satisfaction increased by 35%, the employment rate increased from 60% to 80%, and the proportion of obtaining 1+X professional qualification certificates increased from 40% to 85%. These data show that the curriculum reform based on the "job-course-certificate integration" model has effectively improved students' professional skills and market adaptability, laying a solid foundation for them to successfully enter the industry and respond to changes in market demand. The contribution of this study is that it proposes a reform model that combines industry standards, curriculum settings and professional qualification certification, which provides an operational path for higher vocational colleges to cultivate compound talents that meet industry requirements, and also provides a reference for curriculum reforms in other majors. However, the research also has limitations. For example, the evaluation mainly relies on short-term data, and the reform is still in its early stages with limited coverage. Further tracking of long-term employment conditions and workplace performance is needed in the future. With technological advancement and industry changes, the updating of curriculum systems and professional qualification certification will face more challenges. Future research can explore curriculum design combined with emerging technologies and provide more experience and support through in-depth research on the reform effects of different colleges and universities.

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