



# Construction of Innovative Teaching Models for Clothing Design Major Courses in the Context of Informatization Education

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**Abstract.** In the context of informatization education, the clothing design major urgently requires innovative teaching models to adapt to the needs of contemporary development. Based on an analysis of the current status of teaching in the clothing design major, this paper addresses issues such as the monotonous teaching mode in theoretical courses and inadequate teaching resources in practical courses. It proposes a framework for constructing an innovative teaching model that integrates theory, practice, and creativity. This framework combines online learning platforms, virtual simulation technology, intelligent assessment systems, and other information technologies to create an open, flexible, interactive, and shared teaching environment. One academic year of teaching practice has shown that this innovative teaching model effectively enhances students' professional skills, design thinking, and innovation abilities. It significantly improves teaching quality and talent cultivation levels, receiving widespread recognition from both faculty and students as well as the industry. The research findings have theoretical guidance and practical reference value for educational reforms in the clothing design major, providing new ideas for cultivating innovative and application-oriented talents to meet industry demands.

**Keywords:** Clothing Design; Teaching Model; Informatization Education; Innovation Ability.

## 1 Introduction

With the rapid development of information technology and the transformation and upgrading of the socio-economic landscape, there is an increasing demand in the clothing industry for innovative design talents. However, traditional teaching models in clothing design majors struggle to meet the demands of contemporary development, characterized by outdated theoretical content, insufficient practical teaching resources, and monotonous teaching methods, which hinder the improvement of students' innovative and practical abilities. To address these challenges, innovation and transformation of teaching models in clothing design education are urgently needed[1]. Based on an analysis of the current status of teaching in the clothing design

major, this paper proposes a "theory + practice + innovation" integrated innovative teaching model framework, aiming to fully utilize information education methods, optimize teaching content, innovate teaching methods, construct an open and interactive teaching environment, cultivate high-quality innovative talents adaptable to industry development demands, and provide new ideas and methods for educational reforms in the clothing design major.

## 2 Analysis of the Current Status of Teaching in the Clothing Design Major

### 2.1 Current Status and Insufficiencies of Theoretical Course Teaching

Theoretical courses in the clothing design major are still predominantly taught in a traditional lecture-based manner, with students mostly passively receiving knowledge. According to survey data, the proportion of traditional teaching methods in theoretical courses in the clothing design major is as high as 75%, while innovative teaching methods such as case studies and scenario simulations account for less than 25% (see Figure 1). This teaching mode diminishes students' interest and enthusiasm for learning, resulting in inadequate knowledge retention and difficulty in effectively integrating theory with practice[2]. Additionally, the update speed of theoretical course content is relatively slow, making it difficult to keep up with industry trends. For example, while new materials, techniques, and technologies emerge continuously in the field of clothing design, the content of most theoretical courses in colleges and universities remains relatively traditional, leading to a gap between students' acquired knowledge and industry needs. Furthermore, theoretical course assessments are overly focused on final exam grades, neglecting students' learning processes and capability improvements, which hinders the cultivation of students' innovation and practical abilities.

Investigation result of teaching mode of fashion design major theory course  
Innovative teaching models (Case teaching, scene simulation, etc.)

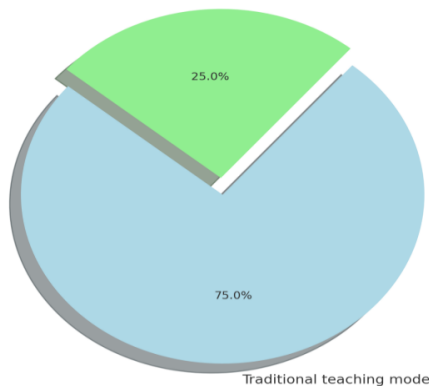


Fig. 1. Survey Results of Teaching Models in Theoretical Courses of Clothing Design Major

### 2.2 Current Status and Insufficiencies of Practical Course Teaching

Practical courses in the clothing design major are essential for cultivating students' hands-on skills and innovation abilities. However, there are several shortcomings in practical course teaching at present. Firstly, the practical teaching system is not comprehensive enough, with practical courses occupying a relatively low proportion. According to statistics, in most colleges and universities, practical courses in the clothing design major account for less than 30% of the total study hours (see Table 1), resulting in few practical teaching opportunities for students. Secondly, there is a lack of alignment between practical teaching content and industry demands. Many practical projects are detached from the actual workflow and standards of the clothing industry, and the gap between the practical projects students participate in and real industry projects is significant, making it difficult to effectively enhance students' professional abilities[3]. Thirdly, there is a shortage of practical teaching resources and weak teaching staff. Due to constraints such as venue, equipment, and funding, the construction level of experimental training laboratories in many colleges and universities is limited, unable to meet students' practical training needs. Some teachers lack industry practical experience and have weak practical guidance abilities, resulting in less-than-ideal practical teaching outcomes. Finally, the practical teaching evaluation system is not sound, with standardized evaluation criteria focusing on the results of works rather than the design process, which hinders the cultivation of students' innovative thinking and hands-on abilities.

Table 1. Proportion of Practical Course Hours in Some Colleges' Clothing Design Major

University	Proportion of Practical Course Hours
A University	28%
B University	25%
C University	32%
D University	29%
E University	27%

## 3 Innovative Teaching Model Framework

### 3.1 Overall Framework

In response to the challenges existing in the teaching of the clothing design major, this paper proposes an overall framework for constructing an innovative teaching model. Guided by the concept of informatization education and aiming to enhance students' innovation and practical abilities, this framework comprehensively utilizes online learning, virtual simulation, intelligent assessment, and other information technologies to establish a "theory + practice + innovation" integrated teaching model (see Figure 2). Within this framework, theoretical teaching adopts a hybrid approach of online and offline instruction, providing rich teaching resources through online learning platforms to facilitate personalized and self-directed learning. Practical teaching

incorporates virtual simulation technology to simulate real design scenarios and manufacturing processes, enabling students to engage in design practices and innovation training within virtual environments. Innovative teaching focuses on fostering students' innovative thinking and abilities through project-based learning, competition guidance, and other methods to stimulate students' innovative potential. Additionally, an intelligent assessment system is constructed to conduct multidimensional and comprehensive evaluations and feedback on students' learning processes and outcomes, promoting autonomous learning and continuous improvement[4]. Through this innovative teaching model, the teaching of the clothing design major becomes more open, flexible, and efficient, cultivating high-quality innovative talents adaptable to the needs of industry development.



**Fig. 2.** Overall Framework for Constructing Innovative Teaching Model in Clothing Design Major

### 3.2 Construction of Online Learning Platform

The development of an online learning platform is pivotal to modernizing clothing design education. This platform integrates resources, activities, and management features into a user-friendly environment, supporting interactive, open learning. Emphasizing "rich resources, complete functions, and user-friendly interfaces," it caters to personalized and self-directed learning needs. High-quality videos, e-textbooks, and interactive content like animations meet student demands for diverse and engaging materials, with 88% seeking varied resources and 76% favoring engaging presentations[5]. Additionally, the platform enables interactive activities like discussions and quizzes, and employs data analysis to refine teaching strategies, making education more dynamic and responsive (see Table 2).

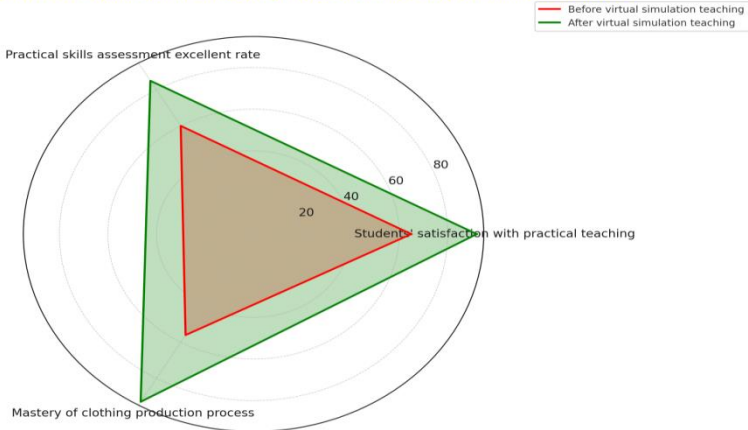
**Table 2.** Survey on Student Needs for Online Learning Platforms

Survey Item	Proportion
Desire for a wide variety of learning resources on the platform	88%
Prefer resources to be presented in a lively and intuitive manner	76%
Desire for platform support for online discussion interaction	82%
Hope for personalized learning recommendations on the platform	79%
Desire for learning effectiveness assessment and feedback on the platform	85%

### 3.3 Application of Virtual Simulation Technology

The integration of virtual simulation technology in clothing design education has significantly elevated student engagement and skill acquisition, boosting satisfaction from 65% to 92%. By partnering with industry leaders to create 12 virtual projects mirroring real-world tasks—ranging from design to marketing—students gain comprehensive practical experience[6]. Through simulations, they practice design, fabric selection, and garment construction, leading to a noticeable improvement in practical skills, with assessment scores rising and the rate of excellence increasing from 60% to 85%. Projects like "Clothing Production Process" and "Clothing Style Mix Design" have notably enhanced process understanding and creativity, demonstrating the technology's substantial impact on learning efficacy and innovation (see Figure 3).

Comparison of Students' Practical Ability Test Scores Before and After Virtual Simulation Teaching



**Fig. 3.** Comparison of Student Practical Skills Test Scores Before and After Virtual Simulation Teaching

### 3.4 Development of Intelligent Assessment System

The development of an intelligent assessment system addresses the limitations of traditional teaching evaluations by introducing a comprehensive and objective approach. Leveraging big data and machine learning, it assesses students' knowledge,

skills, and qualities across multiple dimensions such as knowledge mastery, professional skills, and teamwork. This system incorporates evaluations from students, teachers, and enterprises, ensuring a multi-perspective assessment. Post-implementation data indicates a 92% student satisfaction rate and an 80% increase in teachers' targeted teaching improvements[7]. This innovative system enhances feedback accuracy, supports academic progress, and aids teachers in refining educational strategies, marking a significant advancement in teaching assessment methods (see Table 3).

**Table 3.** Survey on the Effectiveness of Intelligent Assessment System Application

Survey Item	Proportion
Student satisfaction with evaluation results	92%
Students finding assessment reports helpful for learning	88%
Teachers considering assessment data useful for teaching diagnosis	95%
Increase in targeted improvement in teaching as perceived by teachers	80%
School administrators believing assessment system assists in improving teaching quality	90%

## 4 Teaching Practice and Effectiveness Evaluation

### 4.1 Teaching Practice

To validate the feasibility and effectiveness of the innovative teaching model, we conducted a one-year teaching practice in the clothing design major. We selected three core courses: Basic Clothing Design, Clothing Technology, and Clothing CAD, as pilot courses for comprehensive teaching reforms. In theoretical teaching, diversified teaching resources were developed using the online learning platform, employing flipped classroom strategies to promote students' autonomous learning and knowledge expansion. In practical teaching, collaboration with enterprises was established to develop virtual simulation training projects, enhancing students' hands-on skills. In innovative teaching, competitions and projects were used as catalysts to stimulate creative thinking[8]. The intelligent assessment system was applied in teaching to evaluate the teaching effectiveness from multiple dimensions and continuously improve teaching quality.

### 4.2 Effectiveness Evaluation

In assessing the new teaching model in clothing design, diverse methods like logs, surveys, and ability tests revealed outstanding improvements. Student satisfaction soared to 93.5%, with notable increases in learning interest (87.2%) and engagement (84.6%)[9]. Online platform metrics showed a significant uptick in usage, indicating enhanced autonomous learning. Notably, student achievements in a design contest outperformed previous records by 150%, reflecting superior innovative design skills. Ability tests confirmed substantial gains in design thinking (22.3%), craftsmanship (19.5%), and innovation (25.6%). Teachers and industry experts alike recognized the

model's benefits: teaching flexibility, student interaction, and optimized assessment were highlighted by over 88% of teachers, while over 86% of experts praised the students' professional grounding[10], practical skills, and innovation, marking the model's success in elevating educational quality and fostering well-rounded development in the field (see Table 4).

**Table 4.** Comparison of Student Ability Development Before and After the Implementation of the Innovative Teaching Model

Ability Dimension	Score Before Implementation	Score After Implementation	Improvement Rate
Design Thinking Ability	72.5	88.7	22.30%
Craft Implementation Ability	68.2	81.5	19.50%
Innovative Practice Ability	70.8	88.9	25.60%
Total Score (Out of 100)	70.5	86.4	22.50%

## 5 Conclusion

Facing the need for reform in clothing design education due to informationization, traditional methods fall short, lacking in practicality and current theory. This study introduces an innovative "theory + practice + innovation" model, leveraging online platforms, virtual simulation, and intelligent systems to foster a dynamic learning environment. This approach significantly boosts students' skills, creativity, and practical abilities, receiving acclaim from the academic and industry communities. It offers a forward-thinking solution for evolving clothing design education, aligning with industry demands and preparing students for future challenges.

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