

# Characteristic Reform of the Curriculum System of Toy Design and Manufacturing Major in Applied Colleges and Universities

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**Abstract:** Through extensive and in-depth research and demonstration, this study has clarified the professional positioning and talent training objectives of toy design and manufacturing in application-oriented colleges and universities, created professional curriculum groups according to the curriculum structure required by the core competence of vocational posts, built high-quality professional core courses, training packages, and standard curriculum systems around the core competence of posts, and introduced practical projects combined with engineering characteristics. Focusing on the training objectives of high-quality technical skills to improve students' practical skills, the formation of "teaching-learning-doing" integration of a characteristic course system has achieved remarkable results.

**Keywords:** Toy design and manufacturing; Curriculum system; Posts core competence; Professional course group

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## 1. Characteristic reform goals of the curriculum system of toy design and manufacturing major in applied colleges and universities

This study aims at the strategy of "implementing the fundamental task of cultivating morality and people, aiming at enhancing the adaptability of vocational education and improving the level of technical skills," aiming at the professional ability and comprehensive quality of design talents in the toy industry, and cultivating high-level talents with applied skills required by the country to meet the needs of industrial development and improve the service of people's livelihood. The main line is to optimize the curriculum model of toy design and manufacturing, establish a classroom teaching model that deeply integrates production and education, build a high-quality core curriculum group that cultivates the practical skills of students in application-oriented colleges and universities, improve the high-level and adaptability of course objectives and the cutting-edge of course content, and highlight the deep integration of classroom teaching into the real scene of society<sup>[1,2]</sup>. It focuses on the connection between experimental and practical training and real innovation project design, as well as the internal connection between course content<sup>[3]</sup>.

## **2. Characteristic reform paths of the curriculum system of toy design and manufacturing major in applied colleges and universities**

The reform paths include optimizing and reforming the course structure model around the country's demand for high-level skilled talents in vocational education, and based on the actual situation of the major, strengthening the penetration of high-quality technology of industrial enterprises, new generation information technology, Internet of Things and artificial intelligence technology into classroom teaching content, and improve the adaptability of students' skills <sup>[4]</sup>. It has built a distinctive curriculum system for toy design and manufacturing major in application-oriented colleges and universities with the integration of production and education.

### **2.1. In-depth integration of professional courses**

#### **2.1.1. Integrating basic courses into professional courses**

Basic courses are integrated into core courses to enhance the goal of basic courses. For example, the toy innovative design course in the professional basic course lacks a clear course goal, thus the teaching method and content of the course fail to meet the social demand for toy design talents in the new era <sup>[5]</sup>. After the reform of curriculum setting and structure, the course introduces a modern enterprise management mode, creates a toy design studio and a real scene to fully combine teaching and post-service work, implements enterprise project system to undertake toy enterprise innovative design practical projects, establishes industry-university-research co-construction courses, and cultivates students' skill level in real problems and projects <sup>[6]</sup>.

#### **2.1.2. Integrating the theory course into practice course**

According to the cognitive characteristics of application-oriented college students, the theory course and practice course are organically integrated to improve students' professional quality and comprehensive design skills. For example, for the theoretical basic courses "Child Development and Toys" and "Introduction to Toys," the traditional pure theoretical teaching methods cannot adapt to the current application-oriented college students, the classroom will be moved to the toy museum, toy exhibition hall, and other scenes, integrating theoretical discussion and real experience. This teaching method can explore the function and structure of toys, children's psychological development characteristics, toy manufacturing technology, and toy culture from multiple perspectives; broaden students' innovative design thinking; create multi-perspective, multi-dimensional innovative design methods; improve students' in-depth understanding of professional theoretical knowledge; and cultivate students' comprehensive innovation ability and professional literacy <sup>[7]</sup>.

#### **2.1.3. Integrating the project design into practical class**

The toy design and manufacturing major focuses on the cultivation of students' innovation and technology application abilities. The curriculum system reflects the concept of social service, focuses on the teaching paradigm of product design with practice and market operation as the main body, and integrates the real research and development projects of enterprises into experimental training and practical courses <sup>[8]</sup>. It focuses on cultivating students' high-level skills such as information processing, data collation, market research, data analysis, teamwork, and innovation creation. The practice course is implemented in cooperation with toy enterprises to build a school-enterprise cooperative toy innovation studio. Teachers lead students to undertake enterprise projects to jointly develop toy products suitable for market demand, let students participate in real toy product research and development projects, and improve the teaching quality of professional practice courses, so as to enhance the education level and cultivate talents with high-quality toy innovation design skills suitable for national needs in the new era <sup>[9]</sup>.

## **2.2. Establishment of a characteristic course system based on professional skills in toy design and manufacturing**

### **2.2.1. In-depth analysis of course structure and establishment of professional course groups**

The course structure system of toy design and manufacturing is divided into two categories and four parts. The two categories are required courses and optional courses; the four parts are public courses, specialized basic courses, specialized courses, and course design courses. The compulsory courses are set up on the basis of career analysis according to the knowledge needs and professional skill needs of toy shape and function designers. All the compulsory courses have a clear direction of career needs <sup>[10]</sup>. For example, “Model Design and Production” mainly points to the need for professional material technology and design expression and application skills. Another example is the “Child Development and Toys” course, the organic unity of children’s toy design and children’s psychology is achieved through the toy safety standards and psychological analysis <sup>[11]</sup>. The elective course is designed to deepen and expand the theory and professional skills related to the major and improve the comprehensive quality of the students. It offers elective courses such as “Basic of Toy Manufacturing Technology” and “Games and Toys.”

### **2.2.2. Hierarchical construction of professional course groups**

Firstly, the design stage is discovered and understood. We need to focus on interdisciplinary knowledge synthesis, focus on cultivating students’ professional basic cultivation, perception, and discovery of the practical value of toy products <sup>[12]</sup>. As a designer, it is necessary to have an artistic and aesthetic sense of touch and visual skill expression, and learn to use various computer-aided software and tools to speed up product development <sup>[13]</sup>. Secondly, the design stage is created. Students are first required to read a large number of Chinese and foreign classic toy products and pictures of toy products, fully accumulate perceptual knowledge, and then cultivate and strengthen their professional skills in toy product design through classroom teaching and practical training. The third is the application design stage. This stage aims to cultivate students’ innovative ability in toy product design. Through the establishment of standardized training bases inside and outside the school, students can experience the whole process of toy development, design, and manufacturing. At the same time, in the form of student teams, personal creativity can be concentrated, optimized, and transformed into real work through negotiation, creativity, and production.

### **2.2.3. Construction of the characteristic course system of toy design and manufacturing major**

This course system is divided into seven modules, including professional course groups, skills, professional courses, practical training courses, internship, post core skills, corresponding posts, etc., deeply integrating teaching and students’ on-the-job practice with employment. Each professional course group has corresponding skills. For example, the professional basic course group promotes students’ basic and special skills, while the professional design course group focuses on cultivating students’ curriculum design skills and graduation special comprehensive skills <sup>[14]</sup>. Each skill corresponds to different professional courses and practical training courses. For example, the corresponding professional courses for basic skills are modeling basis, form composition, introduction to toys, child development and toys, ergonomics, and toy safety testing. The practical courses are photography and sketching, which cultivate students’ ability to understand and use basic knowledge, modeling ability, aesthetic ability, etc. Practical training courses and practice are closely linked to enhance students’ core ability to adapt to the corresponding posts and lay a solid foundation for graduation internship and employment.

## **2.3. Construction of quality core courses, training packages, and standard courses**

## **combining work with study**

According to the requirements of toy companies and enterprises on job skills, the intellectual and technical resources of schools and enterprises are integrated, and high-quality professional core courses, training packages, and standard courses that meet the requirements of vocational posts are built. These reflect the work content and process and the advanced technology of toys, highlight the cultivation of skills, and have the characteristics of combining work with study.

### **3. Effects of characteristic reform of the curriculum system of toy design and manufacturing major in applied colleges and universities**

Through the characteristic reform of the curriculum system, the toy design and manufacturing major has reached a new level, and the practice and application of the curriculum system have achieved good results.

#### **3.1. Remarkable teaching results with the students having high professional quality and strong professional skills**

For more than 10 years, the students of this major have participated in the national professional qualification examination for toy designers, and the passing rate has been 100% for eight consecutive years, and the number of passing students is more than 300. The eight projects of the students of this major, including “Psychological Educational Toy Design and Production,” “Children’s Behavior and Body Size and Safety Design of Outdoor Amusement Facilities,” and “Interactive Design Research and Development Practice of District-Corner Toys,” were approved by the Hunan Provincial Department of Education as the first batch of project funding projects of “Hunan University Students’ Research Learning and Innovative Experiment Plan.” The “Children’s Toy Product Innovation Design Incubation Camp” project won the third prize in Hunan College Students’ Innovation and Entrepreneurship Plan. In the third China Wooden Toy Innovation Design Competition, the “Olympic Series” works created by the students of this major stood out from more than 4000 entries and won the only gold medal in the competition. 28 of the 58 students participating in the competition won prizes, and the prize rate reached 100%. In the past ten years, the students of this major have won more than 10 first prizes, more than 20 second prizes, and several third prizes in the national children’s products and toy design innovation competition. The professional matching employment rate of the students is 95%. So far, most of the graduates have become the backbone of professional design and senior management personnel in their units. The number of entrepreneurs is more than 20, which plays a leading role in the industry <sup>[15]</sup>.

#### **3.2. Outstanding achievements in professional construction and remarkable achievements in production, university, and research**

The teaching reform project of Hunan Provincial Department of Education “Research and Practice of Practical Teaching System of Toy Design and Manufacturing Specialty,” Hunan Provincial Department of Science and Technology “Research on Children’s Intellectual Toy Design,” “Research on Toy Design and Manufacturing Specialty Construction,” etc. have been established. Teachers have published more than 100 teaching and research papers such as “Investigation and Analysis of Toy Design and Manufacturing Industry,” “Art Education Function of Children’s Toys,” and “Thinking on Family Toy Design with Game Value,” initiated the construction of five school-level quality courses, published more than six teaching materials and dozens of self-compiled teaching materials (practical training instructions), and completed more than ten standard courses. Undertaking more than ten projects commissioned by enterprises, the major was awarded the “China Toy Industry Talent Training Base” by the China Toy Association, becoming one of the three major toy industry

talent training bases in the country. The practice teaching base of toy design and manufacturing, Changsha Whimsy Toy Company, was rated as an “Excellent Practice Teaching Base” in Hunan Province. The major has established a solid cooperative relationship with toy enterprises and industry associations. In addition to Hunan Whimsical Group Company, Dongguan Shifeng Toy Company, Dongguan Yingde Toy Group, and other large toy enterprises have established long-term cooperative relations with this major in the aspects of professional course construction and new product research and development. “Research and Practice on the Cultivation of Professional Talents in Toy Design and Manufacturing” won the second prize in teaching achievement in Hunan Province, and the major was rated as the specialty of toy design and manufacturing and was rated as the specialty of Hunan Province.

#### **4. Summary and prospect**

The above results fully reflect the leading, demonstration, and radiation role of toy design and manufacturing major in curriculum reform and construction. The major should strengthen curriculum construction, education, and teaching research, further promote the reform of the teaching content and curriculum system of the toy major, strengthen the experiment and practical training and practical teaching links, timely discover and solve new situations and problems in the talent training practice, and timely summarize practical experience to ensure the smooth progress of the training of high-quality technical talents. At the same time, it provides valuable experience for other schools and colleges, adopts various ways to encourage teachers to lead students to be bold in innovation and reform, promotes the construction of education informatization, and strives to build the major into a teaching research center with brand effect and characteristics, a demonstration center of teaching reform results, a teacher training center, and a school-enterprise cooperation and exchange center. To promote the teaching reform of related disciplines, we will further actively explore new overseas education models for toy design and manufacturing education, and promote the comprehensive improvement and development of the toy design and manufacturing profession with “multiple input, multi-cooperation, and multi-form.”

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