





Teaching Method of Children's Clothing Appearance Design based on Distributed CAD

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Abstract. The development of computer information technology has transformed many industries. The application of computer CAD technology in the field of clothing design has also become a trend. Designers should make full use of the convenience of computer information technology when designing children's clothing to improve the effect of children's clothing design as much as possible. In the field of children's clothing design, teachers can use CAD technology for drawing training. Teachers can also use distributed CAD technology to carry out evaluation of children's clothing teaching design. Computer technology CAD can comprehensively improve the teaching effect of fashion design, and then build an efficient teaching platform for fashion design courses. The modern garment production and processing industry has put forward higher requirements for the quality level of garment production and the quality of employees. Therefore, CAD technology can improve the level of modern clothing design. We should pay full attention to the application of diversified technologies in fashion design work. This paper takes the children's clothing design work as the starting point, and discusses the computer CAD technology. This paper further summarizes the application significance of computer CAD technology. The article comprehensively analyzes the application of CAD technology in the garment industry. This article analyzes the different technologies in the field of children's clothing manufacturing. These technologies include three-dimensional body measurement technology, children's clothing design CAD technology, and virtual clothing cutting technology and so on. This paper proposes a digital children's clothing design process system, which has a certain reference significance for the development of clothing digitalization.

Keywords: children's clothing design; teaching method; distributed; CAD technology.

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1 INTRODUCTION

CAD technology is widely used in the field of clothing design. At present, the technology is supported by functions such as computer graphics processing to provide support for clothing design work. Rougeaux [1] believed that carrying out clothing design work based on CAD technology can also play a role in optimizing the design effect. The advantages of computer CAD technology are generally reflected in the design feedback efficiency, graphics display speed and other aspects. On this basis, Longo et al. [2] believed that the fashion design work integrates the innovative ideas of designers. Generally speaking, computer technology is capable of designing garments that have a huge impact. It can be seen that this paper needs to carry out a necessary discussion around the application of related technologies. Children's clothing design CAD system is a computer-aided clothing design system. Enes and Kipoz [3] believed that the system is a combination of computer and clothing product design. Children's clothing design CAD technology Design technology is a comprehensive technology. The technical system includes various technical types such as clothing style design, clothing structure design and industrial model design. The system includes computer graphics, database, network communication and other types of computer technology. At present, the CAD design system of children's clothing design is developing in the direction of intelligence, three-dimensional and convenient.

Dijk et al. [4] believed that the scope of application of digital clothing design technology is also expanding. In the context of the development of the Internet, children's clothing design needs to actively introduce information technology to build a modern classroom teaching environment. In order to better meet the needs of the society for fashion design talents, fashion design colleges need to constantly improve their own shortcomings. Fashion design major needs to actively carry out teaching reform. Through information technology, the school helps student groups to acquire more knowledge in clothing tailoring and styling design. Ji and Liu [5] believed that the student group needs to learn the knowledge of clothing structure, clothing drawing and so on. Computer CAD technology is conducive to the growth of students' majors and further improves the teaching quality of children's clothing design majors. Children's clothing design CAD technology is developed continuously based on computer CAD technology. Computer CAD technology has a variety of graphics processing capabilities. Computer technology has provided technical support to clothing design work to a certain extent. At the same time, the CAD technology of children's clothing design has better adaptability and convenience. Jagannath et al. [6] believed that the technical advantages are mainly reflected in the computer response speed and graphics display speed. Based on computer technology, clothing designers conduct a comprehensive analysis of various types of information, and then design more trend-setting clothing. Children's clothing design CAD technology can improve the efficiency of clothing design, thereby greatly shortening the time spent on clothing production. Pérez et al. [7] believed that the computer technology reduces production costs on the basis of unified management and cluster management. With the improvement of clothing production speed, the competitiveness of enterprises has also been enhanced accordingly. The improvement of clothing production efficiency also provides impetus for the development of clothing intelligence. Jin et al. [8] believed that taking children's clothing design as an example, clothing designers choose computer CAD systems to carry out intelligent design. On the basis of divergent thinking, fashion designers can successfully complete a series of tasks such as plate making, layout and grading. The application of this technology allows designers to truly improve the craftsmanship of clothing production, and reduce the time and cost of clothing design and production. Mondal et al. [9] believed that the existing research shows that the CAD technology of children's clothing design is developing towards the goal of practicality. The related systems can be divided into the following parts, including grading system, material system, design system, drawing system and so on. The relevant clothing design enterprises have perfected the functions of computer CAD technology out of consideration of user needs. From the manufacturer's point of view, the color, material and style of children's clothing design can be utilized by CAD technology. Napper et al. [10] believed that computer CAD technology can ensure that conceptual clothing

design can be transformed into physical clothing as soon as possible. It can be seen that the CAD technology of children's clothing design has a good development prospect. Clothing design companies need to create special products in order to maintain the rapid development of the clothing industry.

1.1 The Positive Significance of CAD Technology in Appearance Design of Children's Clothing

Traditional clothing design is easily limited by clothing materials and design ideas, resulting in poor clothing design results. Children's clothing design CAD technology solves this problem. Fashion designers can use interactive means to innovate clothing fabrics, shapes and colors. With the burst of designer inspiration, the designer's imagination and creativity can be maximized. In addition, children's clothing design technology can also provide users with customized, personalized and differentiated children's clothing. This design method can ensure that the clothing is both practical and artistic. To sum up, the CAD technology of children's clothing design can solve most of the problems encountered in the traditional manual design stage. Relevant personnel can use this technology to quickly display the effect of children's clothing design. At the same time, fashion designers can also give full play to the characteristics of CAD technology and study the specific methods of fashion design from different perspectives. The difference between modern clothing design and traditional clothing design is mainly reflected in the designer integrating a large number of modern aesthetic elements into the design scheme. Designers can ensure the display of multiple characteristics of clothing through the latest clothing design methods. CAD technology can speed up the transformation of clothing design ideas to finished clothing design. Fashion designers simultaneously carry out clothing aesthetic design and modern computer CAD design. Designers can meet the needs of design work in clothing design, production, processing and other links to the greatest extent. In daily work, fashion designers can incorporate multiple design elements in a targeted manner. With the assistance of CAD technology, the clothing designer optimizes and adjusts the design scheme. The designer's operation can ensure the design effect and ensure that the adjusted design scheme can present the aesthetic characteristics intuitively. Facts have proved that on the one hand, this method improves the speed of clothing design, and on the other hand makes the effect of clothing design more diversified, and the scope of children's clothing design is also expanded. The application effect of computer CAD module in the appearance design of children's clothing is shown in Figure 1.

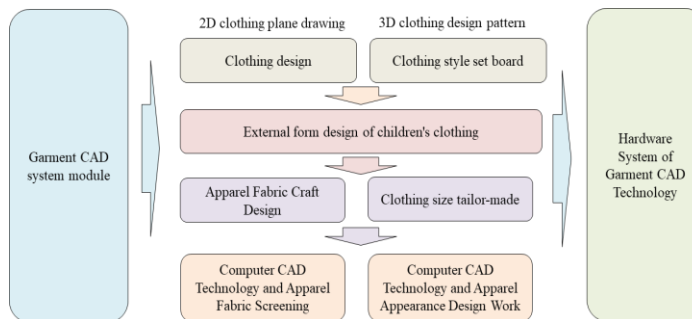


Figure 1: The application effect of computer CAD module in the appearance design of children's clothing.

1.2 The Main Value of CAD Technology in the Design of Children's Clothing

The tools and materials used in children's clothing design CAD technology are different from traditional technical methods. This situation comprehensively reflects the value of CAD technology

to optimize and expand traditional clothing design methods. Whether it is the expression idea or the design mode, the computer CAD technology can make the clothing design method be optimized. For example, three-dimensional body measurement, dynamic capture and other technologies can shorten the time required for clothing designers to capture human body data. Children's clothing design CAD technology can truly realize the real-time conversion of clothing design effects between the virtual world and the real world. At present, the CAD technology of children's clothing design has been widely promoted and applied. The development trend of design art institutes is also gradually moving towards popularization. At the same time, there are still obvious deficiencies in the application of relevant CAD technology by fashion design enterprises in China. The product features of clothing design are not prominent. It can be seen that in order to realize the inherent value of this technology, fashion designers need to strengthen the research and development of the fashion design system and key links. The designer achieves the perfect integration with the artistic effect through open development and insisting on innovation. Only in this way, the CAD technical structure of the clothing design enterprise can be continuously optimized. The effectiveness of clothing design can also increase accordingly.

2 THE ADVANTAGES AND CHARACTERISTICS OF CAD TECHNOLOGY IN THE APPLICATION OF CHILDREN'S CLOTHING DESIGN

2.1 Innovative Ideas of Children's Clothing Design

Children's clothing design CAD technology can introduce design thinking into practical work. Through computer technology and modern fashion design concepts, fashion designers can exert their professional comprehensive ability. In this process, children's clothing can add a variety of digital design elements, and use computer CAD technology to improve the design scheme. Computer CAD technology can objectively express the aesthetic elements in children's clothing design work. Computer technology can efficiently express a variety of design elements. This method improves the efficiency of clothing design, and also improves the diversity of design effects for clothing designers. In this process, fashion designers gradually become the real main body of fashion design work. Computer CAD technology has opened up a freer and broad development space for clothing design work. The overall architecture of children's clothing shape design system based on distributed CAD technology is shown in Figure 2.

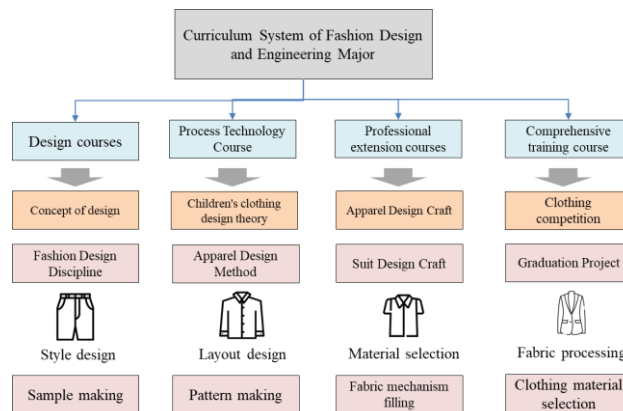


Figure 2: The overall architecture of children's clothing shape design system based on distributed CAD technology.

2.2 The Technical Methods of Children's Clothing Design

In the application process of children's clothing design CAD technology, designers need to combine new materials and new tools for clothing design. These tools are the necessary basic factors to expand the designer's thinking, which can enrich the designer's design inspiration and design effect. These technologies include the relatively advanced three-dimensional dynamic body capture technology. These technical means can allow designers to obtain more new ideas and new methods of clothing design in a short period of time. Computer technology can also obtain human data models and basic laws of human activities. These new technologies can help fashion designers make sound judgments. Based on the CAD system of children's clothing design, clothing craftsmen can use computer technology to carry out clothing design. Computer technology can make the work of patterning, marking, and grading of garment samples more accurate and efficient. Computer CAD technology can significantly improve the technological level of clothing design. Computer CAD technology can also greatly reduce the cost and time period of garment production. The application effect of CAD technology in the appearance design model of children's clothing is shown in Figure 3.

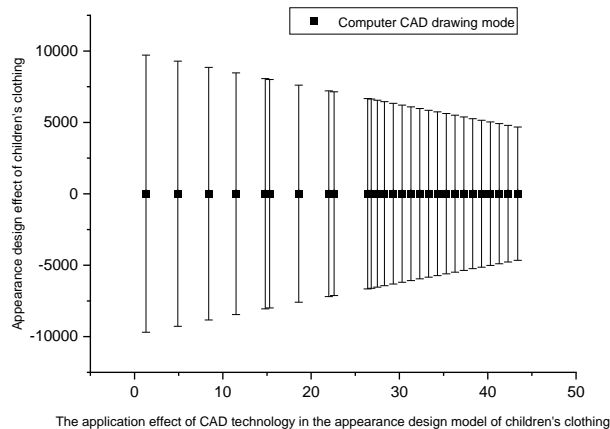


Figure 3: The application effect of CAD technology in the appearance design model of children's clothing.

2.3 The Computer CAD Technology Promotes Children's Clothing Design

In the past, clothing design was usually restricted by a series of factors such as space and materials. These constraints make it difficult for fashion designers to fully realize the design concept. Through the CAD technology of children's clothing design, designers can more directly use digital interactive means to create new clothing shapes, styles, colors, fabrics and other content. Computer technology can provide designers with more new design inspiration, and designers' creativity and imagination can be fully utilized in clothing design. Computer technology can effectively expand the creative expression space of fashion designers. At the same time, computer CAD technology can provide people with clothing design works with unique style and temperament. Generally speaking, children's clothing design CAD technology can solve many problems that are difficult to solve by traditional manual sewing technology. At the same time, the technology can fully display the stylized artistic scene. Therefore, in order to give full play to the characteristics and advantages of CAD technology for children's clothing design, scholars should strengthen the application research and innovative exploration of CAD technology from different perspectives. The organizational structure of experimental platform for children's clothing design based on distributed CAD technology is shown in Figure 4.

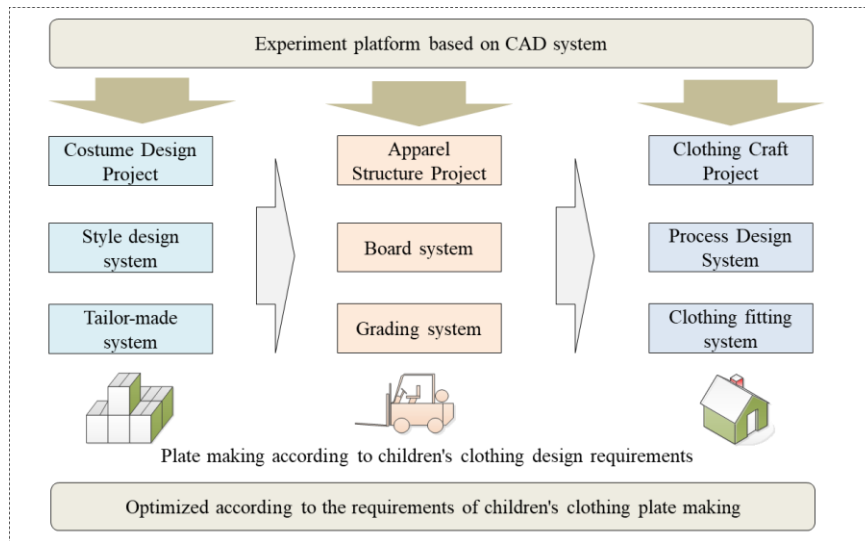


Figure 4: The organizational structure of experimental platform for children's clothing design based on distributed CAD technology.

The system design includes four aspects: system structure, architecture design, interface layer template design and function design of each module. This paper further constructs the structure of the entire IT service management system according to the system functional requirements. Among them, the IT service management system is located inside the management private network. The management system adopts a three-tier architecture design, namely interface layer, business logic layer, data access layer, and public category and entity layer. The interface layer is composed of system interface and control logic. This layer mainly receives user commands, requests and data. After the interface layer collects information, it passes the content to the business layer for processing, and then presents the results. The control logic is responsible for handling the data interaction between the interface and the business layer, as well as some simple data validation. The business logic layer encapsulates the actual business logic, including business-related operations such as data verification, transaction processing, and permission processing. Business logic is the core of the entire application system. The data access layer is used to interact with the database, including operations such as adding, modifying, deleting, and obtaining data. The public class encapsulates some commonly used functional code. The entity class is the data transmission carrier between the various layers. The Design of sports event management system based on IoT CAD technology.

3 THE APPLICATION VALUE OF CAD TECHNOLOGY IN CHILDREN'S CLOTHING DESIGN

3.1 Pay Attention to the Creation of Children's Clothing Brand Product Features

With the rapid development and popularization and application of CAD technology for children's clothing design, design art is gradually showing a trend of popularization. Judging from the application status of children's clothing design CAD technology, there are still many situations such as insufficient development and growth rate. The product features of children's clothing design brands still need to be strengthened. Therefore, children's clothing design CAD technology needs to achieve leapfrog development with the help of science and technology, and organically integrate with artistic creation. Computer CAD technology can be applied to the key links of modern clothing design system. Children's clothing design CAD technology can be continuously optimized in the

process of development. Fashion design work needs to give full play to the advantages of digital technology, so that modern clothing can truly reflect a variety of design elements. Computer CAD technology can realize the purpose of innovative expression in clothing design, thus providing strong support for the sustainable development of modern clothing design. The appraisal model of garment plate-making effect based on distributed CAD technology is shown in Figure 5.

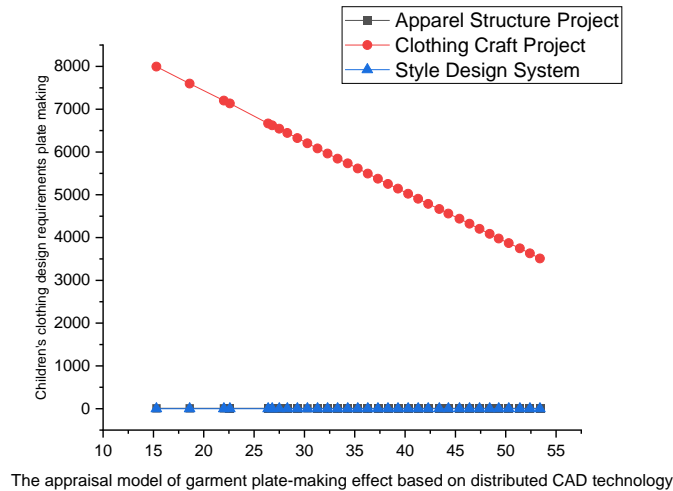


Figure 5: The appraisal model of garment plate-making effect based on distributed CAD technology.

At present, the digital information age is developing rapidly. Children's clothing design CAD technology will inevitably have a huge impact on society, technology, humanities and many other fields. With the rapid development of the clothing design industry in recent years, the attention of all sectors of society to CAD technology for children's clothing design has continued to increase. Designers give full play to the advantages of children's clothing design CAD technology. CAD technology can bring positive promotion to the innovation and development of modern fashion design industry. This paper believes that the following aspects can be taken to further enhance the value of CAD technology for children's clothing design.

3.2 Strengthen the Application of CAD Technology for Children's Clothing Design

Children's clothing design CAD technology is a computer CAD technology that integrates engineering technology and artistic concept. The technology specifically involves various aspects such as economic operation, artistic creation, and science and technology. The technology presents significant order and integration characteristics. Generally speaking, the development of CAD technology for children's clothing design should carry out application innovation with the goal of clothing design. In addition, fashion designers should pay attention to and improve the application of CAD technology in different fields. Designers promote the continuous upgrading of children's clothing design CAD technology through the organic integration and innovative development of various technologies. In the context of globalization development, the state and government departments should appropriately improve the level of existing children's clothing design CAD technology and the overall level of related equipment in light of specific circumstances. The application of CAD technology can provide strong support for the innovation and development of modern clothing design system. At the same time, garment manufacturers should also carry out technical research based on their own development at different stages. Based on the existing resources and conditions, enterprises need to cooperate with colleges and universities to jointly develop a CAD technology application model for children's clothing design that is in line with

national conditions. The application effect of computer CAD technology in children's clothing design is shown in Figure 6.

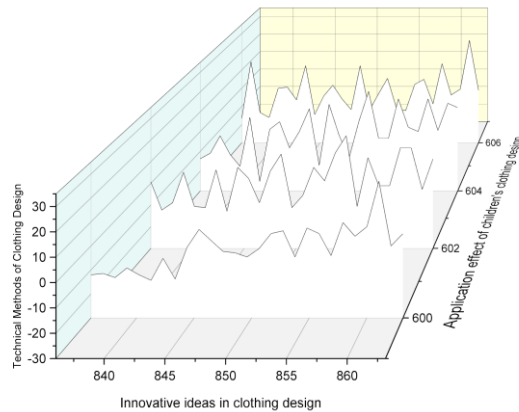


Figure 6: The application effect of computer CAD technology in children's clothing design.

3.3 The Clothing Design CAD Technology Needs to Integrate Expert Knowledge

Clothing design is an experiential job. In the process of clothing structure design, the quality of the model is usually affected by the experience of the pattern maker. Therefore, clothing design enterprises must pay attention to the important role of intelligent CAD system. Enterprises need to collect and sort out the experience accumulated by the board masters. The enterprise systematically records the specific CAD technology application process through text description and other methods. Specifically, companies can build a database of typical models of various types of clothing. The fashion designer then combines certain logical relationships and data analysis results to effectively store them in the computer memory. This technology is beneficial for users to randomly call clothing templates and provides certain convenience for clothing design. The analysis of the comprehensive expression effect of the appearance design of children's clothing is shown in Figure 7.

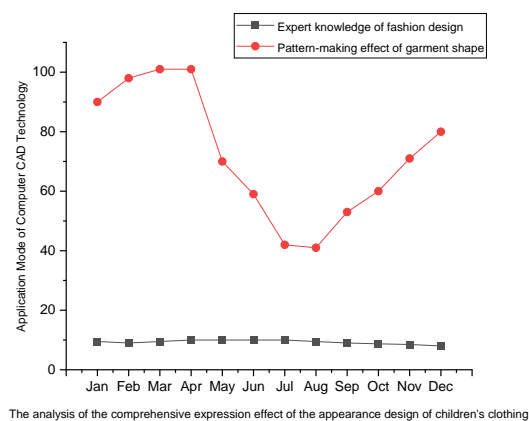


Figure 7: The analysis of the comprehensive expression effect of the appearance design of children's clothing in different months.

3.4 The Fashion Design Profession Needs to Continuously Apply CAD Technology

Colleges and universities need to build a computer application system for the whole life cycle of clothing design products. For example, in the design of clothing structure, colleges and universities must always adhere to the development direction of intelligent design. Colleges and universities need to reflect humanized design ideas in different links such as templates, grading, and modules in curriculum design. At the same time, colleges and universities also need to use these methods to ensure that the operation of CAD technology is simple and practical. In addition, children's clothing design CAD technology needs to carry out data standardization and sharing work. Universities support the coordination and unity of the clothing design industry through data standardization. Data standardization can effectively break the unfavorable situation of format monopoly in the fashion design industry. At the same time, the coordination and unification of product design and manufacture by children's clothing design CAD technology should also be properly optimized.

4 CONCLUSIONS

The application of children's clothing design CAD technology in modern clothing design is relatively flexible. The advantages and broad development space of this technology cannot be ignored. At the same time, the CAD technology of children's clothing design also provides new opportunities for the development of the modern clothing design industry. Based on this, clothing designers need to have an accurate understanding of the tool types and expressions of children's clothing design CAD technology. At the same time, fashion designers should really transform the CAD technology of children's clothing design into the tools commonly used in modern clothing design. Fashion design requires deeper research and innovative development from different angles. In general, computer technology can bring positive promotion to the modern clothing design industry, and at the same time endow the CAD technology of children's clothing design with new meanings.

With the rapid development of social and economic level, people's consumption level and quality of life continue to improve. In particular, the majority of children's groups have higher and higher requirements for the fit, individuality and comfort of clothing design. The children's clothing design industry has begun to develop in the direction of "multiple varieties, small batches, short cycle and fast delivery". With the continuous development of digital technology and network technology, the traditional fashion design industry has begun to enter a new era of information technology. The application of three-dimensional body measurement technology, the continuous improvement of CAD technology for children's clothing design, and the emergence of virtual suture fitting technology have laid the foundation for industrial customization of clothing design. Digital sample production not only saves a lot of costs for enterprises, but also meets the requirements of multi-variety and small-batch production. The technology also allows consumers to feel the three-dimensional effect of clothing on their body in real time. This paper makes an in-depth analysis of the distributed CAD design technology and its application in the field of clothing, and focuses on the application mode of CAD technology in the virtual stitching fitting process.

Overall, children's clothing designers need to strengthen the learning and application of digital information technology. Apparel design should integrate virtual design and real needs through digital technology methods. Fashion designers need to develop clothing design works that are more in line with actual needs on the basis of the organic combination of sensibility and rationality. Distributed CAD technology can support the technical and dynamic support required for the long-term development of clothing design. Fashion designers can carry out modern clothing design through computer CAD technology, which can significantly improve the quality and efficiency of clothing design. This also shows that the development potential of children's clothing design CAD technology is great. Influenced by the development stage of related technologies, the current modern clothing design needs to complete a variety of tasks. On the one hand, fashion designers need to systematically learn design tools and design patterns. On the other hand, designers also

need to transform related technologies into tools that can aid design work. Only by doing in-depth research and continuous innovation can designers achieve the desired effect of clothing design.

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