

# Research on the Innovation Mechanism of Art Design Education in the New Period

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**Keywords:** New era; Art design; Innovation mechanism; Innovation education

**Abstract:** At the present stage, China is in a critical historical period to promote the pace of building an innovative country. With the increasing support of the “double-innovation” policy and measures, the education sector is deepening the strategy of collaborative innovation. Innovation is the essential feature of art design. In a sense, design is innovation. With the continuous development of market economy and increasingly fierce competition, the comprehensive quality of artistic design talents has been put forward new requirements. Under the current situation, it is an important mission of art design education in Colleges and universities to comprehensively promote quality education and cultivate high-quality innovative talents. Art design education should pay attention to the inheritance and practical application of history and culture, pay special attention to the cultivation of design consciousness and innovation ability, regard scientific and humanistic knowledge as an important part of art design education, base on contemporary education and design practice, and construct a new era of art design driving innovation mechanism research.

## 1. Introduction

Active thinking is needed in artistic design creation. The application and development of science and technology become the external environment of artistic creation, and artistic creation must be full of passion, profound historical sprinkling and aesthetic sense of the times in order to infect people [1-2]. Art design creation can not only provide a good environment for people, but also contribute to the application of science and technology in creation. When people deeply understand the laws of nature, the development of science and technology and art design creation go hand in hand [3-5]. Today, with the development of science, designers should pay attention to all aspects of the function, material simplicity, aesthetic form and value of their works of art design while completing their artistic creation. Science and technology not only provide many conditions for art design, but also put forward many restrictions and aesthetic requirements of more versatility and form [6]. Therefore, the realization of art design needs the development of science and technology.

In the new era of science and technology, some people create art in accordance with the original design rules or inheritance rules. Others are unwilling to obey certain rules completely. It is to explore new concepts, new science and technology in the process of continuous creation, to integrate with its own art and design creation, and to pursue a more perfect way of expression. We have no intention to criticize or deliberately innovate anything. When all the old experience loses all its functions almost overnight, art design should face the process of innovation and development in the new era of science and technology.

## 2. Innovation and Development of Art Design in the New Era of Science and Technology

### (1) Development of science and technology and art design

Modern art design comes from handicraft technology, which is based on science and unified with science. It can be said that manual technology is a prerequisite for the development of science and technology, science and technology is the premise and background of modern art design. The application of science and technology in artistic design is integration and mutual development. The contribution and influence of science and technology to human society are realized through the design and form of living products, while the form of product design and product design is the

artistic design of products [7-8]. Life products are often the crystallization of science and technology of the times. Products and appliances of different times are related to science and technology of different times. In the new era of the continuous development of science and technology, the improvement of people's material and cultural needs, in order to prove the value of science and technology, we must mobilize all artistic forces to make the daily necessities have both humanistic and ornamental value and practical value, and increase the high added value of new technology by means of design. At the same time, art design is also innovative through technological advances, as shown in Figure 1.

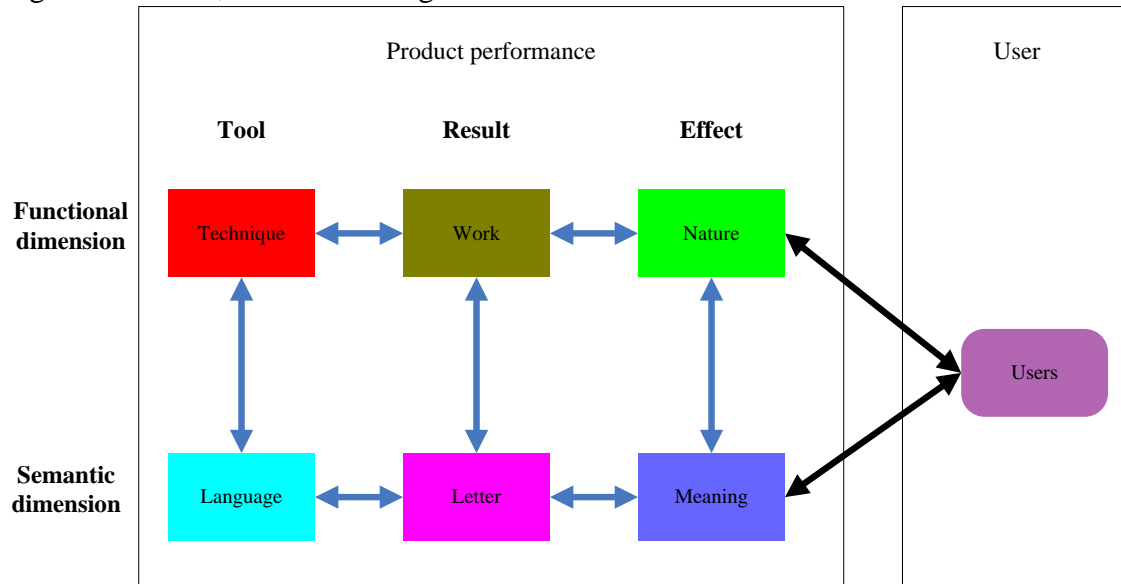


Figure 1 Design-driven innovation

## (2) The development needs of art design and the integration of science and technology

Art design creation needs the support of science and technology, so it must be integrated with science and technology in art design creation. Integration is the inherent requirement of art aesthetics and Science in art design creation, and the only way to change qualitatively in art design innovation. The purpose of science and technology is to pursue new discoveries, explore new laws, create new theories and accumulate new knowledge. New knowledge is the basis of scientific and technological innovation. New knowledge of art design comes from science and technology and is an important part of knowledge innovation. It is the crystallization of aesthetics of science and technology and art design [9]. Art design and science and technology are mutually complementary. The application of science and technology in art design creation has already become the inherent attribute of art design development. True art design is the integration of science and technology, and has the art of scientific inward sprinkling. Therefore, integration has the existence of internal and external factors and forces, and it is impossible to lose oneself. So is the integration of art design and science and technology. They have their own independence, but they must become their own power and qualitative change way, and infiltrate into their own bodies.

## (3) Innovation and development of art design in the new era of science and technology

Design is an art of creation. It is not art or science, but a combination of the two. It lies between art and science. It has both characteristics and its own system. The highest realm of science and technology should be a free realm which is completely blended with artistic design without leaving any trace [10]. Only in this way can artistic design be understood or improved into a perfect spiritual ideal.

Art design is not only the carrier of science and technology, but also the combination of them through integration, that is, to show science and technology through art. For example, "Water Cube" not only uses the decorative function of water in appearance, but also uses its unique micro-structure. The design inspiration based on the "foam" theory has unique visual effects and feelings, and the artistic charm of water has been perfectly reflected in architecture [11]. It has

many characteristics of science and technology and environmental protection, natural ventilation and circulating water system are developed reasonably and high-tech building materials are widely used. Swimming pools should also be designed with scientific and technological innovations, such as introducing outdoor air into the surface of pool water, terminal pool banks with holes, visual and sound starting signals, etc. These are the ultimate results of the integration of art design and science and technology. The construction objectives of innovative design are shown in Figure 2.

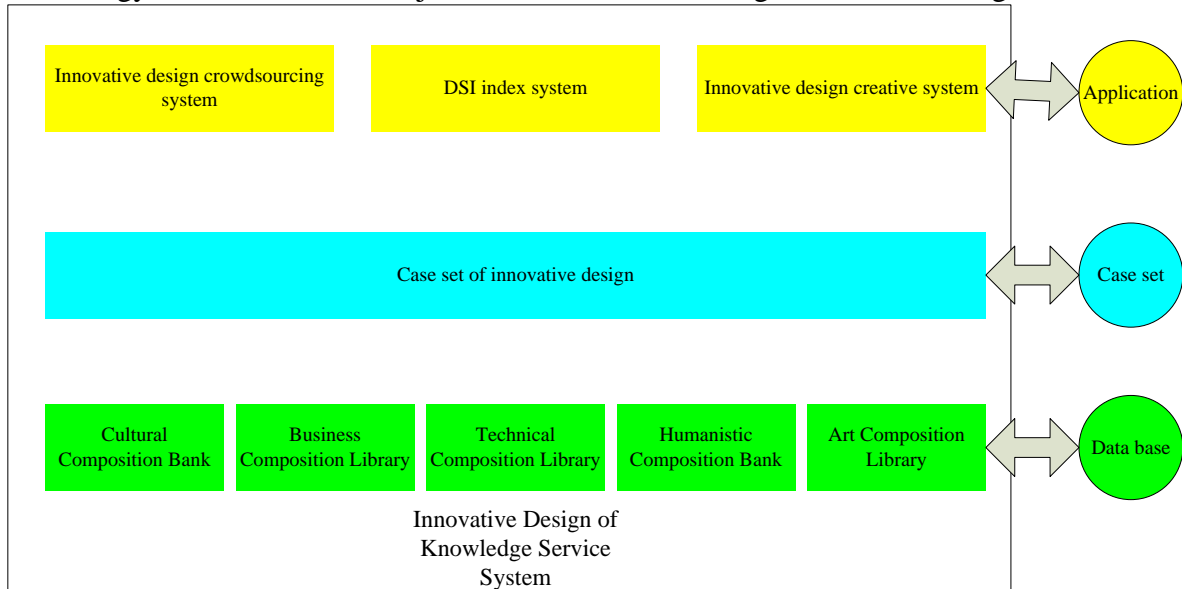


Figure 2 Innovative design and construction objectives

### 3. Establishing a Comprehensive Talent Training Model with Innovative Ability Training as the Core

#### 3.1 Cultivation of Innovative Ability

The real innovation ability should be the ability to innovate, innovate and invent. The cultivation of innovation ability needs external and objective environment conditions suitable for the development of innovation ability. Cubberley, a well-known educator of Fairfield, believes that the most important condition for good teaching is to cultivate some effective learning habits and independent thinking, and the ability to innovate is derived from such independent thinking. School education is a socialized process for students to move towards adult life, including regular courses, quantitative knowledge, strict teaching and directional development. This way of socialization has trained their ability to adapt to society, but at the same time, it has greatly reduced their space for independent thinking and suppressed their innovative ability. However, we can't abolish socialization because socialization consumes creativity. What we can do is to create more space and opportunities for students to think independently in school education, and guide these creativity from independent thinking to useful aspects. To achieve this, we must rely on a reasonable teaching model. Therefore, we must make a serious study of the current teaching mode of design education. The analysis of innovation and reform driven by art education is shown in Table 1.

Table 1 Innovation and reform of art education

The significance of cultivating double creative artistic talents	Cultivating artistic talents for the new era
Promoting the school-running characteristics of art colleges	Strengthen top-level design
Promoting the reform and development of art education	Accelerating double creative layout
Improving the quality level and educational efficiency of artistic talents	Promoting cooperative education
Enhancing the innovation and entrepreneurship atmosphere and vitality of the whole people	Building an open data talent bank platform
	Effectively implementing guarantees

### 3.2 Research on teaching model

#### (1) Advantages and disadvantages of past teaching modes

In the past, the typical design teaching mode was “three-stage”, namely, the foundation of shape, design and professional design. This kind of teaching mode is still widely used today. The three-stage model also designs several self-contained courses in each section of the foundation of modelling, design and professional design, which is quite complete and easy to teach. However, with the development of social economy and the re-integration of design, this teaching mode has become a serious obstacle to the cultivation of talents with comprehensive creativity. Under the “three-stage” education, some students who are almost excellent in every subject can not make a good design, even do not understand the design procedures, can not complete a complete design. Because the knowledge acquired under the “three-stage” education is relatively fragmented and systematic, it is difficult for students to give full play to their creativity and design and create comprehensively and systematically on the basis of such lack of interrelated knowledge.

#### (2) Promoting the comprehensive teaching model

In order to implement the integration of design education, the teaching methods based on textbooks in different classes in the past have been difficult to achieve the teaching objectives. Only by substituting subject-based teaching for curriculum teaching, that is to say, by one subject which is easy to become difficult, the knowledge needed for system design can be systematically imparted to students through the teaching subject, and digested and absorbed in the course of promoting the subject, can the teaching purpose of cultivating professional innovation ability be realized. To adapt to the development trend of comprehensive education and establish a comprehensive design education model, the emphasis is on design as the center. That is to say, taking the systematic subject as the core and arranging the corresponding knowledge organically, so that students can learn and cultivate the comprehensive design ability, including the corresponding ability of art design, technology design and market design in the process of designing these subjects. It should be affirmed that these serialized design topics are not necessarily object-oriented design, but also teaching topics based on design procedures and methodology. These subjects teaching not only emphasizes the organic connection of relevant knowledge, but also emphasizes the continuity and integrity of the design process, especially the practical links: market research, model making, engineering technology, market promotion and so on. This model is suitable for industrial design, environmental art, visual communication and other professional directions.

#### (3) Reforming the traditional teaching content

The reform of teaching content should start from two basic points: the training of creative thinking and the cultivation of quality and ability, and the cultivation of creativity should become the core content of modern art design education. Creative thinking is an innovative thinking activity. Teachers' teaching direction and students' efforts should be explored from the aspects of cultivating divergence, flexibility and originality of thinking. Its basic contents are as follows: first, to increase the training courses of thinking, to change passive learning into active learning, and to change imitative design into creative design. Then, change the traditional closed teaching system, strengthen the design course of applied projects in teaching, and actively organize students to participate in social practice projects, so that students' design ability can be organically combined with the needs of actual market projects, so that students can get full exercise. At the same time, some exploratory topics are added consciously in the teaching so that students can combine some forward-looking topics with specific social projects. In addition, inserting some design projects and competition activities in the teaching process can gradually cultivate students' self-organizing ability in the learning process, cultivate their interest in the learning process, so as to stimulate their emotions and develop their creative potential.

#### (4) Establishing an off-campus practice base, focusing on the cultivation of students' practical ability

The ultimate goal of design education is to enable students to truly acquire the ability to solve practical problems. The establishment of off-campus design practice teaching base can enable students to go out and apply the theoretical knowledge to design practice, and can be tested and

improved in practice. In the practice of design, students will encounter new problems constantly, and get solutions constantly in practice, so as to improve their own quality and design level. Through practice, students will be closer to specialty, enterprise, market and society, and their sense of responsibility for solving design problems in the real world will be greatly enhanced. Of course, in the construction of practical teaching base for design, we should choose different teaching points according to the different regional and professional characteristics of colleges and universities, and try our best to select those with certain scale and strength and market characteristics. Design companies with sincerity of cooperation and large and medium-sized enterprises and institutions, and form long-term friendly cooperative relations with them, and strive to build and cultivate a good win-win mechanism. With a stable design practice base, the school can require students to use the holidays to participate in the design practice base, so that students can find problems in practice, solve problems, and gain practical experience. Like other applied majors, the integration of production, learning and research is also an effective way to realize the integration of art design education. Therefore, we should pay special attention to the practical links of the subject teaching. For the design of the simulation subject, we must make the relevant knowledge organic and systematic. Because the comprehensive design education mode is based on the multi-disciplinary and systematic knowledge, it can provide a good space for students' creativity and lay a solid foundation for the success of creative design.

#### 4. Conclusion

To sum up, new artistic ways and forms will come into being with the changes of the times and the renewal of science and technology, which not only endows art with the possibility of development in the new era. It also reveals the coexistence of various possibilities, great variability and development in the process of integration of art design and science and technology, which is characterized by diversification, i.e. the alleviation of traditional art norms and the expansion of new fields. It is to explore new concepts, new science and technology in the process of continuous creation, to integrate with its own art and design creation, and to pursue a more perfect way of expression. In the 21st century, design and design education is facing new challenges. The integrated design education model is a new strategy to adapt to the social development trend. The proposal of this model is conducive to the rapid improvement of design creativity of students majoring in design, and to speeding up the pace of integration of China's design education with international advanced level. However, in the process of integration, we will encounter various obstacles and difficulties, and we need scientific mechanisms to achieve this goal. We should view art design education in the new era from the perspective of development, and regard science and humanities knowledge as an important part of art design education. Based on contemporary education and design practice, we should strive to develop and construct a scientific and feasible Chinese art design education system and a suitable talent training mechanism for art design.

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