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The Informatization Trend of Design Education Management in Universities in the Post-Epidemic Context

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Abstract

In the pandemic and post-pandemic eras, it has become the norm for many design courses to be conducted online. Design education administrators in universities are facing an urgent problem in targeting the characteristics of design science majors, and formulating effective system management of the basic information science course system. This article discusses how to use information technology to establish a theoretical system of disciplines in design studies from the current management system, problems of design studies under the background of new liberal arts, and proposes that information collection and cross-border integration will become an important trend in basic design courses. It also discusses the connotation definition, and future prospects, for the discipline's foundation.

Key words

Design, informatization, discipline foundation, art and science

With the impact of the pandemic and the acceleration of informatization, we are at the crossroads of the post-modern transformation of contemporary aesthetic education and the change of "informatization" education management. How should China's design education management concept adapt to the two-way development of informatization and internationalization, especially in exploring how to combine current infor-matization development with the basic teaching of design in local culture? Facing the advancement of design informatization during the pandemic, it was necessary to establish a complete design infor-matization teaching management system through practical problems and theories, especially during the pandemic or related emergency situations. Management systems have become an extremely important ele-ment in the field of art design education in China.

1. Analysis of the Basic Management System and Model of Informatization of Design Science in Universities

The informatization curriculum of design is supported by a comprehensive knowledge system. To this end, we conducted an in-depth investigation of the basic course offerings of design studies in colleges and universities across the country. From the surveys we conducted of basic design courses in colleges and universities across the country in recent years, we found the characteristics and development trends of many basic courses. There are currently two models for the informatization reform of design science in universities in China.

The first is the traditional design-based teaching management mode. The design studies of Tsinghua University Academy of Fine Arts (TUAFA) have great influence in the country, and its reform of courses for design professionals has demonstrated a certain effect in the country. In several adjustments to the training program, the traditional sketch and color courses were retained, and the sketch course was cancelled. At the same time, some traditional basic courses such as pattern foundation, calligraphy and painting, and art introduction of the old Academy of Arts and Crafts were retained. TUAFA has expanded the courses of new trends such as visual language and morphological research. These two courses are suitable for the promotion of informatization in professional design colleges across the country, but the current degree of connection between informatizationand traditional teaching methods is far from enough.

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While highlighting the "Spatial Form Language" and "Introduction to Professional Painting Art" courses, the design department of the China Academy of Art (CAA) integrates the human body shape course into its basic courses of the design department of the Central Academy of Fine Arts (CAFA) into the traditional sketch, color, and sketch format. The CAA pays more attention to the traditional space form and the basis of painting and also emphasizes the influence of Chinese painting on design. Nanjing University of the Arts focuses on design principles and design foundations, while the Beijing Institute of Fashion Technology focuses on design hand-painting and the application of comprehensive materials on the basis of the traditional three major components, on the basis of strengthening the overall quality of history of science and technology, creative thinking, and handicraft practice. During the pandemic, these practical basic design courses were affected to a certain extent. In particular, the courses on drawing operations lacked the technical skills education taught on-site. The colleges and universities continued to offer various courses, tried to let students find suitable classes where they lived so that they could research and draw objects so that a variety of homework in the context of information technology could be produced. However, the informatization of basic design teaching in major colleges and universities now faces a deficiency that cannot be made up in traditional classrooms.

The second is the innovation-based teaching management mode of information-based design. Many colleges and universities have further increased the basic training of "Design Enlightenment" and "A Brief History of Invention" courses. These courses have an important forward-looking role as the informatization transformation of design science, and are important for exploring the process of interdisciplinary transformation and informatization of the human visual design role. Jiangnan University's (JU) design science program construction has a solid educational foundation in management and an international exchange practice. In addition to the traditional basic design courses, the design school also offers design elements, advanced mathematics, design expression, design thinking, etc. The courses, especially the advanced mathematics subject offered by the Industrial Design major, are unique in the design education field in China. The curriculum system of Dalian University of Technology is based on morphology as a whole and has put forward distinctive system courses including morphological cognition and morphological semantics according to the training requirements at different stages. As a private institution, the International School of Design of Gengdan College of Beijing University of Technology has a certain degree of flexibility and innovation in its basic courses of national design. It also highlights the foundation of each major on the basis of Introduction to Design and Introduction to Art as a large platform course orientation. Emergency Design has been added to the design discipline of the Emergency Management University (preparation) to deal with the impact of epidemics, earthquakes, and other disasters. Judging from the current status of basic courses offered by design colleges across the country, each school basically presents diversification and regional characteristics. However, comparing them to the basic design curriculum in foreign colleges and universities, we found many problems. First, the basic courses of design in China are basically within the scope of the discipline, and there is no cross-disciplinary crossover; second, many colleges and universities put an emphasis on the traditional "three major components" of basic teaching, and such a status quo will lead to the teaching of design becoming the teaching of painting; and third, only training the "three major components" cannot meet the diversity and fast pace of current social and economic development. The most important thing is that under the influence of the pandemic, the informatization transformation of design has become a practical problem that has to be faced in the reform of traditional teaching. At the national level, some disciplines of design can be awarded two degrees, one in engineering and one in art. Interdisciplinary and cross-boundary education management of basic design has become an urgent problem that every institution needs to solve.

2. The Curriculum Setting, and Existing Problems of Design Science in Contemporary Universities Under Informationization Management

The informatization of contemporary art design at colleges and universities is on a large scale, and informatization managers are trying to bring about necessary changes. In the past few decades, China's economic and real estate development have driven the prosperity of various industries, and the demand for designers is also increasing year by year. However, current design education managers of the basic design courses did not make good use of information-based data, questions, and other resources, and failed to provide follow-up guarantees for the rapid development of China's design industry. There was also a serious imbalance between basic design education

management and the design market in the context of the pandemic. Among the colleges and universities in China that attached great importance to information design and set up related courses, only the CAFA and JU offered relevant courses: "Information Visualization Design" and "Information Design". Network, mass media, and the latest virtual reality technology (referred to as VR) promote the teaching of basic design courses. It can be seen that China's colleges and universities have realized the cutting-edge importance of informatization in basic design courses, but their academic offerings are far from enough and the training orientation for the collection and summary of design informatization is also relatively vague. Inspiring design majors in colleges and universities to cultivate high-quality design talents has become an important way to embrace design education management and market demand, so we must rely on basic design education management in the use of mobile learning, cloud computing technology, VR technology, and other new information-based education management technologies. The establishment of a disciplinary basis for design that is suitable for local areas and is internationally competitive is worthy of our attention: "It is worth reflecting on what kind of laborers design education should provide to the society. Indigenous steelmaking can only produce useless steel slag and waste precious resources." [1] In recent years, under the pressure of administrators, design teachers in colleges and universities rush between enterprises and classrooms to secure the employment rate of students, while ignoring the long-lasting, growing, and information-based disciplinary qualities that students of this major need when they go into the design industry.

At present, the foundation of design studies should offer solutions to social problems found on the basis of informatization research, and maintain a high degree of consistency with the goal of serving the society. China's traditional design disciplines often put the cart before the horse, putting too much emphasis on technical and visual language training while ignoring the more important part of design that uses current information methods to engage in preliminary research, information collection, and information integration. The basic course of design studies in contemporary Chinese universities urgently needs to offer information-based training programs. At the same time, it is also necessary to further explore the spirit of national culture in the information age, realize the localization of design concepts, and establish a basic system of design theory. Although many colleges and universities have some common courses on information research in their basic design discipline, our research and analysis found that in basic courses there is not a high degree of unity of information-based teaching concepts and technologies in the setting of professional courses and teaching modes, such as interactive information design, information resource design, and information collection; although they have jointly discussed the interdisciplinary research on information, it still takes a long time to trace the original problem of art design back to the current information.

3. The Theoretical Basis of the Current College Design Informatization Course Setting Against the Background of Emergency Management

How to carry out teaching design normally and serve current students in emergency situations, such as the pandemic, in society has already been mentioned in the frontier issue of design exploration. During the pandemic and the post-pandemic eras, discovering how art design plays an important role in the prevention, response, and disposal of public events has become an important task for our art design informatization transformation, using application technology, planning management, and other means to protect the safety of people's lives, health, property, and promoting art design to serve the society and find a good way for the application transformation of daily public design. Design, as an interdisciplinary subject, has a good field of exploration in the teaching of information-based basic courses. This subject has a solid advantage in the use of networks, big data, cloud computing, and information collection for social reality needs. Zhu Zhiting pointed out that "Informatization of education refers to the process of comprehensively and deeply using modern information technology in the field of education to promote educational reform and educational development."[2] In the current information age, this has brought unprecedented opportunities for the modernization of design and the popularization of basic course education. The task of design education management is how to explore the combination of informatization. At present, online courses have become one of the indispensable ways to teach our design courses; however, the development of online courses in various design colleges is obviously not enough. Once teaching design in an emergency situation, such as a pandemic, occurs the teaching quality can decline significantly. The current situation calls for the construction of information-based design teaching to become the only way for teaching design in China.

How can we reduce the risk of loss of lives and property under the emergency state of information design services? We can avoid the loss of people lives

and health caused by disasters through product design, environmental design, and digital media publicity. We can use information technology to deal with educating people about the possibility of accidents. In particular we can use information technology transformation design to strengthen the impact of disaster risks on people. We can leverage the cloud platform to reduce liability risk. The use of informatization resources in the basic courses of the design disciplines lies mainly in the organic acquisition of information of design service objects. The use of the internet maintain social connections, set up information collection and integration related courses, and understand the current reality has gradually become a basic subject problem that the current design community needs to solve. Therefore, basic design courses should pay attention to comprehensive and interdisciplinary knowledge. At least one-third of the design courses in the UK are not directly related to their majors, emphasizing that teachers in information technology come to the design department to teach. Design theorist Victor Papanek also proposed: "Comprehensive, and envisioned design is a behavior that needs to be adjusted through multiple disciplines, and it will continue to unfold at the interface where various disciplines intersect."[3] At present, most design teachers and students in China's colleges and universities focus on the cultural and creative industry and ignore the importance of solving practical problems, the original intention of design. Therefore, in response to this phenomenon, the most needed basic design course for design majors in China is information collection and integration before design, because this course can solve the core problem of "who does design serve", which is the primary way to identify problems and then design to better solve them. Designers such as Kenya Hara raised the issue of "information acquisition". A good designer will not focus on the final operation of the design but invest a lot of time and energy in the information collection before starting and finishing the design.

4. Informatization-Based Curriculum Management and Conceptual Reconstruction of Design Courses in Colleges and Universities

The informatization of basic design courses in colleges and universities reconstructs the informatization of course content. Based on the informatization trend of course content, information collection and integration is set as a basic course for training design students, and training students to discover problems becomes a design subject, the key to education and creating great design work. Kenya Hara created a project "Ex-formation" at the Musashino Art University in Japan where he taught. This project was also called "a new form of information". "The sender of the information only cares about throwing broken pieces of information at the receiver, while the receiver has begun to regard catching the information as the goal, avoiding the trouble of getting to the bottom of it, and at the same time completely falling into a game of 'spending information'."[4] Works produced under such an informatization concept also benefit from the informatization design concept. Zhao Huaqing, of the Industrial Design Department of TUAFA in 2018, graduated in "Quanta+ Series Medical Testing Products" as an emergency design case completed by using information collection. The information-based design will lead to a more profound and systematic information-based teaching reform, and lead to breaking through the barriers of subject confinement. Starting from the internet's shared basic design courses, it organically breaks professional barriers to form a new teaching system that is relevant to all walks of life. Using information technology research, the collection and arrangement of information starting from the problem play a vital role in the basis of interdisciplinary experience. The teaching of basic design courses coincides with the concept of digital teaching: "Firstly, to achieve the integration of the physical environment and the virtual environment. Secondly, it can better provide learning support services that adapt to the individual characteristics of learners. Thirdly, it supports both on-campus learning and off-campus learning and supports both formal learning and informal learning."[5] All parts of the entire information collection and the integration teaching system are mutually open, interpenetrating, and organically exchanged. Exploring the use of visual culture and iconography information, and then applying and implementing teaching reforms, is a trend in the current design community. "Using modern information technology, giving full play to the advantages of talents in universities and the role of knowledge and cultural inheritance and innovation…perfecting and optimizing the course sharing system, and greatly improving the resource sharing service capabilities."[6] The establishment of a nationally promoted "platform" online course based on the excellent "Design Basic Course" will open up a new world, break the barriers between the central and local governments, strong schools, and weak schools through interaction and growth, and open up the combination of popularization and informatization of disciplines, teaching, and learning.

With the advent of the post-pandemic era the design foundation established a problem awareness that will open up new teaching and research ideas, and relyon this new discipline's information-based platform

to cultivate innovative students who truly serve the society. The reform of basic design courses based on informatization emphasizes the breadth of courses, the pertinence of design issues, and the better integration of art and social data. Just as Liu Guanzhong believes that design is important to "reorganize the knowledge structure and industrial chain to integrate resources, innovate industrial mechanisms, and guide the needs of human society for a healthy, reasonable, and sustainable existence"[7], informatized basic design courses in colleges and universities can be effectively integrated with contemporary internet, big data, and artificial intelligence, and will also be integrated with interactive design, digital design, and sustainable design. College informatization design teaching can also be developed during an epidemic period, or it is a special way to create emergency design in the face of disasters. Only in this way can the basic design courses in colleges and universities truly point to "design for people and interdisciplinary disciplinary foundation".

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Editor: Wang Jingyuan

ENDNOTES

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後疫情背景下高校設計教育管理的信息化趨勢

石小禾

摘　要：隨著疫情與後疫情時代的到來，許多設計學課程在線上進行已經成為一種常態，高等設計學教育工作者正面臨一個信息化進程中亟待解決且十分棘手的問題，即如何針對設計學專業的特點來製定行之有效的信息化學科基礎課程系統。本文試圖從新文科背景下中國高校設計學現行體系與問題出發來探討如何在設計學中利用信息化建立學科的理論體系，並提出信息收集與跨界整合將成為設計學基礎課的重要趨勢，進一步對該學科基礎的內涵界定與未來展望進行闡釋與論述。

關鍵詞：設計學；信息化；學科基礎；藝術與科學