Education Reform and Development, 2022, Volume 4, Issue 1
http://ojs.bbwpublisher.com/index.php/erd
ISSN Online: 2652-5372
ISSN Print: 2652-5364

Thoughts on the Teaching of Art and Design in the Era of Artificial Intelligence

Chuan Yang*

Sanjiang University, Nanjing 210012, Jiangsu Province, China

***Corresponding author:** Chuan Yang, artshirui@163.com

Abstract: The advent of artificial intelligence has transformed the original mode of material and spiritual production. In view of autonomous machine intelligence, artificial intelligence has become a "production subject" and a new "subject" in the production of cultural intelligence, complete with legal social identity. The visual products produced by intelligent agents are not only the reproduction of the original vitality of some originals. More precisely, their works are the continuation of the concept and style of a designer. In a broad sense, they are the reconstruction of human civilization consciousness. The works produced by artificial intelligence mechanically create the material and conceptual parts of visual products, which directly leads to production mode transformation. The transition from "production tool" to "production subject" ensues a new thinking in the teaching of Art and Design courses. This paper analyzes the shift of production mode in the era of artificial intelligence and the trend changes epitomized by the characteristics of the Art and Design specialty, so as to put forward suggestions and thoughts on the development direction of existing curriculum teaching.

Keywords: Artificial intelligence; Mechanical reproduction; Art and Design major; Teaching

Online publication: June 30, 2022

1. Introduction

From the belief age of creatures to the digital era of information explosion, art and design have experienced tremendous changes. The tools of the century of labor "extend" people's limbs, and with the roar of industrial machinery, human beings continue to usher in the explosion of physical strength. The advent of the digital information age has further liberated the human brain. The concepts of sound, number, and text can be approached infinitely and retained in the moment or eternity. Based on the auxiliary creative design of artificial intelligence, the concept of artificial intelligence (AI) was established for the first time at Dartmouth workshop in 1956 [1].

The conscious creativity of artificial intelligence has transformed the relationship between subject and object in cultural production, along with the transformation of productivity and mode of production. Under the space-time field with the advent of the era of artificial intelligence, the Art and Design specialty has an inevitable collision with future productivity. The changes of producers, production tools, and production mode will bring about a turn in teaching [2].

2. Transformation of production mode

According to Aaron Sloman, an Honorary Professor of AI and Cognitive Science at the University of Birmingham in the United Kingdom, artificial intelligence has three fundamental goals. The first goal is to liberate human mental and physical labor as an effective tool for bodily extension. The second goal is to

form the ability to understand things through self-training, such as planning, problem-solving, self-examination, and other advanced comprehensive abilities. The third is to form advanced spiritual attributes, including motivation and emotion [3].

According to Sloman's interpretation, AI can be divided into weak artificial intelligence and strong artificial intelligence. With different abilities, they bring different man-machine relations in design performance [4]. Firstly, it enhances auxiliary tools, as exemplified in the development of a set of neural networks by Google Brain to improve the details of low-resolution images. Through algorithms, it conveniently improves photo definition. Secondly, independent producers can design their own visual products. For example, AI uses its "intelligent matching" to carry out tasks, such as typesetting, logo design, web page design, and so on.

Artificial intelligence appears as a "producer," rather than just having the attribute of a tool. It has transitioned from a "tool" to "production subject" and has become a new "subject" as the producer of cultural intelligence other than human beings. It can produce both, material and spirit, thus completely changing the original production relationship [5].

3. A turn in teaching of art and design

Under the global background of the internet, new information media, and experience economy, paying attention to the multi-dimensional connection and integration of technology and art, tradition and modernity, as well as information and interaction, emphasizing the characteristics of cross-border integration in multidisciplinary field, and cultivating international vision and innovation consciousness, solid professional theoretical foundation and practical skills, high humanistic quality, advanced design concept, strong design practice and design planning, as well as senior compound design talents with design management and design research capabilities are issues that need to be considered in the cultivation of Art and Design majors [6].

In response to the first issue, how should we first pay attention to how the Art and Design specialty generates material and spiritual production? The designer generates the design concept and forms a visual scheme through production tools. There are two critical points in teaching.

(1) How to generate concepts?

(2) How to realize scheme visualization through tools?

This is a model born under the traditional model. Looking at the changes of art and design in the era of artificial intelligence, mechanical intelligence can generate concepts by itself and can complete visual material production at the same time [7]. The dual relationship between a single producer and production tool no longer exists. The works produced by artificial intelligence break the original production mode because they mechanically create the material and concept of visual products. Production tools have become producers. Simultaneously, with AI, there is more efficient and stable continuous production. The strain from this might make designers feel as though they are in a crisis. CCTV produced a variety show that discusses whether designers will be replaced. An important segment of the program involves asking guests to guess which visual products are produced by artificial intelligence and which are designed by designers. The outcome validates the excellent performance of artificial intelligence. For instance, Luban, an artificial intelligence product designed by Ali, was born towards the end of 2015. Relying on Dharma Institute's machine intelligence technology, Ali "trained" Luban, the design brain, by learning a large amount of human data. As long as users input their needs, Luban can generate visual images that meet user needs and professional standards through large-scale calculations, including planning and action. During Tmall's Double 11 in 2016, Luban produced 170 million banner advertisements, which is equivalent to the workload of 100 designers for 300 consecutive years. During "Double 11" in 2017, Luban's speed was upgraded, with an average of 8,000 posters per second and a total of 410 million, marking a significant

improvement not only in terms of quantity, but also quality. The AI technology is also used in poster design, painting design, interface design, and other creative design fields by Jingdong Linglong Design, Google AutoDraw, ARKIE, and other platforms.

It can be seen that the era of artificial intelligence is inevitable. All walks of life will be affected and changed by it. The relationship between man and machine has become more complex and multidimensional. In evaluating the change of teaching objectives and contents, the important links of this change should be analyzed.

One of the most critical changes in the era of artificial intelligence is that the technical barriers between specialties have been broken, and the innovation of production tools has continuously reduced the technical threshold of various specialties [8]. The original professional boundaries have become more blurred. This is reflected in two aspects: (1) professional basic knowledge barrier; (2) visual scheme production tool barrier.

In a nutshell, for the professional subdivision of environmental design, product design, and visual communication design, the original technical barriers caused by professional knowledge have been weakened by artificial intelligence technology. Normative knowledge, such as the basic knowledge and technical specifications of environmental design, including fire protection specifications and material construction specifications, do not need to be comprehensively mastered by designers in the future. Mechanical intelligence will help designers to make decisions and judge whether the design conforms to the specifications [9].

Another important aspect of technical barriers is the use of production tools. Artificial intelligence will continue to ease scheme visualization in the future. Tailor Brands, for instance, allows users to personalize their purchases online. Users simply need to provide the trademark's name and industry, and then go through multiple rounds of style screening to generate a series of logo design samples with different styles. Designers merely need to apply their professional expertise to determine what is more appropriate for the design needs, in order to improve the design efficiency. Artificial intelligence technology simplifies and accelerates scheme visualization and thus affects the teaching content. Realizing scheme visualization via tools will reduce and weaken. Artificial intelligence has the potential to help mankind realize scheme visualization together and faster. This evolutionary path will result in the original segmented design specialty becoming a general major of Art and Design, as well as an expansion in the teaching content of design thinking and aesthetic judgement [10]. At the same time, using software to realize scheme visualization is no longer the threshold for non-professionals to enter the industry. As a result, this will create ambiguity between professional and non-professional academic education.

4. Conclusion

In the comparison of production between human and mechanical intelligent producers, when facing complex design problems, designers can reflect their identities as efficient producers. A designer with creativity, originality, and aesthetic judgment will be the training goal. The focus of education and training in art and design will be on how to generate concepts and develop aesthetic judgement. As a consequence, the demand for low-end design and construction talents will not be reduced, but the demand for creative talents with high-end scheme decision-making will heighten. Low-end design, such as simple typography, will eventually be replaced by artificial intelligence. The relationship between artificial intelligence and design shows diversified forms; hence, new design paradigms are emerging. Under the background of artificial intelligence empowerment, design is gradually moving towards a new era of artificial intelligence.

Disclosure statement

The author declares no conflict of interest.

References

[1] Crevier D, 1993, AI: The Tumultuous History of the Search for Artificial Intelligence, Basicbooks, Inc., New York, USA.

[2] Vinge V, 1993, The Coming Technological Singularity: How to Survive in the Post-human Era, Originally in Vision-21: Interdisciplinary Science and Engineering in the Era of Cyberspace, NASA Publication, Washington D.C.

[3] Wang L, Sun H, 2020, Artistic Design and Creative Thinking under the Challenge of Artificial Intelligence. Art Work, 2020(6): 86–88.

[4] Wei H, 2020, Analysis of the Influence of Artificial Intelligence on Contemporary Art Designers. Beauty and the Times, 2020(12): 26–28.

[5] Wang D, 2021, Research on Art and Design Based on the Era of Artificial Intelligence. Art Research: Art Journal of Harbin Normal University, 2021(4): 77–79.

[6] Xu Y, 2020, Research on Innovative Training of Design Art Talents in the Era of Artificial Intelligence. Higher Vocational Education: Journal of Tianjin Vocational University, 2020(6): 29–33.

[7] Chu F, 2019, Research on art Education in the Era of Artificial Intelligence: A Case Study of Cultural and Creative Product Design Courses. Art Tasting, 2019(8x): 361–362.

[8] Huang W, 2021, Influence of Artificial Intelligence on training Mode of Art Design Talents in Higher Vocational Colleges. Popular Literature and Art, 2021(12): 178–179.

[9] Chen W, 2021, Research on the Application of Artificial Intelligence in Art Design. Tomorrow Fashion, 2021(01): 111–112.

[10] Li X, 2020, Analysis of the Application of Artificial Intelligence in Art and Design. Grand View of Art, 2020(26): 71–72.