

Research Status and Trend Analysis of Chinese Art Design Based Education Based on Bibliometrics

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Keywords: Art Design Based Education; Status Quo and Trend; Bibliometrics

Abstract: This paper conducts a quantitative analysis on 405 SCI, EI, CSSCI and CSCD journals on art and design education published on CNKI from 2010 to 2019. The current research status of art and design education in China is analyzed from the research hotspots, methods and topics so as to obtain the future trend in research. The results show that the current research on art design education in China seldom involves the analysis on research hotspots in literature analysis. Secondly, the research method is mainly non-empirical research method, which lacks the support of field investigation and relevant data. Finally, the research focuses on talent training mode or measures in teaching reform, and lacks innovative and breakthrough research.

Introduction

In recent years, with the advancement of supply side structural reform in our country, "Internet +", "tailor-made economy", "4.0 industry", "smart manufacturing" and a series of reform measures show that art and design occupies an increasingly important position with great influence in the economic transformation and upgrading of our country, and market makes up a huge demand for talents in art design. Increasing the supply of art and design talents and improving the quality of design talents have become an urgent problem for scholars in related fields to study and solve. Art and design education, as a fusion design and pedagogy, is a comprehensive discipline, the further research of scholars of art design education can more profoundly reveal the essence of art and design, maximizing the art design education function, promote the cultivation of the excellent talents, so as to promote the development of art and design industry in a better and faster manner. Therefore, there are many scholars in art and design education who have carried out academic research, the research is generally presented in the form of research papers published through the analysis of the research content of the paper to summarize the development of art design education, and forecast development trend, sum up the existing problems in the field of art design education, so as to put up with credible and feasible suggestions on the research direction and focus. Core journals, as the relevant authority in the field of literature, are endowed with pertinence in research, and timeliness in research content and depth in research level, and the problem analysis and conduction deduction are characterized with more logical process, as a result, research results enjoy higher credibility and authority, which can play a better guidance in art design education. At present, domestic scholars' research on art design education literature has not fully revealed the development law of research hot spots. Most of the research methods are non-empirical research methods, and the quantitative analysis of research methods needs to be further strengthened. Most of the research topics are "talent training mode" and "teaching reform measures", so it is necessary to carry out a more comprehensive and in-depth research in the field of art and design education.

Bibliometrics is a discipline based on the theories of logic, mathematics and statistics with analysis on the core content, logical structure, argumentation methods and other factors of document collection with relevant methods. Based on the literature metrology, the paper conducts research on the 405 papers published on CNKI from 2010 to 2019 from the perspective of research hotspots, research methods and research topics and summarizes the status quo of Chinese art design education and research characteristics, in order to draw the development trend of art design education in China to provide the reference for the further study of the proposal.

1. Paper Selection

In this paper, the categories of sources collected on the information network are "SCI source journals, EI source journals, CSSCI, CSCD", the "topic" is "art design", and 405 literatures containing "education" are taken as the analysis object. The number of papers published in each year is shown in Figure 1. It can be seen that the number of literature in 2010 was the highest in the decade, reflecting that the Outline of the National Medium - and Long-Term Educational Reform and Development Program issued by the Ministry of Education in 2010 and the World Expo held in 2010 indirectly promoted the attention and research on art and design education in China. The sharp drop in the number of literatures published in 2018 reflects that the research on art and design education is related to the economic situation to a certain extent. In 2018, the trade war between China and the United States caused a huge impact on China's manufacturing industry, and the research on art and design education cannot completely avoid the negative impact brought by the trade war. The number of literature published in other years fluctuated within the range of 30 to 50, showing a stable trend in general.

Table 1. Statistics of the number of published literatures on domestic art and design education

Table 1: Statistics of domestic research papers on art and design education by year										
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number	66	45	41	31	43	46	43	37	14	39

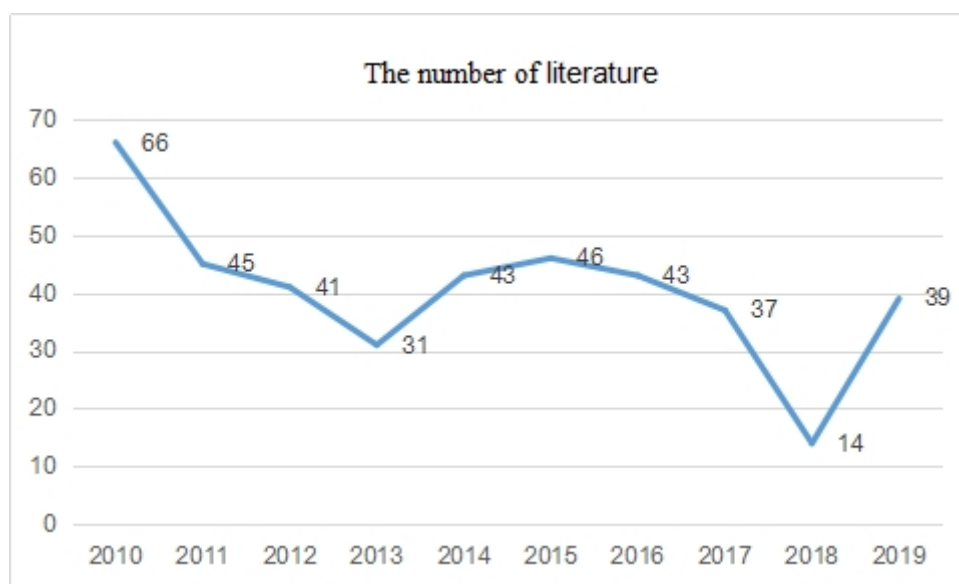


Figure 1. The trend chart of literatures published from 2010 to 2019

2. Analysis on Research Hotspots

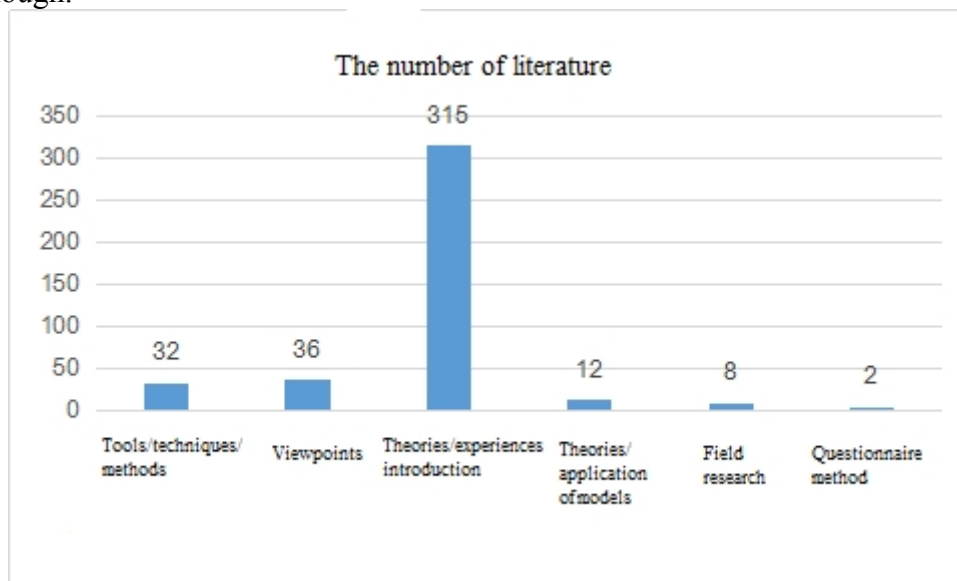
ROST software was used to analyze the word frequency of the keywords in 405 literature, and the distribution of the top 10 keywords with the highest word frequency was obtained as shown in Table 2. As can be seen from Table 2, the research focus of art and design education is mainly on the study of education mode. Most of the literature involve the cultivation of innovative talents, among which "studio system" has appeared many times, indicating that this mode has been widely recognized. Secondly, the research on the relationship between traditional national culture and art design education is also a research hotspot. Finally, the research literature on information technology mainly focuses on the period from 2014 to 2019, indicating that information technology has gradually become a hot spot in the research on art and design education.

Table 2. Table of keyword frequency distribution in literature

Keywords	Word Frequency
Arts	52
Education	52
Culture	20
Creativity	15
Innovation	12
Information technology	8
Tradition	6
Pattern	6
Studio system	6
Nationality	4

3. Analysis on Research Methods

The research methods of 405 literature collected in this paper can be divided into questionnaire method, field research method, introduction of tools/techniques/methods, viewpoints, theories/experiences introduction, and theories/application of models. Questionnaire method and field research method are classified as empirical research method, and the rest are non-empirical research method. The distribution of each research method is shown in Figure 2. As can be seen from Figure 2, most of the analyzed literature adopted non-empirical research methods such as theory/experience introduction. This shows that domestic scholars lack empirical research and analysis on art design education, and most research conclusions lack data support and are not convincing enough.

**Figure 2.** Distribution map of literature research methods

4. Research Topic Analysis

This paper divided the research topics of the literature by inductive analysis of the selected 405 articles as: the construction of teaching material, teaching methods, teaching technique, teaching content, the education idea, education mode, the discipline development, problems and deficiency. It can be seen from Figure 2 that literature and research topics with the most quantity are respectively: education mode (293), the teaching content (40), teaching method (28), the concept of education (15), teaching technique (10), development history of discipline (8), construction of teaching material (7), teaching status (4).

As for the research of education mode, the relevant literature mainly discusses the training mode

of innovative talents. In 1998 the then Yuan Qingzhou, a deputy minister of the Ministry of Education, put forward in the first teaching in regular institutions of higher learning in China for the first time that personnel training mode was based on the modern education theory, according to the advanced teaching thought, the high standard of talent training objective and specification with the use of the steady course system, teaching content, management and evaluation system to carry out a series of process for talent education career and mode. Wang Bi and Li Jinling [1] discussed the development direction and operation mode of metal studios in multiple contexts, and proposed the teaching mode of "interaction, linkage and initiative". Chen Jiang [2] analyzed the characteristics of the teaching mode of subject system and studio system, and organically combined the two teaching modes and applied them into practical teaching.

Teaching content refers to the materials and information transmitted by students in the process of learning and the interaction between teachers and professors, which serve the achievement of the teaching purpose. It mainly includes the knowledge and skills taught by teachers to students, the ideas and viewpoints instilled, the habits and behaviors cultivated, etc. Ma Changyong [3] reorganized the discipline basic courses and professional core courses in the Application of Practical Courses in Art Design Curriculum System -- Taking the Direction in Environmental Art as an Example, and based on this, to formulate the practice topics adapted to the unit courses. Qiu Haidong [4] et al respectively studied the inheritance and development of Hainan's traditional handicraft Li brocade, traditional festival culture, Bashu regional culture, clean culture and local folk art resources in art design education.

The teaching method consists of four parts: teaching method, concrete method, guiding ideology and basic method, including two aspects: teaching method and student's learning method. It is an organic combination of teaching method and learning method. Yan Fei [5], based on classroom practice teaching experience, proposed humanistic teaching reform measures -- "situational teaching method" and "interactive teaching method". Ye Shuanggui and Wang Junping [6] put forward the teaching methodology of "large mastery" based on their teaching experience.

Educational concept is the rational concept and subjective cognition of "what education should be" summarized and formed by the main body of education in the teaching practice, which includes the mission, purpose, ideal, goal, principle and requirement of education. After visiting three art and design colleges in the United States, Cao Shengsheng [7] proposed that the basic concept of "serving teaching, teachers and students" in American art and design education should be taken as the reference. Shi Shuo [8] proposed that the concept of leisure education should be introduced into the discipline of art design in colleges and universities, the mode of learning as teaching should be established with the concept of leisure, the limitation of design discipline should be broken through with the content of leisure, and art design should be taken as the approach of leisure education.

Teaching technique is the step based method in designing, implementing and evaluating the whole teaching process to achieve the established teaching objectives. Under the guidance of learning and communication theory, it integrates various resources to promote the teaching work to be carried out more effectively. Advanced teaching technology can effectively improve the teaching method, simplify the textbook system, expand the teaching content, shorten the learning time and improve the teaching quality. Qiu Xiaohong [9] discussed the application of modern digital technology in art design education; Li Shi [10] studied the effects of building information model and virtual reality technology on environmental art design education.

The research on the development history of the discipline introduces the development process of China's art design education. For example, Yang Xianyi [11] introduced the evolution and development of China's design discipline since the reform and opening up, and Yuan Yuan [12] introduced the source of practical teaching of visual communication design major.

The research on teaching materials construction mainly analyzes the problems in the construction of art design teaching materials and the solutions. He Zhiming [13] sorted out the editing work of art design textbooks and put forward unique innovative ideas for the publication of textbooks.

This paper mainly analyzes the present problems in the teaching of art design major, such as the

excessive expansion of enrollment and the low professional quality of teachers. In addition, it also analyzes the reasons for the lack of creativity in art design education, such as the lack of individual professional knowledge, the imperfect knowledge system and the lack of market incentive.

Through the study of the eight topics of literature mentioned above, it can be seen that at present, our country gives more priority on education mode in terms of research on art design education, but the direction of the research have been rendered saturation state, most of the education mode put forwarded in the literature on cultivating innovative talents, such as studio system teaching mode, the mode of university-industry cooperation, etc., failed to get breakthrough research. In addition, there are few research literature on teaching content, teaching technology and teaching material construction, which to some extent reflects the lack of practical verification in the current research on art design education and the failure to broaden the research horizon in combination with teaching practice. At the same time, with the rapid development of information technology, the research on teaching technique obviously lags behind the teaching practice.

5. Conclusion

In this paper, 405 papers collected by CNKI are studied and analyzed from the perspectives of research hotspots, research methods and research topics by using bibliometrics method. The research shows that the current research hotspots in the field of art and design education in China are mainly on the cultivation of innovative talents and the integrated development of traditional national culture and art and design education. In recent years, information technology plays an increasingly important role in the reform of teaching technology, and is also becoming a research hot spot. The research methods are mainly non-empirical research methods, most of which are theories or other people's experience introduction, lacking the support of field investigation and relevant data, and the research is not convincing enough. The research theme is still based on education model research, which needs to be further expanded.

Acknowledgements

Fund Project: Special thanks for the support of the research achievement of "Research Status and Trend Analysis of Art Design Education in China Based on the Bibliometrics Perspective" (Project No. : 605021806031) of 2017 Guangdong Provincial Innovative Talents Project (Humanities and Social Sciences) for the support of this paper

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