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Design Methods of the Creative Products Design

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Abstract
In certain practices, the creative products are based on the local culture identities, designed with creative thinking, and exported by the creative industries media platform. In recent years in China, the development of creative products shown an explosive trend of the processes or methods of production. In response, researchers have paid close attention to the creative product design methods and evolved with the industry's rapid expansion. This paper aims to clarify the development context of Chinese creative product design and classify the existing design methods of creative products. The results offer a quick glimpse in tracing for researchers in the cultural and creative design research processes in determining directions of investigations.

Keywords: design, creative products, method.

1.0 Introduction

In the present era, creative products are believed plays significant role to help in promoting and disseminating of the local cultures. By combining local culture elements with creative products, consumers acquire identity and emotional connection while meeting functional requirements. The design of creative products has attracted scholars' and researchers' attention and interest on the significant development on how to gain attraction among consumers. Many design theories and practical on creative products have been developed by employing elements of narrative design, emotional design, and experience design and few more to mention. This is a part of the process in providing the solutions or methods for productions of creative products. This paper therefore, focuses to examine the methods of creating creative products by reviewing several literatures of journals by using Knowledge China National Knowledge Infrastructure (CNKI) data based. Bibliometrics and content analysis that represents the frontier of Chinese creative product design are the main research methods used in this paper.

2.0 Development Stages of the Cultural and Creative Product Design Method in China

The interest among scholars in the products design development has tremendously and drastically increased in China. The Figure 1 shows that the number of high-quality journals publications in Chinese Social Sciences Citation Index (CSSCI) and core journal publications which focused on the Cultural and Creative Product Design were substantial growth was distributed from 2017 to 2019.

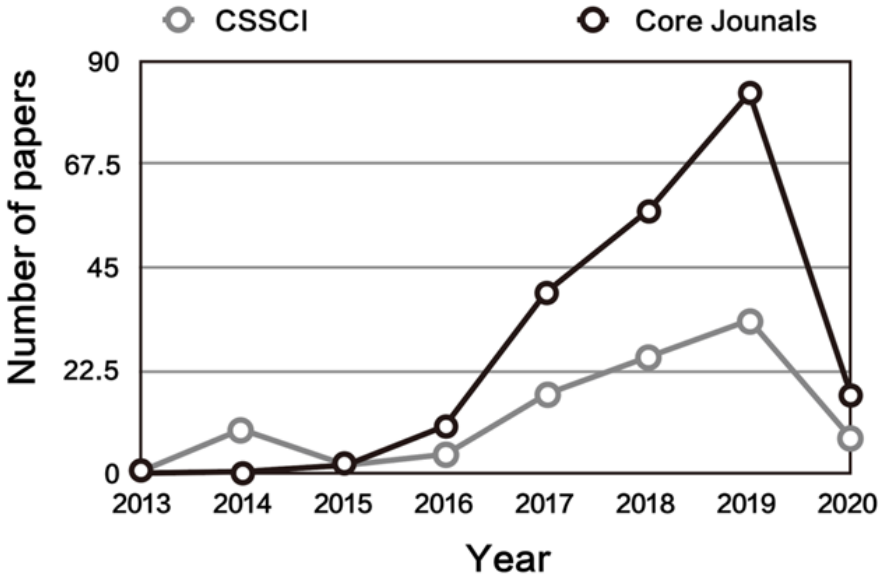

Fig. 1: Number of papers published in journals from 2013 to 2020.

Note. From "Research Characteristics and Trends of Cultural and Creative Product Design Based on Bibliometrics," by Guo Wei, Hao Rui-nan, 2022, *Packaging Engineering. 43*(14),326-334. http://doi:10.19554/j.cnki.1001-3563.2022.14.040.

Meanwhile, based on literature analysis on the process of implementation of national policies, the study on creative products design can be divided into three development stages as stated in Figure 2.

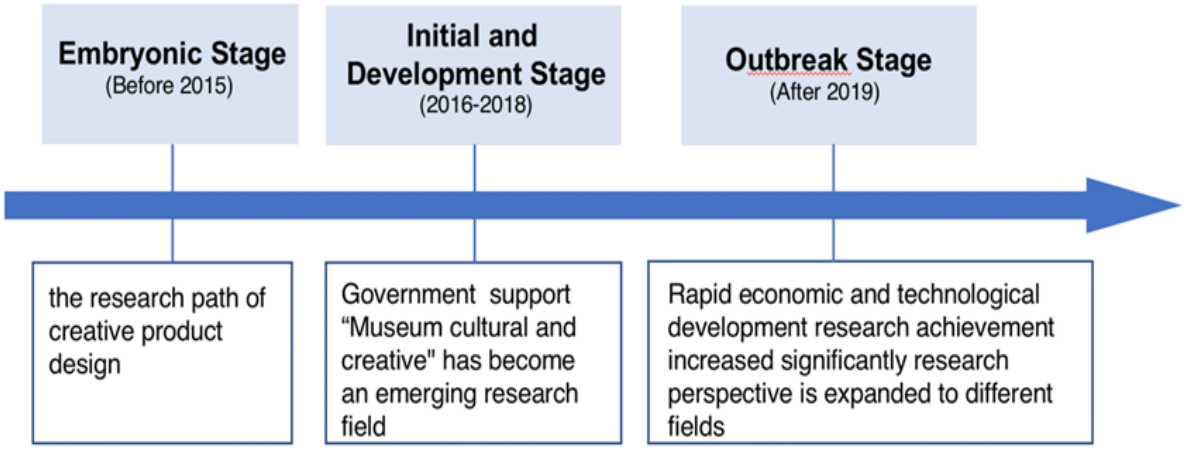

Fig. 2: Stages of The Cultural and Creative Product Design Method in China.

Note. From "Literature review of cultural and creative product design method research in China," by Cheng Hui, 2021, *Packaging Engineering.* https://kns.cnki.net/kcms/detail/50.1094.tb.20210428.1824.018.html

The first is the Embryonic Stages which was established before 2015. The primary focus is on the path of creative product design including the historical background, process technology, modeling characteristics, and cultural connotations of historical cultural relics. This is the foundation for realizing the creative transformation of Chinese traditional culture. The methods used in the research and the accumulated results have laid a foundation for the design of creative products. (Cheng Hui, 2021). The second stage is the Initial and Development Period (2016-2018). During this where the number of articles published increases significantly, research perspectives tend to be diversified, and keywords are formed. It is a critical period for research achievements, which laid a research foundation for subsequent academic development. In 2016, The State Council forwarded the notice 'Several Opinions on Promoting the Development of Cultural and Creative Products in Cultural and cultural relic Units'. This is to encourage cultural relic institutions to actively develop creative products. Subsequently, the research was increasingly enriched. Overall, the number of articles published in this stage showed a steady growth trend. Libraries and museums were mainly used as important landmarks to excavate cultural elements, and creative design thinking was emphasized. In 2017, the 'Cultural and Creative Product Design' was formed. The research on creative product design mainly focused on the perspectives of 'library' (Guo Hao, 2021)**.** 'Museum cultural and creative' has become an emerging research field. It relates to creative design, packaging design, as well as the roles of

creative scientific output in promoting industrial development. (Guo Hao, 2021)**.** The third stage is the Outbreak Stage which is said happened in 2019 the total number of articles published increased significantly to 83 articles (Cheng Hui, 2021)**.** Culture releases more energy for design and research of creative products under long-term plans. Research perspectives have also been expanded to include intangible cultural heritage, 3D printing, archival cultural and creative products, ceramics, industrial chain, etc. after 2019. Future research on creative product design is expected to grow drastically based on the current situation and future development. **(**Guo Hao, 2021**).**

3.0 Local cultural design element transformation

Lebrón (2013) stated that "Culture refers to society and its way of life. It is defined as a set of values and beliefs, or a cluster of learned behaviors that we share with others in a particular society, giving us a sense of belongingness and identity." (2013, p. 126). Meanwhile Bodley (1999) further emphasizes that three basics components of culture are "what people think, what they do, and the material products they produce" (Bodley cited in Lebrón 2013, p. 126). Its therefore, culture is very significant for all things we do in our daily lives. Consequently, it relates directly toward the development of product design. In design, local cultural characteristics are not just inevitable trends, but hot topics for innovation based on tradition. Based on the research content, there are three directions for research on the transformation of local cultural design elements: traditional handicrafts, gene banks, and extraction and translation of local cultural symbols (Wu Ke, 2020).

Traditional handicrafts research is the keystone of local creative product design and is concentrated in the early stage of creative product design. The research is mainly based on the analysis of the historical background, technology, aesthetics, shape characteristics, and cultural implications. Based on the study of the decorative art of Dunhuang Mogao Grottoes, Zhang (1979) summarized its composition rules using the theory of patterns. Meanwhile Li Yanzu (1986) revealed the development history of Chinese traditional arts and crafts and its internal relationship with social and cultural development based on the theory of arts and crafts in the Spring and Autumn period and the Warring States Period. Wu Shiyan (2019) analyzes the development history and current situation of Fuzhou Detaitai lacquerware, as well as its craftsmanship characteristics, and proposes the development path for cultural and creative products of Fuzhou Detaitai lacquerware. Wang Yali and Yuan Enpei et al. (2017) based on the design concept and religious beliefs of the Tang Dynasty, analyzed the composition and the implication of the pattern of the deity animal button bronze mirror and then summarized the design characteristics of the deity animal button. Above these achievements laid a solid foundation to realize 'Transforming the achievements of traditional culture creatively'.

Design cannot directly benefit from data collected through research on traditional handicrafts. It should be derived from a process of designing creative products known as the 'cultural gene bank' where it can facilitate and assist the designers to come up with rationale ideas. Cultural relics and handicrafts were used as the source for most early gene banks **(**Zhu Shangshang & Luo Shijian, 2013). With the development of computer technology, building a cultural gene bank has become increasingly intelligent, and there have been studies on the extraction of cultural elements with computers, such as 'cultural computing'. This concept was put forward by researcher Naoko Tosa who specialized in Art and Technology at Kyoto University. This cultural computing can be referred as digital technology is used to explore the law of cultural development, explain its internal relationships, and simultaneously display its visual analysis. **(Zhao, 2016).**

Extracting and translating local cultural symbols is also important in addition to the above two fields. Ge Chang (2018) argued that developing creative product brands can enhance a region's value. Product design plays a significant role in building local brands. Culture can be represented in image design and applied to products to foster memory. Additionally, designers have developed many effective methods for extracting and translating cultural symbols.

4.0 User Research of Creative Product Design

A product design principle of the early 20th century was 'form follows function' (Sullivan,1896). It states that an object's shape should primarily reflect its purpose. After the 20th century, product design focuses on function and pays more attention to cultural connotations. Products that evoke positive and memorable experiences are more popular (Norman, 2005). Hence, user research on creative products is important, including user requirement research and user experience research.

Norman furthermore (2005) developed the concept of user-centered design, which aims to design products to meet consumers' emotional needs, respecting their psychological feelings. Most objects are perceived on three levels: visceral, behavioral, and reflective. The visceral level of perception includes 'distinguishing objects and forming our true first impressions'. The behavioral levels are experienced during the use of designs. It builds upon the output from the visceral level and focuses on issues such as readability and usability. The reflective level refers to the higher levels of emotion and cognition. Design in this area is usually focused on analytical and cognitive skills. It represents an effort to make a design better by integrating the experience of users and their knowledge of goals and objectives of the product or service.

5.0 The Application of Digital Technology

With the advancement of technology today, the development of products from the beginning until the finish products have been easier and faster. It shifted from traditional methods to digital technology enhancement where it brings too many benefits to human daily lives. Its advantages can be applied to every aspect of process industries from pre-production to post-production, marketing, promotion, and to many other business activities including business chain. As Figure3 shows, aligned with the Industrial Revolution 4.0 things such as Big Data, Autonomous Robot, Cloud Computing, Cybersecurity and many more to mentions are parts of products development. The tools, such as Augmented and Virtual Reality (VR), Artificial Intelligence (AI), Solid Works, Fusion 360, On shape, Adobe Creative Clouds, CATIA, Autodesk are involved in the creative products design processes.

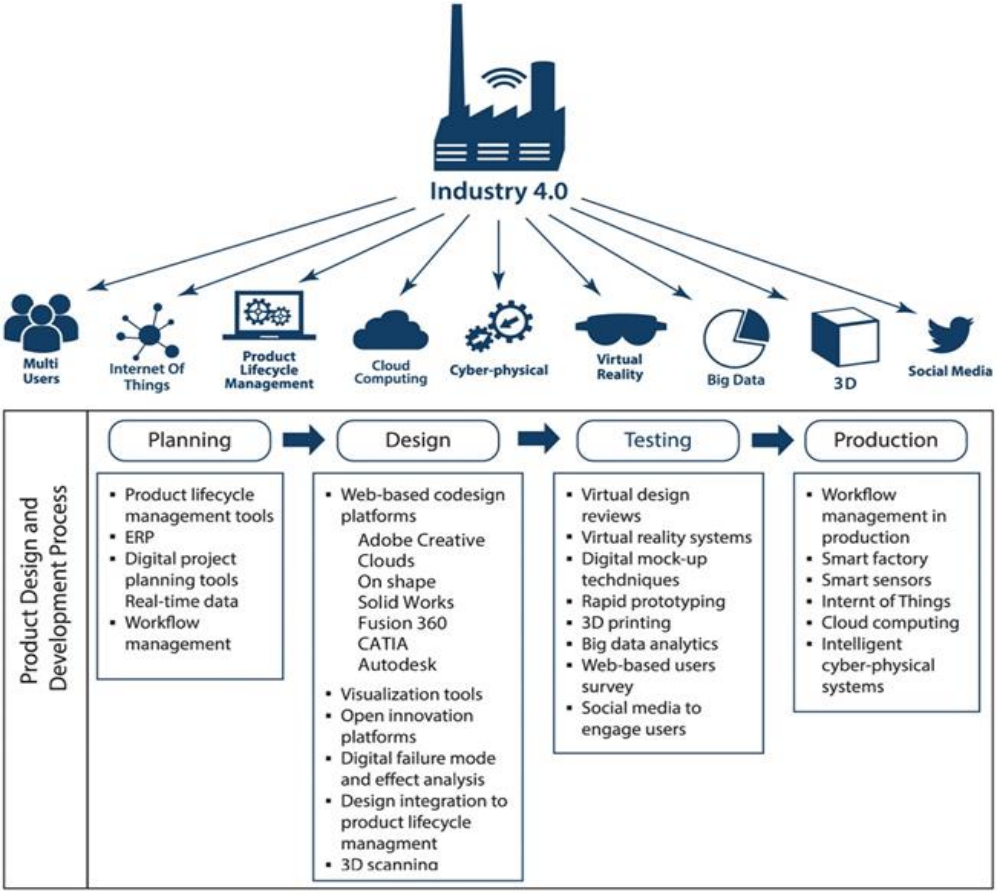

Fig. 3: Applications of Industry 4.0 Technologies in the Product Design and Development Process

Note. From "A smart performance measurement approach for collaborative design in Industry 4.0", by Yuanyuan Yin and Shengfeng Qin, 2019, *Advances in Mechanical Engineering*, 11(1). https://doi.org/10.1177/16878140188225

6.0 Conclusion

The development of creative product design in China or elsewhere are believed have the same progress or situation. It is normally started with the very traditional methods of production where all the processes were executed manually. It is most probably starting by the use the refinement and reproduction of local cultural symbols originally which later shifted to the psychological and emotional experience of consumers, and even to their behavior. It is significant to note that the development of creative products is not only the transmission carrier of local culture but are an effective lever to enhance local soft power and leverage the economy. It is important for creative product design to pay attention to the social impact it will have. This includes spreading and shaping local culture to the greatest extent possible and promoting diversity and sustainable development. With the advancement of digital technology today, the process of production from the beginning until the end is mech easier, faster dan cheaper.

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