International Journal of Innovative Research and Scientific Studies, 8(3) 2025, pages: 1346-1361

IJIRSS
International Journal of Innovative Research & Scientific Studies

ISSN: 2617-6548

URL: www.ijirss.com

Culture, art, technology, and perception: A creative generation model for museum cultural and creative product design

Daocai Han[1,2], Siow-Kian Tan[1,3], Booi-Chen Tan[1*]

[1]*Faculty of Management, Multimedia University, Cyberjaya, Malaysia.*
[2]*Shandong Institute of Commerce and Technology, Jinan, China.*
[3]*School of Economics and Management, Xiamen University Malaysia, Sepang, Malaysia.*

Corresponding author: Booi-Chen Tan (*Email: bctan@mmu.edu.my*)

Abstract

This study is dedicated to an in-depth exploration of the key elements and internal mechanisms of the creative generation of museum cultural and creative products (MCCPs). Given the fragmented state of previous studies and the lack of a unified framework, this study aims to gain a deeper understanding of the creative process of MCCP design. An exploratory qualitative research method was chosen, with grounded theory as the basic method. From January to May 2024, data was collected from multiple sources. These included interviews with designers, craftsmen, museum staff, and consumers, as well as materials from online newspapers, websites, videos, and exhibitions. Theoretical sampling was adopted. Data collection and analysis were conducted simultaneously until data saturation was reached. To ensure the validity of the study, various triangulation methods were used. This study developed a "Culture-Art-Technology-Perception" model. Cultural heritage, including collection culture, regional culture, and traditional culture, is the basis of creativity. Artistic inspiration from different art forms provides a unique creative perspective. Technological innovation uses new materials and new technologies as carriers to broaden the form of creativity, while consumers' perceptions such as aesthetics, cultural identity, and functional needs guide and modify the creative process. This model expands the research scope of MCCP design creativity generation, clarifies the interaction between various elements, fills the gap in existing research, and provides practical guidance for the design and development of MCCP. Museums and industry practitioners can use this model to explore cultural heritage, integrate new technologies, take into account consumer needs, and promote the sustainable development of the museum cultural and creative industry.

Keywords: Artistic inspiration, consumer perception, creative generation model, cultural elements, grounded theory, museum cultural and creative products, technological innovation.

DOI: 10.53894/ijirss.v8i3.6800
Funding: This study received no specific financial support. The APC was funded by MMU.
History: Received: 21 March 2025 / **Revised:** 22 April 2025 / **Accepted:** 28 April 2025 / **Published:** 7 May 2025

Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

Transparency: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.
Publisher: Innovative Research Publishing

1. Introduction

Cultural and creative products (CCPs), as carriers of cultural and creative integration, play a crucial role in contemporary society. With global economic development and improving living standards, consumer demand for cultural products has become increasingly diverse, leading to a flourishing market for CCPs [1]. These products not only meet people's material needs but also convey profound cultural values and enhance cultural identity [2]. As a significant category of CCPs, MCCPs integrate museum artifacts with modern design concepts, injecting new vitality into the inheritance and development of traditional culture [3].

MCCPs have made great progress in research and application in the field worldwide. A lot of museums have realized that CCPs are both a need in terms of cultural dissemination and an increase in economic revenue. Thus, numerous types of creative products emerge in the market as various museums ramp up their development efforts. For example, the Palace Museum of China has introduced innovative products like the Forbidden City Lipstick and Forbidden City Calendar, which have not only increased its brand influence but also sustained the growth of sales revenue [4]. Likewise, the British Museum (UK) and the Metropolitan Museum of Art (US) have garnered large consumer attention due to their rich variety of CCPs [5]. However, these advances still have to face several barriers, such as a lack of product creativity [6-8]. Previous studies indicate that the creativity of MCCP design can be improved by methods like the combination of traditional and modern cultural elements [9], infusing regional cultural characteristics [10], and applying digital art elements [11, 12]. However, the interrelations among these strategies have been obscure, and so have been the proposals of systematic frameworks to synthesize and account for them [13].

MCCP design often incorporates cultural elements such as historical symbols, traditional craftsmanship, and literary and artistic works. However, the application of these elements is often fragmented and lacks a systematic structure. A key issue to address is how to better integrate cultural elements into product design to enhance the cultural significance and appeal of these products [14].

Consumer demand is a critical factor in MCCP design, as consumer expectations regarding product functionality, aesthetics, and cultural significance directly influence creative generation. However, how consumer expectations affect creative generation has not been clearly explained [14].

In summary, although previous studies have explored the creative generation of MCCPs from different perspectives, the research remains fragmented, lacking a unified model, and the dimensions of various influencing factors are not sufficiently comprehensive. This study aims to explore the key components and internal mechanisms of creative generation in MCCP design. Specifically, it seeks to address the following questions: What are the key factors influencing creative generation in MCCP design? How do these factors interact to influence creative generation? What specific dimensions do these factors encompass?

2. Literature Review

2.1. Development of MCCPs and Lack of Creativity

The pace of MCCP is rapidly growing in the development field since 2015 [15]. Among them, the Palace Museum in Beijing stands out and develops lots of CCPs, which achieved an annual turnover of more than 1.5 billion RMB in 2017 [16]. The US Metropolitan Museum also achieved great results, which can even earn tens of millions of dollars a year from CCPs and can attract millions of visitors to its gift shop every year [17]. In recent years, museums all over the world have paid great attention to the development of CCPs, which is not only conducive to the dissemination of culture but also becomes an important part of the economic growth point of museums [18].

Nonetheless, the industry also faces some challenges regarding creativity in product design. Although the product variety is extensive, there is a significantly lack of uniqueness and innovation in most MCCPs [7]. Some MCCPs do not cover the diverse consumption needs of consumers. Their products are mainly souvenirs, stationery, and decorative products. Deficient exploration of cultural connotations is another reason for the deprivation of creativity. Most MCCPs are copy-and-paste cultural items that do not reflect the actual meaning of the culture onto the product itself; therefore, they do not have any deep meaning and soul [19].

2.2. Enhancing Creativity in MCCP Design

A very important way to improve the creativity of MCCPs is to combine traditional cultures with modern cultures. Integrating traditional cultural elements like dragons, phoenixes, and peonies with modern designs develops products with distinctive cultural connotations and aesthetic value [9]. The ideas of Western modern design styles and technologies minimalism and future aesthetics, for example could make products more attractive to modern consumers. The introduction of regional culture into design can also give birth to rich creative possibilities. Designing products should have an indelible sense of place and cultural identity [10]. Exploring local history, folklore, and natural landscapes in depth will help in achieving this.

In fact, the use of digital art elements has broadened the design possibilities of MCCP. Digital technologies, like 3D modeling, virtual reality, and augmented reality, can generate more colorful and realistic product images to attract consumers

and allow an impressive user experience [11, 12]. Interdisciplinary design assists in developing product design by fusing information and technologies of varied disciplines [20].

The essence of design is to focus on user needs and feelings or emotions. Insights from market research and user interviews give designers an insight into consumer preferences, pain points, and expectations, allowing them to create products that users can relate to emotionally [21]. Another strategy to boost creativity is creating unique user experiences. By creating unique product forms, functions, and interaction features, they can provide new and interesting experiences to attract consumers [22]. Understanding cultural relevance the cultural meanings or connotations attached to products and their delivery through design can increase users' cultural awareness and understanding [23].

In summary, prior literature suggests a range of strategies for increasing creativity in the design of MCCPs. No systematic framework exists to decompose creative enhancement, nor to explore how different strategies interact with each other for innovativeness.

2.3. Cultural Elements Applied in MCCP Design

Many MCCPs contain historical and cultural symbols to express profound cultural connotations. Traditional elements like dragons, phoenixes, and peonies are frequently incorporated into Chinese museum product design [9]. These symbols have not only artistic and aesthetic value but also rich historical and cultural connotations, enabling consumers to feel the charm of traditional culture through the use of these products.

MCCP design is laden with traditions of craftsmanship. Chinese ceramics, embroidery, and paper-cutting techniques are beautifully integrated into product designs, retaining the spirit of traditional craftsmanship while also adding aesthetic value [24]. For instance, the Palace Museum released ceramics CCPs of traditional ceramic skill, which highlight the remarkable artistry of Chinese cultural heritage.

Literary and artistic works provide a rich source of inspiration for MCCP design. Museums can incorporate elements from classic literature, paintings, and calligraphy into product design, enhancing their cultural sophistication [10]. CCPs themed around Tang and Song poetry, such as stationery and accessories, allow consumers to appreciate the beauty of ancient Chinese literature while using the products.

Museums can also draw from local natural landscapes and integrate them into product designs to highlight regional characteristics. For example, CCPs inspired by the unique peaks and rock formations of Huangshan enable consumers to experience the natural beauty of the region [10].

The use of folk culture elements in MCCPs can increase cultural connotations. CCPs themed based on the Dragon Boat Festival, such as zongzi-shaped artifacts, merge traditional customs with creative design, enabling consumers to experience as well as appreciate folk culture through product interaction [10].

Using local materials in designing products can also help reinforce regional uniqueness. To illustrate, the Sichuan bamboo-based MCCPs embody the local characteristics and cultural heritage of Sichuan province [10].

At present, different kinds of cultural elements are integrated into MCCP design, but they are disconnected, making it difficult to establish a structural system. Consequently, it is hard to provide systematic instructions for new MCCP design. Existing research also does not indicate whether there are other cultural elements that can be utilized.

2.4 The Influence of Consumers on the Creativity of MCCPs

MCCP is driven by consumer demand. Museums can do market research and get consumer feedback to identify exactly what to improve in relation to products that they want to sell and subsequently how to align product positioning with consumer needs. Museums must create products targeted at the various groups of consumers segmented by age, gender, and interests [14].

MCCPs are creatively driven by consumer expectations about how their products should function and be used. Consumers are looking for both beautiful and functional products. In acquiring MCCPs, factors including the gift appropriateness and commemorative significance influence their decision [21].

MCCP design is greatly inspired by consumer feedback. Feedback from customers, including their likes and dislikes, helps designers learn about market trends, consumer psychology, and inspire creative thought. Designers could tailor their product attributes, including color, pattern, and material to meet consumer demands [9]. Furthermore, consumer feedback that occurs over time empowers museums to enhance and iteratively improve on their goods by recognizing absences in design and addressing them [24].

MCCPs have the potential to resonate emotionally with consumers, especially when they reflect the cultural identity of consumers. Compared with global symbols, local cultural symbols (e.g., folklore, local perspective) evoke stronger consumer attachment and purchase intention [9]. Products featuring folk cultural themes like old childhood memories can evoke emotional ties and improve consumer engagement [14].

Then are we looking at MCCPs in the design phase, where consumers and brand owners co-create? Existing research provides a basis that suggests that consumers play a central role in the creative development of MCCPs. Yet, there is no precedent for a comprehensive model connecting the driver of consumer influence to the other dynamic factors affecting museum product design.

3. Research Methodology

This study is an exploratory and qualitative research endeavor aimed at understanding a relatively underexplored phenomenon. Therefore, it adopts the grounded theory approach, which originates from symbolic interactionism, to address the research questions [25]. This methodology employs a systematic set of procedures, integrating data collection and analysis

simultaneously to comprehend the studied phenomenon and establish relevant theories [26]. Grounded theory enables researchers to construct conceptually rigorous theories and uncover relationships between concepts.

A theoretical sampling approach was employed in this study, which is a purposive sampling technique designed to select information-rich and relevant data sources to provide comprehensive empirical material [27]. Data were collected from interviews, online newspapers, websites, videos, and online exhibitions. The data collection period spanned from January to May 2024, a timeframe during which the museum's cultural and creative industries continued to evolve, allowing the study to capture the latest trends and practices.

This study aims to deeply analyze the intrinsic mechanisms behind the generation of creative ideas in MCCP design and to construct a systematic and in-depth theoretical model. To achieve this, the study employs the well-established qualitative research methodology of grounded theory, identifying and engaging with information-rich respondents, including designers, artisans, museum staff, and consumers of CCPs. Verbal informed consent was obtained from all participants in this study. For the interviews, the purpose of the research and its objectives were explained, and participants were assured that their participation was voluntary. Participants were informed that their anonymized responses would be used for academic purposes, including publication in this article. For designers and artisans, questions focused on their creative ideation process, sources of inspiration, methods of integrating different elements, and challenges encountered in the design process, along with their solutions. For museum staff, inquiries explored the characteristics and advantages of museum cultural resources, their roles and contributions in cultural and creative projects, and their guidance on the development direction of CCPs. For consumers, the study examined their motivations for purchasing CCPs, their perceptions of the cultural connotations and creativity of these products, and their expectations for improvements.

Additionally, secondary data were collected from online newspapers, websites, videos, and online exhibitions. Secondary data provides evidence of activities at the time of occurrence. Furthermore, due to the non-intrusive nature of secondary data, it helps reduce social desirability bias and respondents' hesitation when addressing sensitive ethical issues [28]. The use of secondary data also prompts researchers to focus more on the theoretical objectives and substantive issues of the study [29].

Data were collected and analyzed concurrently. For this, the researchers started comparing similarities and differences between different concepts by comparing identified concepts based on various contexts. This process of sampling is parallel with analysis, which reflects the idea of theory sampling, in which the results of previous analysis determine subsequent selection of samples [25, 27, 30, 31]. Data collection and analysis continued until no new concepts were emerging, indicative of data saturation, at which point the sampling process was stopped.

Forty documents were imported into Atlas. ti (Table 1). The diverse nature of creative processes also meant that supplementary documents (e.g., interview transcripts, visit records, videos) were repeatedly reviewed and examined as part of gaining a holistic understanding of the overall landscape for creative idea generation within MCCP design, and probing the interacting mechanisms of influencing factors.

The validity of the study was assured through several types of triangulations [32, 33]. First, triangulation between primary data and secondary data was performed. Second, researcher triangulation was conducted, whereby two researchers from different disciplinary backgrounds read, interpreted, and analyzed the same data independently. Finally, in order to consolidate the theoretical framework of the research, theoretical triangulation was conducted by referring to literature from different subject areas such as design studies, marketing psychology, art studies, and management.

Table 1.
Document types.

Document Type	Document's Label	Description/Topic of the Document/Respondent's profile
ON=Online Newspaper		
ON1	D1	These popular museum cultural creations can be eaten, worn, used and played with
ON2	D2	"Green Horse" and gifts for the Year of the Rabbit are popular, and cultural innovations are surging in major museums across the country
ON3	D3	Ningxia Museum: Young Fashion Creates Cultural Creativity
W=Web page		
W1	D4	Celebrating the Year of the Dragon, Beijing's cultural and museum venues are full of "dragon" flavor during the Spring Festival
W2	D5	MCCP design strategy
W3	D6	From playing to the tip of the tongue, these museums' CCPs are worth learning from
W4	D7	Luoyang MCCP design
W5	D8	Museum cultural and creative design
W6	D9	How do these well-known museums create popular CCPs? Attached are nine features and three exciting cases!
W7	D10	Tourism CCPs: an appreciation of today's MCCP designs
W8	D11	How is a museum cultural creation born?
W9	D12	How are the CCPs of the British Museum developed and designed?
W10	D13	Analysis on the development path of CCPs under the "museum + intangible cultural heritage" model
W11	D14	Key elements and innovative exploration of museum cultural and creative development

W12	D15	How was the popular cultural and creative IP born? Industry practitioners reveal the secrets!
W13	D16	Guangdong Museum's cultural creativity is hot: creative pioneers get close to history
W14	D17	When ChatGPT meets the popular museum cultural creation
W15	D18	The birth story of Kuijiu, who has fierce and fierce milk
W16	D19	You received a new year souvenir that connects the past and the present
V=Video		
V1	D20	Copyright knowledge supplement
V2	D21	It is also traditional culture, but why is only the Forbidden City popular?
V3	D22	Creative play with cultural relics from the Forbidden City
V4	D23	Light and shadow, romantic paper carving lamp
V5	D24	Archaeological blind box
V6	D25	This is how cultural creativity was born
V7	D26	Are intangible cultural heritage crafts and CCPs combined with each other?
V8	D27	CCP design
V9	D28	Two thinking models for doing a good job in museum cultural creation
V10	D29	Are museum cultural creations replicas of cultural relics?

Table 1.
Continued.

Document Type	Document's Label	Description/Topic of the Document/Respondent's profile
V11	D30	The core formula of cultural relics is transferred to cultural creation
V12	D31	Talk about natural history
I=Interview Transcript		
I1	D32	Interview: Male; 39–49 year-old; Museum staff
I2	D33	Interview: Male; 39–49 year-old; Craftsman
I3	D34	Interview: Male; 29–39 year-old; Designer
I4	D35	Interview: Male; 39–49 year-old; Craftsman
I5	D36	Interview: Male; 29–39 year-old; Museum staff
I6	D37	Interview: Female; 29–39 year-old; Craftsman
I7	D38	Interview: Male; 19–29 year-old; Salesperson
O=Online Exhibition		
OE1	D39	Inheritance, Creativity, Integration—Exhibition of Outstanding Works From Shandong University Museum Derivative Design Competition
OE2	D40	"Creativity Comes From Collections" Joint Exhibition of Selected CCPs

4. Data Analysis and Findings

During the open coding phase, concepts related to "creativity, culture, and consumer needs" were extracted from the documents, resulting in the creation of hundreds of open codes (as shown in the first column of Tables 2, 3, 4, and 5). The purpose of open coding is to identify concepts or fundamental components within the data, focusing on describing specific conceptual frameworks [31, 34]. These codes can represent a sentence, a paragraph, or an event. After refinement, the open coding process ultimately distilled 86 concepts (as shown in the second column of Tables 2, 3, 4, and 5). For example, a sentence mentioning that a product's creative inspiration originates from the command passwords of a military museum uprising was categorized as "password."

In the axial coding phase, related open codes were grouped together to form preliminary relational statements [30] [31] as shown in the third column of Tables 2, 3, 4, and 5. These 86 open codes were further categorized into 52 sub-dimensions. For example, "military uniforms, military emblems" were classified under the "Logo" category within the collection culture dimension, while "wisteria tree, wisteria seeds" were categorized as "plant." In other words, all concepts in the axial coding phase were refined into a smaller set of categories, each composed of related concepts that reflect a specific attribute.

Next, these 52 sub-dimensions were further condensed into 8 dimensions through selective coding (as shown in the fourth column of Tables 2, 3, 4, and 5). For instance, "new material, new technology" was classified under the "Modern Technology" dimension. Selective coding was used to integrate and develop theoretical constructs, meaning that the sub-dimensions generated during the axial coding phase were further consolidated to form broader dimensions. Ultimately, these 8 dimensions were synthesized into four core themes: Cultural heritage – The foundation of creative generation, Artistic inspiration – Unique creative perspectives and expression techniques, Technological innovation – Expanding creative forms, Consumer perception – Creativity regulation and guidance.

Together, these four themes constitute the creative generation model for MCCP design, as illustrated in Figure 1.

4.1. Theme 1: Cultural Heritage—The Foundation of Creative Generation

MCCP design is based on cultural heritage as a forerunner to creative generation. This refers to a broad spectrum of cultural phenomena, such as collection culture, regional culture, traditional culture, arming CCPs with rich cultural connotations, distinct value, and appeal.

4.1.1. Collection Culture

Collection culture is the soul of museum culture, coming from the rich collections, distinctive architectural styles, and diverse exhibitions in museums. It is a direct, rich, and diverse creative materials provider for CCP development.

Word: Words, phrases, or sentences that have some deeper meaning in relation to all collections. These often come with historical stories and cultural meanings, making them distinct touchpoints for creativity. Like the uprising code in a military museum (D40) has a hidden historical story, which can be the core creative point under the puzzle-based CCP to enhance its engagement and cultural depth.

Pattern: Decorative patterns on ancient artifacts. These patterns have specific aesthetic and cultural value that can be directly translated into product design. Such decorative patterns of ancient Chinese porcelain (D40), which have a variety of themes and exquisite craftsmanship, can be printed on stationery and accessories and convey a historical and cultural atmosphere.

Logo: Clear and recognizable symbols are often associated with military logos or museum logos. As an example, they can be expanded through their military insignias (D40), which include drill uniforms and other emblems to create military-themed badges and keychains for military history enthusiasts.

Architecture: The specifics of any museum its building and decorations provide a wealth of cultural inspiration. Take the Nine-Story Tower of the Dunhuang Museum (D40), for example, which can provide reference for product shape, storage structure, and decorative patterns to shape museum culture into a portable form of cultural communication.

Scene: Museum-related exhibition or collection scenarios. Archaeology-themed blind boxes (D24) recreate excavation experiences, allowing consumers to engage with archaeology in daily life and stimulating their interest in historical culture.

Collection: Museum artifacts themselves serve as essential materials for CCP development. Taipei's National Palace Museum's Jadeite Cabbage (D5) has inspired dolls, stationery, and accessories that leverage its cultural significance to attract buyers and promote museum culture.

Exhibition: Museum exhibitions offer important opportunities for product development. For example, a series of CCPs themed around a lychee culture exhibition (D25), including bookmarks, postcards, and fridge magnets, not only serve as exhibition souvenirs but also extend visitors' memory of the event, fostering long-term cultural dissemination.

Activity: Museum-related activities such as archaeological excavations and cultural lectures provide creative inspiration. Underwater archaeology blind boxes (D16) incorporate the themes of ancient shipwreck salvage and excavation, adding adventure and exploration elements to CCPs while enriching their storytelling and appeal.

Plant: Botanical elements related to museums. The "Wen Zhengming Wisteria Seed" CCP (D2) connects a historical figure with a plant, infusing the product with deep cultural meaning and satisfying consumers' emotional attachment to cultural heritage.

Animal: Animal imagery or elements associated with museums. The Forbidden City cat has become an emotional symbol of the Palace Museum (D5), inspiring a range of CCPs such as dolls, stationery, and phone cases that appeal to consumers with their charm and playfulness.

Figure: Stories and images of historical figures in museums. These figures can be illustrated or transformed into figurines to allow consumers to appreciate their historical significance.

Story: Stories behind collections and museum history. The British Museum integrates collection-related stories into product sales (D12), ensuring that consumers learn about cultural narratives while purchasing CCPs, thereby increasing their added value.

Values: Museums embody various cultural, artistic, and historical values. CCPs incorporate these values (D29) to promote themes such as cultural heritage and historical education, catering to consumers' pursuit of intellectual and spiritual enrichment.

Museum needs: Museums develop CCPs based on their cultural communication and branding needs. They strategically select representative cultural highlights for product development (D22) to ensure that their unique cultural characteristics are effectively conveyed.

4.1.2. Regional Culture

Regional culture refers to the accumulation of cultural characteristics shaped by people's long-term lives in a specific area, including cuisine, natural landscapes, and entertainment activities. It infuses CCPs with strong local identity and emotional resonance.

Diet: Local culinary traditions. The Xinjiang Museum developed a naan-shaped mouse pad (D1), combining a regional food specialty with a practical product to showcase Xinjiang's culinary culture and attract interest in local traditions.

Specialty: Unique regional specialties. A research team integrated ethnic minority cuisine and Shenyang's local delicacies with popular flavors (D14) to develop regionally distinctive food-related CCPs that satisfy consumer preferences and promote local culinary traditions.

Landscape: Regional natural landscapes with its uniqueness. CCPs derived from elements of Crescent Lake in Dunhuang (D40), including scarves that reflect Crescent Lake images, add to the characteristic atmosphere of the region.

Dialect: The particular form of language that belongs to a specific region. The "Miaowa" CCP, which adds local cultural characteristics and uniqueness to the product by combining Dunhuang murals "Miaoyin Bird" with Ningxia's dialect. (D3)

Figure: Historical figures or famous personalities from a region. A product design inspired by the story of local cultural figure Gu Wenbin (D15), illustrated notebooks and bookmarks make local history easy to carry.

Plant: Local botanical emblems. Since the product is more local oriented, so the white magnolia (D40) -- the city flower of Shanghai is adopted on hand cream packaging.

Animal: Native animal species or representative animal imagery. Grand Canal Forest Park (D40) is based on a water bottle with an egret on it, showcasing local wildlife and implementing it into every single object of life through relatable objects.

Story: Regional myths and legends. Products like the Western-style tea set (D7) are inspired by the bronzeware of Luoyang Museum, turquoise treasures, and the ancient silk road, and fused regional historical and cultural elements into it.

Entertainment: Traditional indigenous entertainment and folk games. The Sichuan Mahjong-shaped accessories (D1) of the Sanxingdui Museum combine local entertainment activities with cultural and creative products, increase the fun of the products, and showcase the unique local entertainment culture.

4.1.3. Traditional Culture

Traditional culture refers to the social behavior and norms found in human societies, including the thoughts, religions, folk legends, and more that have been handed down through generations, and the CCPs they make have meaningful symbols and profound heritage.

Philosophy: Classic philosophical ideas. A philosophy named "Round Heaven and Square Earth" (D40) is used for incense box design, seeking to embed philosophical meaning into products and allowing consumers to experience traditional wisdom.

Religion: Religious cultural elements have unique spiritual connotations in CCPs. Buddhist elements (D35) are often integrated into CCPs, such as Buddhist-themed bracelets and ornaments, to meet the needs of religious believers and cultural enthusiasts and spread Buddhist culture.

Intangible cultural heritage: Intangible cultural heritage is an important part of traditional culture. China has ten categories of intangible cultural heritage (D20), such as combining "Yangjiang lacquer art" with traditional porcelain shapes (D40), developing CCPs that combine classical charm and modern innovation, and inheriting and promoting intangible cultural heritage.

Health care: Traditional health preservation culture reflects ancient wisdom on well-being. Concepts of traditional health care are incorporated into CCPs, such as moxibustion therapy, tea, Zen aesthetics, and wellness spaces (D38), including health-related products like herbal tea bags and incense, fulfilling consumer demand for a holistic cultural experience.

Folk Custom: Folk customs passed down through generations are a vivid manifestation of traditional culture. The ancient folk custom of "Qu Shui Liu Shang" (a traditional custom of drinking wine by the flowing river) (D28) is designed as an illustration and incorporated into products such as bags, notebooks, and scarves. This allows consumers to experience the charm of ancient folk culture while using these products, thus preserving and transmitting folk traditions.

Farming: Traditional farming culture reflects the wisdom of ancient people in their production and daily life. A series of CCPs (D18) based on the twenty-four solar terms was created, combining traditional farming culture with modern design, such as designing calendars and tableware themed around the solar terms, to promote knowledge of farming culture.

Auspicious: Traditional auspicious culture expresses people's aspirations for a better life. Cups (D10) designed with auspicious animals such as bats, deer, and cranes, which symbolize "fortune, prosperity, and longevity," convey auspicious meanings and satisfy consumers' desire for good blessings.

Festival: Traditional festivals are an important carrier of traditional culture. During the Spring Festival, CCPs with "dragon" elements were launched in cultural and museum venues in Beijing (D4), combining the festive atmosphere to enhance the celebratory and cultural features of the products, meeting the consumers' festival shopping needs.

Diet: Traditional food culture contains rich cultural connotations. A series of tea products (D40) based on the twenty-four solar terms was developed, integrating dietary culture, health culture, and solar terms culture, catering to consumers' health needs and enhancing the cultural richness of the products.

Chinese Zodiac: The zodiac culture is a unique symbol of Chinese traditional culture. CCPs launched during the Year of the Ox, using zodiac culture, added commemorative significance and cultural features to the products, attracting consumer purchases.

Totem: Traditional totem culture has profound symbolic meanings. The use of traditional totem elements such as dragons and phoenixes in product decorations (D40) strengthens the cultural attributes of the products and showcases the mysterious charm of traditional culture.

Letter: Traditional letter culture reflects the social etiquette and cultural literacy of ancient people. Some CCPs feature pages designed in the form of ancient letter paper, designed to be flipped vertically and written in traditional style (D10), restoring ancient letter culture and adding cultural charm to the products.

Gentleman: The "Four Gentlemen" – plum, orchid, bamboo, and chrysanthemum – represent the gentleman culture in Chinese traditional culture, symbolizing noble virtues. Gold foil handmade soap packaging (D10) designed with the theme of the "Four Gentlemen" conveys gentleman culture and elevates the cultural taste of the product.

Apparel: Traditional clothing culture reflects the aesthetics and social features of different historical periods. CCPs inspired by the costumes of the Qing Dynasty's imperial concubines (D40), such as handkerchiefs and silk scarves, showcase the charm of ancient clothing culture.

Measurement: Ancient measurement culture reflects the wisdom and societal norms of the ancients. The application of ancient measuring instruments like the "sheng" and Qing Dynasty official hats in utensil designs (D40) enriches the product's cultural elements and showcases ancient measurement and clothing cultures.

Theme 2: Artistic Inspiration - Unique Creative Perspectives and Expression Techniques
Artistic inspiration comes from various artworks and artistic forms, providing unique creative perspectives and techniques for the design of MCCPs, thereby giving these products higher artistic value and aesthetic appeal.

Literature: Classic literary works, with their rich stories, unique characters, and profound ideological connotations, provide abundant creative themes and character prototypes for CCPs. "Shan Hai Jing" (D34), with its fantasy stories and mythological imagery, offers vast space for product development, such as creating dolls and stationery featuring mythical beasts from the text, catering to consumers' love for fantasy culture and showcasing the creative value of literary classics.

Film and TV Series: The visual style, character design, and plot elements of film and TV series and animations, when combined with CCPs, can create a series of products that are both trendy and narrative-driven. Popular animation character merchandise attracts fans and realizes the combination of art and commerce, injecting fashion vitality into CCPs.

Music: Music, with its unique emotional atmosphere, rhythm, and melody, inspires innovative expression in CCPs in terms of form, color, and material. Packaging designs based on the rhythm and emotions of classic music trigger emotional resonance from consumers through visual and tactile experiences, imparting a unique artistic temperament and enhancing the emotional impact of the products.

Painting: The diverse styles, expressive techniques, and color usage in painting arts provide rich visual materials and creative techniques for cultural and creative design. CCPs inspired by the colors of Impressionist painting can create a unique artistic atmosphere, enhancing the aesthetic value of the products and offering consumers a distinct artistic experience, satisfying their pursuit of beauty.

Dance: Dance, through its body language, dynamic beauty, and rhythmic changes, provides inspiration for CCP design. By extracting shape elements from dance movements for product shapes, and drawing inspiration from the colors and materials of dance costumes for product color coordination and material selection, the products gain artistic appeal and dynamic beauty.

Photography: As a medium that captures the moment in such a vivid way, photography also allows for visual references for how CCPs can be reflected in 3D space. Photographs are re-created and applied to CCPs such as postcards and decorative paintings, directly allowing consumers to appreciate the artistic charm of the scenes under the lens, and at the same time endowing the products with real scenes and a vivid atmosphere.

Theme 3: Technological Innovation - Expanding Creative Forms
Technological innovation brings new possibilities to the design of MCCPs. By applying new materials and introducing new technologies, product quality is enhanced, creative expressions are expanded, and products' fun and cultural educational value are increased.

New Material: New materials, with their unique properties and advantages, can enhance product quality and offer new carriers for presenting traditional crafts and cultural elements in MCCP design. Modern environmentally-friendly materials (D26) used in the development of ethnic minority products not only enhance product quality but also achieve the fusion of tradition and modernity, providing a new material foundation for creative generation.

New Technology: New technologies, including digital technologies and intelligent manufacturing, play an important role in CCP design. For example, paper-cut lamps (D23) use laser engraving technology to precisely carve patterns, modern lighting technology creates light and shadow effects, and digital modeling and design software enable the innovative upgrade of traditional paper-cutting art. AR/VR technology, applied to the display and experience of CCPs, breaks spatial and temporal limitations. Scanning a CCP with AR technology can present a three-dimensional virtual restoration scene of cultural relics, enhancing the fun and cultural educational value of the product and opening new fields for creative generation.

Cultural heritage, artistic inspiration, and technological innovation are closely linked. Cultural heritage provides materials and cultural soil for artistic inspiration, while artistic inspiration creatively transforms based on cultural elements. The integration of both offers creative direction and a content foundation for technological innovation. For example, Buddhist elements from traditional culture (D35) are reinterpreted in artistic creation through painting and sculpture, inspiring designers to use 3D printing technology and new materials to create CCPs with a modern feel and cultural connotation. Technological innovation, in turn, provides new means and approaches for exploring and displaying cultural heritage and for realizing artistic inspiration. By digitally scanning and modeling museum collections with high precision, designers gain more creative inspiration and provide more accurate and rich materials for artistic creation and cultural product design. This mutually reinforcing relationship leads to diversified and dynamic characteristics in the creative generation of cultural products, continually promoting the innovative development of the cultural and creative industry.

Theme 4: Consumer Perception - Creative Adjustment and Guidance
Perceptual factors are significant modulators and guides that influence the creative generation process in designing MCCPs. New ideas emerge deeply influenced by consumers' aesthetic sensibilities, cultural sensibilities, and functional needs.

Aesthetic perception: Aesthetic perception refers to users’ evaluations and preferences regarding the form, color, and style of CCPs. Different groups of users might prefer different aesthetics. Minimalist, stylish designs with a hint of technology (D38) are favored among younger consumers, while older consumers may prefer more traditional and subdued designs (D16). For CCP designs, designers not only need to consider the taste preferences of their target users but also take into account the

aesthetic perceptions of their users in order to meet the aesthetic needs of the market and attract consumer attention, thus achieving effective product generation.

Cultural Identity Perception: Cultural identity perception is the sense of recognition and belonging that consumers feel toward the culture embodied in CCPs. For consumers with a strong attachment to local culture, products incorporating traditional local cultural elements are more likely to evoke their affection and desire to purchase. Conversely, for international audiences, products with universal cultural value or unique foreign cultural features are more attractive (D38). Therefore, designers must carefully consider consumers' cultural identity perceptions when selecting and using cultural elements for creative thinking to ensure that products better meet the cultural emotional needs of different consumers, enhancing market competitiveness and promoting the organic integration of creative generation and cultural communication.

Functional Demand Perception: Functional demand perception refers to consumers' expectations and requirements for the practicality and functionality of CCPs. Consumers expect CCPs to be not only beautiful but also practical. This prompts designers to fully consider the product's functional needs in different usage scenarios during the creative conception phase and design multifunctional, portable, or specialized products (D38). For example, products designed for travel, office, or home use cater to consumers' specific functional needs, increasing their practicality and usability. Functional demand perception runs throughout the entire product design process, and designers need to adjust their design strategies based on user feedback to ensure the close integration of creative generation and user needs, thereby enhancing the market value of the products.

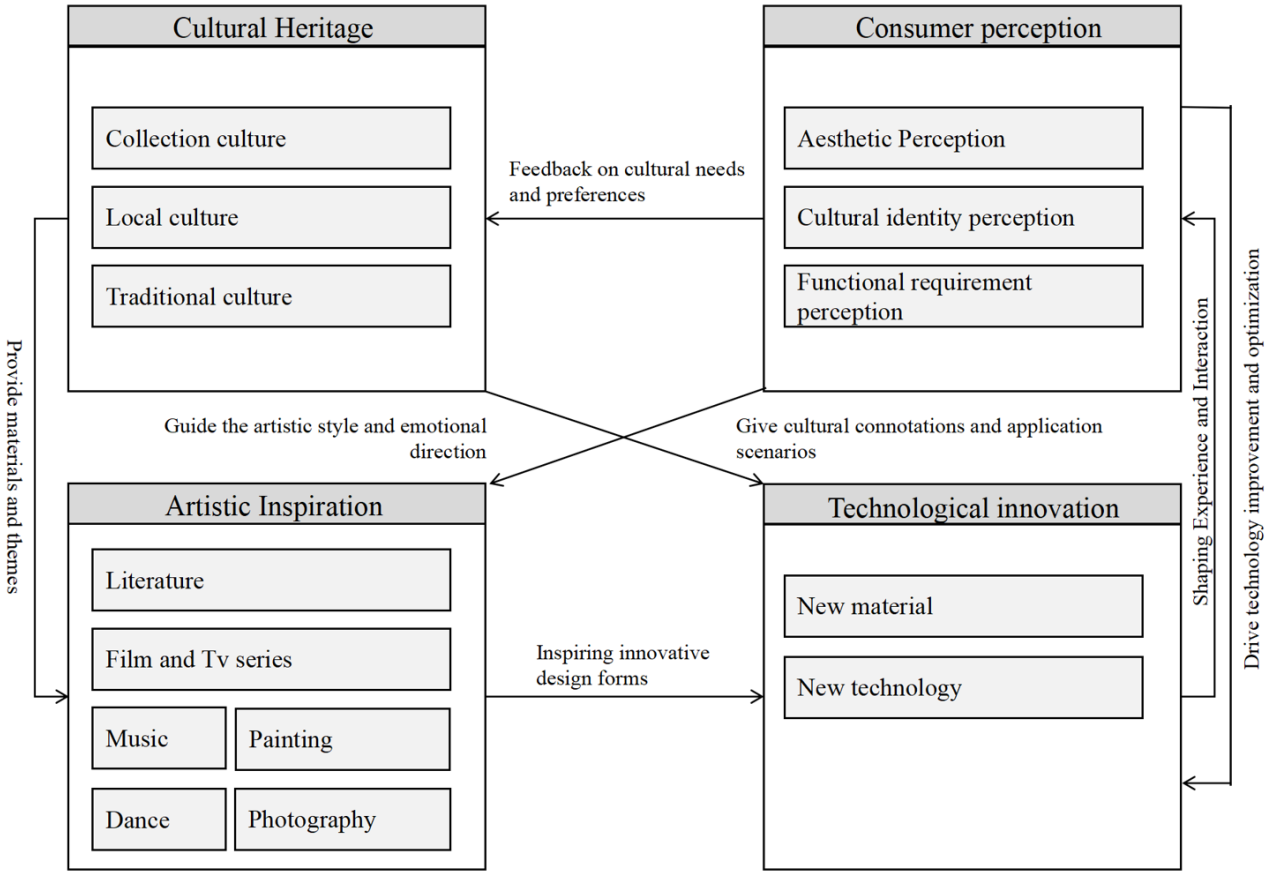

Figure 1.
Creative Generation Model for MCCP Design.

Table 2.
Three dimensions– Collection culture, local culture, and traditional culture emerged and are categorized under the first theme – Cultural heritage.

Examples of Extraction	Concept (Open Coding)	Sub-dimension (Axial Coding)	Dimension (Selective Coding)
The creativity of the military secret series comes from the uprising password, and is cleverly combined with the privacy connotation of personal belongings. (D40)	Password	Word	Collection culture
The decorations on ancient Chinese porcelain have rich themes and clever techniques. (D40)	Decorations	Pattern	
Each army will have a logo that is different from those of other armies. These logos include military uniforms, military insignia, epaulettes, military flags, weapons, and equipment, etc. (D40)	Military uniforms, military emblems	Logo	
Dunhuang Nine-story Building 3D paper-craving note pad. (D40)	Dunhuang Nine-story Building	Architecture	
By simulating the unknown nature of archeology and randomly placing miniature imitations of cultural relics into each blind box, players become archaeological experts and gain the sense of surprise. (D24)	Archaeological site	Scene	
Taipei's "National Palace Museum" has launched nearly 2,400 kinds of CCPs, including jade cabbage. (D5)	Jade Cabbage	Collection	
These are the CCPs of our lychee culture exhibition. (D25)	Lychee Culture Exhibition	Exhibition	
The underwater archaeological blind box is inspired by the salvage and archaeological excavation of the ancient shipwreck. (D16)	Salvage, archaeological excavation	Activity	
The popular CCP "Wen Zhengming's hand-planted wisteria seeds" have also begun pre-sale. (D2)	Wisteria tree, wisteria seeds	Plant	

Table 2.
Continued.

Examples of Extraction	Concept (Open Coding)	Sub-dimension (Axial Coding)	Dimension (Selective Coding)
Forbidden City Cats have become an integral part of the emotional conveyance of the Forbidden City. (D5)	Cat, symbol of auspiciousness, conveying emotions	Animal	Collection culture
There are many old ladies selling jasmine flowers outside the Suzhou Museum. This is a unique cultural phenomenon in Suzhou. (D15)	The old woman selling jasmine flowers	Figure	
Rather than selling stuffed animals, the British Museum sells stories. (D12)	Story	Story	
This kind of cultural creation integrates culture, cultural relics, creativity, value, meaning, and even the concept of a museum. (D29)	Value, museum concept	Values	
Museums can select cultural highlights that they want everyone to know and pass on. (D22)	I want everyone to know, the cultural highlights	Museum needs	
The Xinjiang Museum once used this as inspiration to launch a Naan-shaped mouse pad. (D1)	Naan	Diet	Local culture
Product research and development team combines ethic minority specialty sweets and Shenyang specialties with the flavors popular among young people nowadays. (D14)	Ethic minority specialty sweets, Shenyang specialties	Specialty	

The design of this product is inspired by the Crescent Moon Spring, one of the eight scenic spots in Dunhuang. (D40)	Eight Scenic Spots of Dunhuang, Crescent Moon Spring	Landscape	
The image of "Miaowa" combines the image story of "Miaoyin Bird" and Dunhuang murals, and is named "Miaowa" based on the local dialect of Ningxia. (D3)	Dialect	Dialect	
The creativity of this series of cultural creations is taken from the story of Gu Wenbin, a collector in Suzhou during the Qing Dynasty. (D15)	Gu Wenbin	Figure	
The hand cream combines a classic element with the elegant white magnolia, the city flower of Shanghai. (D40)	City flower, magnolia	Plant	
The water cup uses elements such as lotuses and egrets from the Grand Canal Forest Park. (D40)	Egret	Animal	

Table 2.
Continued.

Examples of Extraction	Concept (Open Coding)	Sub-dimension (Axial Coding)	Dimension (Selective Coding)
The design of the western tea set is inspired by the bronzes and turquoise treasures of the Luoyang Museum, as well as the ancient Silk Road. (D7)	Ancient silk road	Story	Local culture
The Sanxingdui Museum became more popular on the internet for its Sichuan Mahjong ornaments. Four bronze figures sat around a table playing mahjong. (D1)	Mahjong	Entertainment	
The shape of the incense box is divided into square and round, which means the sky is round and the earth is square. (D40)	The sky is round and the place is square	Philosophy	Traditional culture
Many people believe in Buddhism, so you can add Buddhist elements into the design of CCPs. (D35)	Buddhist elements	Religion	
There are ten categories of Chinese intangible cultural heritage: folk literature, traditional music, dance, drama, folk arts, sports, entertainment and acrobatics, traditional fine arts, crafts, medicine, and folk customs. (D20)	Chinese intangible cultural heritage	Intangible cultural heritage	
Combining the national intangible cultural heritage "Yangjiang Lacquer Art" with traditional porcelain shapes, it has both classical charm and modern innovation. (D40)	Yangjiang lacquer art		
Combining the four-series jar with the art of Chinese calligraphy, it symbolizes abundant food and clothing and a happy life. (D40)	Calligraphy		
We want to create a health-preserving space that combines moxibustion, tea, Zen, and aesthetics. (D38)	Health space	Health care	
We can design the ancient custom of "Qu Shui Liu Shang" into illustrations and decorate them on bags, notebooks, scarves and other items. (D28)	Customs	Folk custom	
Kuijiu Cultural Creation created a series of images based on the 24 solar terms. (D18)	24 solar terms	Farming	
The Cup is a new design of three auspicious animals: bat, deer, and crane. (D10)	Bats, deer, cranes, blessing, fortune and longevity	Auspicious	
Beijing's cultural and museum venues have combined their own characteristics and launched cultural and innovative products full of "dragon" flavor to add fun to the spring festival for citizens. (D4)	Spring Festival, occasion	Festival	

Table 2.
Continued.

Examples of Extraction	Concept (Open Coding)	Sub-dimension (Axial Coding)	Dimension (Selective Coding)
We combine the health-preserving demands of different solar terms with the health-preserving effects of different tea drinks to create the Twenty-Four Solar Terms Tea. (D40)	Tea	Diet	Traditional culture
The purpose of launching these CCPs in the Year of the Ox is to make everyone welcome the new year with great enthusiasm. (D6)	Ox	Chinese Zodiac	
The decoration is based on the flower pattern of the hexagonal vase, combined with the dragon and phoenix elements that are most popular in traditional culture. (D40)	Dragon and phoenix elements	Totem	
The inner pages adopt the form of an ancient letter, with flipping up and down, and vertical writing, which is quite ancient. (D10)	Ancient letter paper, vertical writing	Letter	
Gold foil handmade soap, the packaging of Plum, Orchid, Bamboo and Chrysanthemum is really elegant! (D10)	Plum, Orchid, Bamboo and Chrysanthemum	Gentleman	
The product design is inspired by the clothing patterns of the concubines of the Qing Dynasty. (D40)	Clothing patterns of concubines of the Qing Dynasty	Apparel	
Elements such as the ancient measuring instrument "Sheng" and the official hat of the Qing Dynasty are applied to the design of the utensils. (D40)	Measuring instrument	Measurement	

Table 3.
Three dimensions—Artwork emerged and is categorized under the second theme –Artistic inspiration.

Examples of Extraction	Concept (Open Coding)	Sub-dimension (Axial Coding)	Dimension (Selective Coding)
Allowing the audience to visually experience the dreamlike restoration of masterpieces, allusions, and myths. (D30)	Allusions, myths	Literature	Art work
The painter Hao Liang first sought inspiration for his paintings from "The Classic of Mountains and Seas". (D34)	The Classic of Mountains and Seas		
In fact, animation is most closely integrated with CCPs. (D32)	Animation	Film and TV series	
Similarly, our inspiration can also come from music, dance, performance, etc. (D34)	Music, dance, performance	Music	
My understanding is to learn from the historical development of Chinese painting, see how it changes at each stage, and then transplant it to the design of CCPs. (D33)	Painting, transplantation	Painting	
Similarly, our inspiration can also come from music, dance, performance, etc. (D34)	Music, dance, performance	Dance	
I sometimes look at some photos and find inspiration from them. (D36)	Photo	Photography	

Table 4.
Three dimensions—Modern technology emerged and is categorized under the third theme –Technological innovation.

Examples of Extraction	Concept (Open Coding)	Sub-dimension (Axial Coding)	Dimension (Selective Coding)
The intangible cultural heritage content that can be included in CCPs can be more diverse and broader, such as using modern materials to express a scene of "Big Brother of Dong People". (D26)	Modern materials	New material	Modern technology
This CCP is produced using laser engraving technology and meticulous handwork. It combines traditional paper carving art with innovative modern lighting technology, giving new vitality to ancient paper carvings and precipitated history. (D23)	Laser engraving technology, modern lighting technology	New technology	

Table 5.
Three dimensions—Aesthetic, cultural identity, functional requirements emerged and are categorized under the fourth theme –Consumer perception.

Examples of Extraction	Concept (Open Coding)	Sub-dimension (Axial Coding)	Dimension (Selective Coding)
Young consumers prefer MCCPs with simple and fashionable packaging and a sense of technology. (D38)	Simple, fashionable	Modern beauty	Aesthetic
Middle-aged and elderly consumers often choose CCPs with traditional and stable designs. (D16)	Traditional, stable	Classical beauty	
Consumers with strong local cultural identities show great enthusiasm for CCPs with local cultural elements. (D38)	Cultural identities, local cultural elements	Local cultural identity	Cultural identity
Overseas consumers are more interested in CCPs with universal cultural values or unique exotic cultural features. (D16)	Universal, exotic	Foreign cultural identity	
Consumers hope that MCCPs can be used as practical items during travel, such as portable notebooks with cultural patterns. (D38)	Practical, portable	Ease of use	Functional requirements
For office use, consumers expect CCPs like pen holders with cultural designs to be both beautiful and functional. (D38)	Pen holders, functional	Practicality	

5. Discussion

Creative generation is a key part of the MCCP's design and can increase product variation and satisfy consumers' multiple needs for culture and creativity [35]. These processes are actualized in the form of a Model of Creative Generation, which depicts and explains the key components contributing to MCCP design. This model is designed to overcome the lack of original thinking in MCCP design.

The existing studies on the creative generation of MCCPs are fragmented and lack systematic integration [6, 18, 26]. Although past literature suggests multiple strategies for promoting creativity, the relationships among these strategies are under-explored [13]. Innovatively, this study builds the "Culture–Art–Technology–Perception" model, specifically describing four key elements, namely culture, art, technology, and perception, and elaborates their interaction mechanism comprehensively. Cultural heritage is the source of creativity, artistic inspiration provides different perspectives and expression, technological innovation realizes creativity, and perception factors provide normalized and operative correlations between creativity and market requirements. These four are interconnected and reinforce each other, forming an end-to-end creative generation engine. This systematic framework overcomes the lack of systematic structure of existing studies, enables a progressive view of the creative generation process, and thus adds to a more comprehensive and in-depth understanding of specific creative mechanisms underlying MCCP design.

Focused on cultural elements, conventional research relies mainly on museum collections as the primary source of design inspiration [10]. This study broadens the horizon of application of cultural resources, finding that not only museum architecture, environment, plants, animals, and inscriptions, etc., can be transformed into a rich source of inspiration for CCP design. As an illustration, elements such as the architectural form, spatial structure, and decorative patterns in the design of the Nine-Story Tower at the Dunhuang Museum can inspire structures pertaining to product shape, storage functionality, and ornamentation. Just like the iconic cats of the Palace Museum that represent the emotional connection to the museum and are represented by a series of popular CCPs. Moreover, while previous studies have noted the fact of localizing cultural aspects, they did not provide an in-depth and systematic discussion. This study frameworks local cultural features as food, natural landscapes, folklore, and so on. Examples of regional cultural features include the use of traditional Xinjiang flatbread (nang) in mouse pads and silk scarves incorporating elements from Crescent Lake in Dunhuang. In terms of traditional culture, this

study integrates the cultural elements of philosophy and religion and clarifies their fundamental position in the creative generation framework. It thus systematizes and broadens the use of the cultural elements and fills past gaps in the exploration of cultural resources.

The artistic inspiration for MCCPs was never investigated properly in terms of creative generation [36-38]. This study allows us to emphasize the importance of artistic inspiration raising cultural heritage in new forms. It gives a bit more specificity to the subdimensions of artistic inspiration, including literature, film and animation, music, painting, dance, and photography. Mythical stories and fantastical imagery in classic literary works, such as "Shan hai jing", open up endless avenues for creativity. For example, the visual style, character design, and storyline of the movie/animation can be integrated into the CCP design to form a series with a strong fashion sense and story. Its specific emotional atmosphere and rhythmic expressions inspire new inventions in color, shape, and materials. These discoveries add to the existing pool of inspirations for MCCP design, allowing designers to draw on different modalities and expressive techniques.

While the role of technology in CCP design has been studied, this research provides a more comprehensive synthesis and explanation [39-41]. Although existing literature has mentioned new materials and technologies, it has not systematically incorporated them into the creative generation framework [20, 42, 43]. This study integrates new materials and technologies into the "Technological Innovation" dimension, emphasizing their role in enhancing product quality and expanding creative expression. For instance, in the design of paper-cut lanterns, laser engraving technology precisely carves intricate patterns, modern lighting technology enhances the interplay of light and shadow, and digital modeling software facilitates the innovative upgrading of traditional paper-cutting art. Similarly, the application of AR/VR technology in CCP display and experience transcends spatial and temporal limitations, increasing both product appeal and cultural educational value. By incorporating technological factors into the overall framework, this study clarifies their specific mechanisms in the creative generation process, making the research more comprehensive and systematic.

Although the contribution of consumers to the creative generation of MCCPs has been debated, prior research has primarily examined consumer needs [14, 21]. This study takes an in-depth look into the subject, revealing three ways that consumers affect creative generation: aesthetic perception, cultural identity perception, and functional demand perception. CCPs have aesthetic preferences for consumers of different ages, but consumers want the products to be both aesthetic and practical. This creates an expectation that compels designers to provide a critical thought process behind product functionality in the creative inception stage. Consumer perception is essential in the entire process of creative generation, and continuing to modify design strategies based on consumer perceptions is necessary from the point of design. The result contributes to broadening the knowledge of the consumer's role in developing CCPs, noting that prior studies missed delivering on what mechanisms consumers impose on the design process. It illustrates the relevance of perception factors to align consumer needs with the creative generation process.

6. Conclusion

The creative generation model for the design of meaningful MCCPs was studied, and the Culture–Art–Technology–Perception model was constructed using grounded theory. It creates new insights for theoretical and practical advances in the field.

Theoretically, the innovation of this study is to construct the model of "Culture–Art–Technology–Perception" to broaden the scope of research on the creative generation of MCCP design. Existing research does not have a systematic framework, and this model not only identifies four key elements but also clarifies their interaction mechanism, filling this research gap. From a cultural perspective, it extends beyond the museum world's traditional focus on collections to include architectural works, stories, and other museum-related phenomena as part of the cultural resource domain. Also categorized systematically are local and traditional cultural elements, laying the foundation for the extensive application and systematic construction of the resource. Moreover, this study highlights the importance of artistic inspiration, fine-tunes its sub-dimensions, extends knowledge into the nuances of technological factors in the creative generation, and describes the manner in which consumer perception, aesthetic/cultural identity, and pragmatic needs drive creation. These contributions make MCCP design theory more robust and elaborate.

In practice, this model provides targeted practical guidance for the design and development of MCCPs. When developing CCPs, museums and related practitioners should deeply explore cultural heritage, seek creative inspiration from collection culture, local culture, traditional culture, and other aspects, integrate unique cultural elements into product design, and give products profound cultural connotations. Actively introduce new technologies and new materials, use technological innovation to improve product quality and creative forms of expression, and provide new means for the presentation of cultural elements. Attach great importance to consumer perception, fully consider the aesthetic preferences, cultural identity, and functional needs of different consumer groups, and make creative ideas and design adjustments based on market demand to ensure that CCPs can not only meet the material and spiritual needs of consumers but also achieve a win-win situation of cultural communication and commercial value, and promote the sustainable development of the museum cultural and creative industry.

The study has strengths but could be strengthened and enhanced. In further studies, a quantitative approach could complement this qualitative study and, by testing the significance of the aforementioned components of the model in other contexts, also allow for the generalizability of results. The design of MCP must also be responsive to the emerging industry signals arising from the convergence of AI and the metaverse, as well as the social and cultural disruptions that mandate reimagined consumer needs and experiences.

References

[1] C. Li and S. Ghirardi, "The role of collaboration in innovation at cultural and creative organisations. The case of the museum," *Museum Management and Curatorship*, vol. 34, no. 3, pp. 273-289, 2019. https://doi.org/10.1080/09647775.2018.1520142

[2] J.-C. Tu, L.-X. Liu, and Y. Cui, "A study on consumers' preferences for the Palace Museum's cultural and creative products from the perspective of cultural sustainability," *Sustainability*, vol. 11, no. 13, p. 3502, 2019. https://doi.org/10.3390/su11133502

[3] H. Huang, H. Chen, and Y. Zhan, "A Study on consumers' perceptions of museum cultural and creative products through online textual reviews: an example from palace museum's cultural and creative flagship store," *Behavioral Sciences*, vol. 13, no. 4, p. 318, 2023. https://doi.org/10.3390/bs13040318

[4] Z. Li, S. Shu, J. Shao, E. Booth, and A. M. Morrison, "Innovative or not? The effects of consumer perceived value on purchase intentions for the palace museum's cultural and creative products," *Sustainability*, vol. 13, no. 4, p. 2412, 2021. https://doi.org/10.3390/su13042412

[5] N. Pandey and A. Pal, "Impact of digital surge during Covid-19 pandemic: A viewpoint on research and practice," *International Journal of Information Management,*, vol. 55, p. 102171, 2020. https://doi.org/10.1016/j.ijinfomgt.2020.102171

[6] H. Cheng, S. Luo, B. Liu, L. Xia, J. Xie, and X. Qiu, "Insights on metrics' correlation of creativity assessment for museum cultural and creative product design," in *International Conference on Human-Computer Interaction*, 2023: Springer, pp. 376-384.

[7] M. Galvagno and S. C. Giaccone, "Mapping creative tourism research: Reviewing the field and outlining future directions," *Journal of Hospitality & Tourism Research*, vol. 43, no. 8, pp. 1256-1280, 2019. https://doi.org/10.1177/1096348019862030

[8] Y. Zhang, "Sustainable design of cultural creative products based on museum cultural derivatives," in *IOP Conference Series: Materials Science and Engineering*, 2019, vol. 573, no. 1: IOP Publishing, p. 012035.

[9] L. Liu and H. Zhao, "Research on consumers' purchase intention of cultural and creative products—Metaphor design based on traditional cultural symbols," *Plos one*, vol. 19, no. 5, p. e0301678, 2024. https://doi.org/10.1088/1757-899X/573/1/012035

[10] H. Fang, M. H. Bin Abdullah, T. Fan, and J. Yuan, "Enhancing a bibliometric analysis of literature on museums' cultural and creative products in China from 2008 to 2023," *Educational Administration: Theory and Practice*, vol. 30, no. 5, pp. 4136–4147, 2024. https://doi.org/10.53555/kuey.v30i5.3595

[11] E. S. Alkhalifah, "Optimizing graphics for understanding real-scene using 3D image registration and tracking and mapping," *Journal of Intelligent & Fuzzy Systems*, vol. 46, no. 1, pp. 2297-2309, 2024. https://doi.org/10.3233/JIFS-233878

[12] S. T. Dlamini and C. Botha, "The use of augmented and virtual reality to enhance the customer experience," *African Journal of Science, Technology, Innovation and Development*, vol. 16, no. 3, pp. 399-409, 2024. https://doi.org/10.1080/20421338.2024.2326791

[13] S. K. Tan and S. H. Tan, "A creative place-making framework–Story-creation for a sustainable development," *Sustainable Development*, vol. 31, no. 5, pp. 3673-3691, 2023. https://doi.org/10.1002/sd.2619

[14] H. Fang, M. H. Abdullah, and M. Wang, "Investigating children's needs for museum cultural and creative products and parents' purchase intentions based on child cognitive development theory," *Pakistan Journal of Life and Social Sciences*, vol. 22, no. 2, pp. 9928–9941, 2024.

[15] C. Ye and C. Kuang, "Investigation and analysis research on the current situation and innovation paths of culture and creativity development of domestic museums," *Journal of Silk*, vol. 60, no. 11, pp. 168–171, 2023. https://doi.org/10.3969/j.issn.1001-7003.2023.11.020

[16] W. Qian and A. S. B. Zainol, "The characteristics of cultural and creative product design and application based on the Palace Museum," *International Journal of Academic Research in Business and Social Sciences*, vol. 13, no. 8, pp. 730–742, 2023.

[17] A. Wallach, *A very brief history of the art museum in the United States (focusing mainly but not exclusively on the nineteenth century)* (From Museum Critique to the Critical Museum). London: Routledge, 2016.

[18] W. Ding and X. Yang, "Comparative study on the growth power of cultural and creative products in museums," in *International Conference on Human-Computer Interaction*, 2022: Springer, pp. 196-203.

[19] G. Richards and J. Wilson, *Tourism, creativity and development* London; New York: Routledge, 2007.

[20] S. Zhang, "Exploration of cultural and creative product design thinking in the age of artificial intelligence," *Applied Mathematics and Nonlinear Sciences*, vol. 9, no. 1, pp. 1–22, 2024. https://doi.org/10.2478/amns-2024-0155

[21] J. Qi, C. Song, and Y. Wang, "Entrepreneurial psychology and motivation of museum cultural and creative product development," *Frontiers in Psychology*, vol. 12, p. 733943, 2021. https://doi.org/10.3389/fpsyg.2021.733943

[22] Z. Gao and J. Huang, "Human-computer interaction emotional design and innovative cultural and creative product design," *Frontiers in Psychology*, vol. 13, p. 982303, 2022. https://doi.org/10.3389/fpsyg.2022.982303

[23] B. Zhang and N. H. Romainoor, "Research on artificial intelligence in new year prints: The application of the generated pop art style images on cultural and creative products," *Applied Sciences*, vol. 13, no. 2, p. 1082, 2023. https://doi.org/10.3390/app13021082

[24] N. K. F. Tsang, M. Zhu, and W. C. W. Au, "Investigating the attributes of cultural creative product satisfaction – The case of the Palace Museum," *Journal of China Tourism Research*, vol. 18, no. 6, pp. 1239–1258, 2022. https://doi.org/10.1080/19388160.2021.2025184

[25] A. Strauss and J. Corbin, *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage, 1998.

[26] K. Charmaz, *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage, 2006.

[27] M. Q. Patton, *Qualitative research and evaluation methods*, 3rd ed. Thousand Oaks, CA: Sage, 2002.

[28] H. Harris, "Content analysis of secondary data: A study of courage in managerial decision making," *Journal of Business Ethics*, vol. 34, pp. 191-208, 2001. https://doi.org/10.1023/A:1012534014727

[29] C. Hakim, *Secondary analysis in social research: A guide to data sources and methods with examples*. London: George Allen & Unwin, 1982.

[30] J. Daengbuppha, N. Hemmington, and K. Wilkes, "Using grounded theory to model visitor experiences at heritage sites: Methodological and practical issues," *Qualitative Market Research: An International Journal*, vol. 9, no. 4, pp. 367-388, 2006. https://doi.org/10.1108/13522750610689096

[31] S.-K. Tan, S.-F. Kung, and D.-B. Luh, "A model of 'creative experience'in creative tourism," *Annals of Tourism Research*, vol. 41, pp. 153-174, 2013.

[32] A. Decrop, "Triangulation in qualitative tourism research," *Tourism Management*, vol. 20, no. 1, pp. 157-161, 1999. https://doi.org/10.1016/S0261-5177(98)00102-2

[33] N. K. Denzin and Y. S. Lincoln, "Transforming qualitative research methods: Is it a revolution?," *Journal of Contemporary Ethnography*, vol. 24, no. 3, pp. 349-358, 1995.

[34] A. Bakir and S. G. Baxter, *'Touristic fun': Motivational factors for visiting Legoland Windsor Theme Park," in Event Tourism and Cultural Tourism*. London: Routledge, 2013.

[35] H. Jialin, A. Azizan-Mahdzir, and T. Yulin, "Intervention Strategies for the Impact of Social Consumer Behavior on Museum Cultural and Creative Products," *Revista de Cercetare si Interventie Sociala*, vol. 87, pp. 243–260, 2024.

[36] H. Liu and S. N. Z. Abidin, "A systematic review on the sustainable development of museum cultural and creative products," *Handbook of Research on Issues, Challenges, and Opportunities in Sustainable Architecture*, pp. 126-138, 2022.

[37] S.-J. Luo and Y.-N. Dong, "Role of cultural inspiration with different types in cultural product design activities," *International Journal of Technology and Design Education*, vol. 27, pp. 499-515, 2017.

[38] M. Shi, L. Zhang, H. Yang, G. Zhang, and Y. Qi, "Pilot study of applying creative computing for the activation of intangible cultural heritage," *International Journal of Performability Engineering*, vol. 15, no. 2, pp. 611–620, 2019.

[39] T. H. Davenport and J. G. Harris, "What people want (and how to predict it)," *MIT Sloan Management Review*, vol. 50, no. 2, pp. 23–31, 2009.

[40] Y. Sun, "Design and purchase intention analysis of cultural and creative goods based on deep learning neural networks," *Computational Intelligence and Neuroscience*, vol. 2022, no. 1, p. 3234375, 2022.

[41] Y. Zang, "Embodiment of digital art elements in traditional cultural and creative product design based on virtual reality technology," *Applied Mathematics and Nonlinear Sciences*, vol. 9, no. 1, p. 102478, 2024. https://doi.org/10.2478/amns-2024-0103.

[42] S. Han, Z. Shi, and Y. Shi, "Cultural and creative product design and image recognition based on the convolutional neural network model," *Computational Intelligence and Neuroscience*, vol. 2022, no. 1, p. 2586042, 2022.

[43] R. Li and C. Wang, "Cultural and creative product design and image recognition based on deep learning," *Computational Intelligence and Neuroscience*, vol. 2022, no. 1, p. 7256584, 2022.