

Research on Dunhuang Cultural and Creative Product Design

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ABSTRACT

In the context of the development of cultural and creative industries, the preservation and transmission of cultural heritage are facing many new opportunities. Using creative design to transform cultural heritage content into cultural and creative products and build a pathway between cultural heritage and contemporary life is a good way to perpetuate cultural heritage. This study reviews the literature on Dunhuang culture and creative products, surveys Dunhuang creative products, collates the current state of Dunhuang cultural creativity, analyses basic design methods for the application of Dunhuang culture to creative design, and makes recommendations for future Dunhuang creative research and development. This study demonstrates the achievements of Dunhuang's cultural creation and contributes to the sustainability of Dunhuang's cultural heritage.

Keywords: Dunhuang Culture, Cultural Heritage, Cultural Commodities, Dunhuang Cultural and Creative Product.

INTRODUCTION

In the context of the development of cultural and creative industries, the conservation and development of cultural heritage are facing many challenges and opportunities. Using creative design to transform the content of cultural heritage into cultural and creative products and to build a pathway between cultural heritage and contemporary life is a good way to perpetuate cultural heritage (Xin, 2007). Since its inception in the UK, the cultural and creative industries have flourished in many countries and regions. Addressing the heritage and development of cultural heritage through cultural and creative industries is an effective way to be explored.

With China's rich cultural heritage, the government and relevant units are paying more and more attention to the development of cultural and creative products. In May 2016, China's Ministry of Culture, the State Administration of Cultural Heritage, and other relevant departments issued "Several Opinions on Promoting the Development of Cultural and Creative Commodities of Cultural and Cultural Heritage Units", which ushered in a time of rapid development for cultural and creative products ("Several Opinions on Promoting the Development of Cultural and Creative Products by Cultural Heritage Units," 2016). At present, the development of cultural and creative commodities in China is characterised by diversified development of development and operation models, increasing brand influence and social awareness, and effective enhancement of social benefits. However, there are also problems such as weak business awareness and capability, insufficient commodity supply capability, weak innovation capability, a single form of cultural products, and insufficient expansion of social functions, etc. On the whole, the development of cultural and creative products is still in the exploratory and initial stages.

As a repository of world art, Dunhuang is a product of cultural exchange between East and West, and its culture is a unique blend of diverse cultures with an international edge. For a long time, the study of Dunhuang has been largely in academic circles, but how should the world's Dunhuang be reintegrated into contemporary life? Against this backdrop, Dunhuang Cultural Creations was born, which incorporates elements of Dunhuang culture into today's lifestyle aesthetics through creative design to showcase the contemporary value of Dunhuang culture.

The objectives of this study will be threefold: firstly, to investigate the current status of Dunhuang's cultural and creative products, to collate the current status of Dunhuang's cultural and creative products, to summarise the classification of Dunhuang's cultural products, and to make recommendations for future Dunhuang's cultural and creative research and development. Secondly, the basic design methods for applying Dunhuang culture to creative design are analysed from a sample of Dunhuang cultural and creative products. Finally, suggestions are made for further optimisation of Dunhuang's cultural and creative products.

LITERATURE REVIEW

The Basic Concept of Cultural and Creative Products

The terms cultural and creative products, cultural commodities, and creative products have all been used in the literature related to the cultural and creative industries, and

in this study, they are collectively referred to as cultural and creative products for the sake of uniformity. For the sake of consistency, they are collectively referred to as cultural and creative products in this study. To go deeper into the connotation of cultural and creative products and to define them differently from general commodities, the above-mentioned terms are included in the scope of the literature review.

According to the UNESCO definition, cultural and creative products are consumer commodities that convey ideas, symbols and lifestyles. The difference between cultural and creative products and ordinary commodities is that they are not only functional but also have spiritual meaning and storytelling. This study reviews the definition of cultural and creative products with reference to the information compiled by Hu (2011) (Refer to Table 1).

Table 1 Collated table of definitions of cultural and creative products

Literature	Definition of Cultural and Creative Products
UNESCO	Cultural and creative products are consumer commodities that convey opinions, symbols, and lifestyles.
Chen Xiu Yu, 2009	Cultural and creative products are commodities and services distributed through the consumer channel. The core value of cultural and creative products is to give them a new meaning after using culture as a design element.
Carrie Tsui, 2007	Commodities are not originally cultural but can be transformed into meaningful cultural products by being embedded in the cultural system through the process of processing.
Houben, 2006	While general merchandise does not have cultural imagery, it satisfies the functional needs of consumers and focuses on practical functions, cultural and creative products enhance the connotation of the merchandise, emphasising the significance of the cultural context and the value of existence.
Lin, R. T., 2005	Through the cultural elements contained in the cultural artifacts themselves, they are transformed into design elements, and the design is used to find a new form for the cultural elements in line with the modern lifestyle and to explore the spiritual satisfaction after use.
Zheng Zilong, Hong Yahui and Xu Anqi, 2005	Cultural and creative products and services are creative and productive activities that have intellectual property rights and convey certain social meanings.
Xu Yuyong, 2004	Cultural and creative products are cultural, historical and national 'memories and emotions attached to the shape of the product.
Throsby, 2003	It has three characteristics, creativity, symbolism, and intellectual property.

Solomon, 1988	The process by which culture is filtered through symbols and then transmitted to the product and finally to the user proves that the production of cultural commodities is complex and systematic, and this is what makes cultural commodities different from other general commodities.
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The definitions of creative products in the table above show that the most important difference between creative products and general commodities is that while general commodities focus on the functionality of products, creative products have an additional cultural attribute, which gives them a new meaning and constitutes the core value of creative products. In the case of cultural and creative products, the product is a medium for cultural transmission, while culture can give the product a spiritual value, so the combination of the two results in a cultural and creative product that is not just an ordinary commodity, but an important product that concretises and redefines culture (Refer to Figure 1).

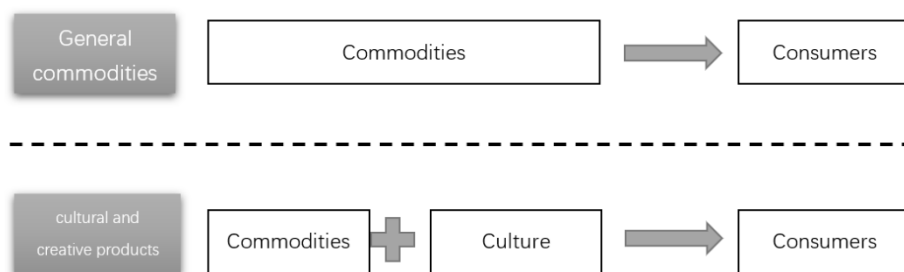


Figure 1. Differences between general commodities and cultural and creative products

Dunhuang Culture

The culture of Dunhuang is very broad, combining the arts of architecture, painted sculpture, frescoes, and Buddhist culture. Dunhuang culture is the result of the convergence of many cultures, where Chinese, Indian, Greek, and Islamic cultures meet. The centrepiece of Dunhuang culture is undoubtedly the Mogao Caves, located in the city of Dunhuang in China's Gansu Province, which is the world's most extensive and best-preserved surviving treasure trove of Buddhist art.

a) The History of the Mogao Caves at Dunhuang

The Mogao Caves were built in China during the pre-Qin period and have been developed through eleven dynasties, from the pre-Qin to the Sui and Tang dynasties to the Western Xia and Yuan dynasties. There are 492 caves in the Mogao Caves, of which more than 45,000 square metres of frescoes, 2,400 painted figures, 4,000 flying figures, five wooden structures from the Tang and Song dynasties, thousands of lotus pillar stones and paving bricks from various dynasties are preserved. ". The Mogao Caves were inscribed on UNESCO's World Heritage List in 1987 and awarded a World Heritage Certificate in 1991. (People.com, 2015) The Mogao Caves were inscribed on UNESCO's World Heritage List in 1987 and awarded a World Heritage Certificate in 1991.

The evolution and development of the Dunhuang Mogao Caves have been a process of exchange and intermingling of multicultural and multi-ethnic traits, and the cross-

fertilization of multiple cultures within this region has resulted in its being diverse, open, contemporary, and inclusive. The art of the Dunhuang caves exhibits a strong Buddhist identity, with its utilitarian nature resting on faith and worship. Most of the murals are based on Buddhist stories, and the faith and devotion of working people through the ages can be felt in them. Buddhist frescoes were the art of propagating doctrine, and the caves were excavated and painted to convey good intentions, to pray for the blessing of the Buddha, and to appease the secular mind (Zhao, 2016).

b) Content of Dunhuang Cave Art

Dunhuang cave art can be divided into three main categories: frescoes, sculptures, and cave architecture. The murals are the most valuable part of the Mogao Caves and are the mainstay of Dunhuang culture and art. The murals can be divided according to their content into sutra paintings, Buddha paintings, portraits of supporters, sutra story paintings, and decorative motifs; the main sutra story paintings are Buddha paintings, traditional mythological subjects, sutra paintings, and Buddhist historical paintings. (Wu, 2019). The decorative motifs can be divided into flora and fauna, climatic and celestial patterns, geometric patterns, figures, combinations, and some banded borders. Dunhuang cave architecture can be divided into Zen caves, central pagoda caves, temple caves, Buddhist altar caves, large statue caves, and nirvana caves. The sculptures are mainly of Buddhas, Bodhisattvas, and Heavenly Kings, and can be divided into costume motifs, headlight motifs, and backlight motifs (Duan, 2017) as shown in Figure 2.

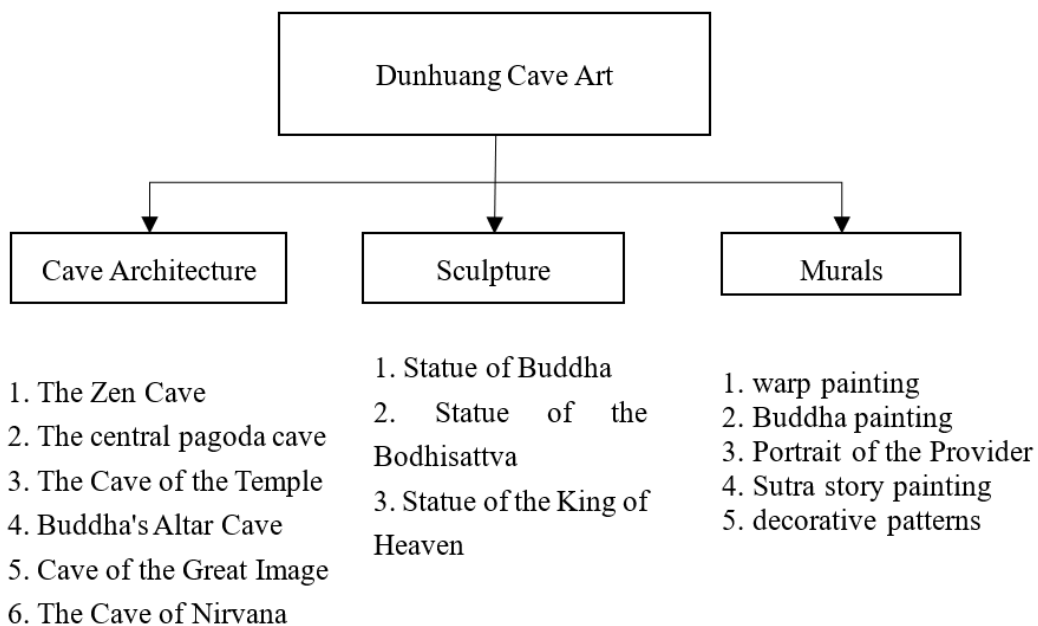


Figure 2. The Content of Dunhuang Cave Art

Dunhuang Cultural and Creative Products

Dunhuang cultural and creative products are mainly those that are derived from Dunhuang culture. Dunhuang's cultural and creative product development from the earliest postcards and brochures placed at information desks to later a variety of tourist

souvenirs, and now, virtual reality technology and digital technology help Dunhuang's cultural and creative take off, Dunhuang cultural and creative from scratch, from a single to rich, showing a flourishing trend.

Through offline shops and online sales platforms, the researcher investigated mainly the cultural and creative products developed by the Dunhuang Research Institute, Dunhuang Cultural Tourism Group, and Dunhuang City Museum, both independently and in collaboration with authorised development. According to incomplete statistics, as of September 2022, there were approximately 800 cultural products developed by the above three units, including as many as 150 physical commodities and more than 20 virtual products developed independently by the Dunhuang Research Institute. The Dunhuang Cultural Tourism Group has developed more than 200 models, and the Silk Road Handwriting Team of the Dunhuang Museum, the Fan Yanyan Cultural Creation Centre, and Randall Place have designed and developed more than 400 Dunhuang culture-related cultural and creative products. Most of these cultural and creative products have distinctive themes and unique Dunhuang cultural characteristics, with frescoes as the majority of these creative products developed with frescoes in mind.

METHODOLOGY

This study is qualitative. The study is divided into three phases. Table 2 shows the entire phases taken for the study. In Phase 1, the researcher uses text analysis to summarise the relevant literature. The researcher collected literature on cultural products, Dunhuang cultural heritage, and other related fields, and systematically collated, analysed, and summarised the theories on cultural heritage and the design of cultural and creative products to serve as a theoretical basis and application for subsequent phases of research. Through offline shops and online searches, the researcher investigated more than 500 creative products derived from the application of Dunhuang culture to creative design. To understand the approach to Dunhuang-based creative product design, I selected a sample of 100 Dunhuang culture-based creative products for observation. In phase 2. The main observations include product function, story outline, design elements, and the relationship between design elements and cultural elements. Through the observations, an in-depth analysis of the current status of Dunhuang's cultural and creative products was conducted to better discover the design approach of Dunhuang's cultural and creative products, from which a methodology for designing cultural and creative products based on cultural heritage was generalized. In phase 3. semi-structured interviews were used to gain an in-depth understanding of five academic experts' suggestions for optimising the design of Dunhuang's cultural and creative products (Refer to Table 2).

Table 2. Research Design

Methods	Output
PHASE 1: Literature Survey	Analysis of literature related to Dunhuang culture, cultural commodities and design models.
PHASE 2: Observation 100 samples from selected cultural commodities in Dunhuang will be Observe.	i. Observation using tracing with four aspects:: product function, story outline, design elements, design concepts in relation to cultural elements. Obtain the current status of Dunhuang's cultural and creative products.

 PHASE 3: interview

 ii. Find out what experts and scholars suggest to optimise the design of Dunhuang's cultural and creative products

FINDINGS

Through a survey and visual analysis of more than 100 products, combined with previous scholarly research on product design methods, the researcher has categorised design transformation methods based on Dunhuang cultural elements into two main categories, namely tangible and intangible element transformation. The tangible elements are the visual elements such as shapes, patterns, designs, and colours of murals, architecture, and Buddha statues in Dunhuang culture. Intangible transformation refers to the transformation of the core of Dunhuang culture, such as secular concepts and religious thought, in different social contexts.

Transformation of Tangible Elements

Most of Dunhuang's creative products are derived from the transformative use of tangible elements of Dunhuang culture. These tangible elements are mainly derived from visual elements such as shapes, paintings, ornaments, and colours in murals, sculptures, and cave architecture, and are transformed through the direct or indirect use of these formal elements in the design.

a) Frescoes

The murals are the mainstay of Dunhuang culture and are themselves the most intuitive cultural symbols. Directly extracting elements from Dunhuang murals is one of the most common and frequently used forms of design, and the majority of existing Dunhuang cultural and creative products are developed in this way. In particular, the classic murals in Cave 257 of the Mogao Caves, the rebounding lute in Cave 112 of the Mogao Caves, the transformation of the 500 robbers into Buddhas in Cave 285, the transformation of the Yakushi Sutra in Cave 220 of the Mogao Caves, the appearance of Wenshu at the meeting of the Fahua Sutra in Cave 61 of the Mogao Caves, the flying sky in Cave 158 of the Mogao Caves, and the three rabbits in Cave 407 of the Mogao Caves have been developed into a wide range of creative products (Fan, 2022). The mural puzzle blind box shown here was developed by the Dunhuang Research Institute and features a selection of eight classical works, including Mogao Cave wall paintings, such as the Laddu fork and the Holy Transformation, the Deer King, the Bouncing Lute, the Five Hundred Bandits, the Green Landscape, the Lady of the Doudu's Ritual, the Hunting, and the Flying Sky with Necklace (Refer to Figure 3).



Figure 3. Mural puzzle blind box

The Nine-Coloured Deer is an element of the original image of the Nine-Coloured Deer in Cave 257 of the Mogao Caves, which is a Buddhist classical symbol of good fortune and luck (Zhao, 2016). As shown in the picture, the designers of this creative product have transformed the shape of the nine colored deer into a flat illustration, taking its symbolic meaning of good fortune and luck, and have developed a variety of products including markers, canvas bags, and tape (Refer to Table 3).

Table 3. Examples of creative products derived from the "Nine Coloured Deer" element

Tangible elements	
Illustrations of cultural and creative products	

The researcher collected more than 100 cultural and creative products developed from the elements of the Flying Sky, the Nine Coloured Deer, and the Three Hares, which are summarised in the following table (Refer to Table 4).

Table 4. List of creative products developed with the elements of the Flying Heaven, the Nine Coloured Deer, and the Three Hares

Extraction elements	of	Representative names of cultural creations
Flying		Flying bracelets, flying statues, flying phone cases, flying dolls and Flying necklace, Flying USB stick
Nine-Coloured Deer		Metal deer bookmark, Nine-coloured deer shopping bag, Nine-coloured deer clear mug, Nine-coloured deer tea set, Nine-coloured deer paper carving lamp, Deer King Hongsheng reclining incense burner, Nine-coloured deer necklace, Nine-coloured deer USB stick
Three Hares		Three Rabbits Coaster, Three Rabbits Octavo, Three Rabbits Mug

b) Ornamentation

Dunhuang ornamentation is found in several decorative motifs in architecture, frescoes, and painted sculptures, most often in the algal wells at the top of the caves, in the flat cheeks, and between the slopes of the human characters, as well as in the backlighting of the Buddha, in the borders, in the flags, in the accessories, in the costumes and so on. These motifs are often used in cultural and creative products, such as the 'Washi tape' shown here, which is based on Dunhuang motifs, including the lotus flower alcove motif, the continuous pearl motif, the flower cluster motif, the peach-shaped lotus petal flower cluster motif, and the paulownia alcove motif. The design is based on the Dunhuang motifs of the lotus flower and algal well, the peach-shaped lotus petal, and the paulownia flower and algal well (Refer to Table 5).

Table 5 Examples of cultural and creative products derived from Dunhuang ornaments

Tangible elements	Illustrations of cultural and creative products
	

c) Colour

Colour is a special visual symbol, and the colours on the murals are an important symbol of Dunhuang culture, underlying the different art forms and cultural styles of the various dynasties. Early Dunhuang frescoes were simple and contrasting, with more red and green colours used during the Wei, Jin and North and South Dynasties

periods, with strong and bold colour palettes achieving unexpected results. In the heyday of Dunhuang frescoes, the style of colour was elegant and rich, and at this time the use of colour gradually became richer and the picture as a whole was unified and harmonious. The late period saw a gradual decline in colour, with the overall brightness and saturation of the murals declining and the colours changing less, while the Yuan dynasty period saw a change to lighter colours and a softer visual effect.

The Tangerine Duo x Dunhuang Museum co-branded makeup series is a way to pass on the beauty of Dunhuang's mural colours through makeup culture. The five products in the collection are the "Tangerine 20-colour Rui Hu Palette", "Tangerine Rui Beast Embossed Blush", "Tangerine Green Bird Cloud Powder", "Tangerine Rui Beast Core Triangle" and "Tangerine Rui Beast Core Triangle". The products are the "Tangerine Beast Core Triangle Eyebrow Pencil", "Tangerine Beast Duo" and "Tangerine Beast Lip Balm". The "Tangerine 20-colour Tiger Palette" eye shadows are based on colours commonly used in Dunhuang colour restoration to showcase the millennia-old vitality of Dunhuang's murals.

In addition, the Dunhuang Research Institute launched the "Dunhuang Red" series of lipsticks, and the Dunhuang Museum x Fai Garber co-branded water-soluble coloured pencils, which also explored the stories behind the colours of Dunhuang and passed on the millennium Dunhuang culture through colour (Refer to Figure 4).



Figure 4. Tangerine x Dunhuang Museum co-branded makeup collection

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and creative products. Finally, suggestions are made for further optimisation of Dunhuang's cultural and creative products.

d) Others

Many other Dunhuang creative design elements come from architecture, painted sculptures, artifacts, and calligraphy, which are all-encompassing, including the grottoes, the Buddha image, the Ming Sha Mountain, the Crescent Moon Spring and scripture-writing calligraphy, from which designers integrate and refine visual elements for innovative use and development into creative products.

Transformation Of Intangible Elements

Dunhuang's cultural products are a translation of the intangible elements of Dunhuang culture, mainly in the expression of Buddhist thought, secular concepts, and artistic spirit from different eras. The Dunhuang cultural heritage of each dynasty is more or less superimposed on the context of the time. Looking back at the historical memory of Dunhuang in each era, we can explore the connotations of morality, life, and spirituality in these concepts and transform them into the symbolic language of cultural products, transforming Dunhuang's cultural connotations into aesthetic products for contemporary life and allowing people to appreciate the charm of Dunhuang culture (Tian, 2021).

The transformation of intangible elements is commonly seen in the translation of Buddhist thought, Buddhist classics, etc. "In June 2017, the Dunhuang Digital Donor project was launched, allowing users to become a "digital donor" of Dunhuang culture for a donation of \$0.90, with the funds raised going towards the Mogao Caves (Refer to Figure 5). The project uses 300dpi high-resolution images and computer technology to permanently preserve the art of Dunhuang's caves and perpetuate the spirit of the ancient Dunhuang donors' commitment to the art of Dunhuang. In return for their donations, users will receive Dunhuang "Wisdom Pouches", virtual cultural creations designed to create a series of wise sayings about life using classic Dunhuang fresco stories. For example, "It's never too late to make a good change" is from the Mogao Caves Cave 285 fresco "Five Hundred Robbers Become Buddhas", which tells the story of five hundred robbers who were arrested by the king for robbery and murder, who ordered his men to punish them severely and banish them, and who were given a talk by Buddha, who had the virtue of universalizing all beings. The story of the five hundred robbers, all of whom became monks and devoted themselves to the Buddha. The story of the five hundred bandits who became Buddhists is illustrated with the text "It's never too late to make a good change", a light-hearted and witty translation of Buddhist thought into the modern pop language (Wu, 2019).



Figure 5. "Dunhuang Digital Donor" and "Wisdom Kit" display

The transformation of intangible elements is an advanced mode of ideological interpretation of Dunhuang culture, meeting not only the basic requirements of product use but also the function of expressing the cultural connotations and meanings of Dunhuang. This is one of the most difficult design techniques to express, as it aims to convey the spiritual and cultural connotations, which are very abstract and cannot be expressed directly through the use of Dunhuang's tangible visual elements, but only through creative expression.

Dunhuang Cultural Creation Recommendations

The future development of Dunhuang culture is not just about the conservation and study of cultural relics, but also an interesting process of cultural transmission (Wang, 2016). The development and promotion of cultural and creative commodities should become a new direction for the development of Dunhuang culture. Through the survey findings and feedback from the interviews, the following recommendations are made for the future development of Dunhuang's cultural creativity.

a) Create cultural and creative products

At present, although the number of Dunhuang cultural and creative products is increasing year after year, there is a lack of highly creative and practical products. There is a need to establish a sense of quality, build on the classic cultural elements of Dunhuang, dig deeper into the cultural and spiritual connotations behind the products, enhance the design creativity, and launch fine products. At the same time, we need to strengthen the branding of our cultural and creative brands and establish a good image of Dunhuang's culture and creativity.

b) Developing international markets

The development of Dunhuang's cultural and creative industries needs to have an international perspective and products need to be developed specifically for the international market. Actively engage with major foreign museums and companies to learn from their experiences and find shortcomings to improve and enhance. Let

Dunhuang's culture and creativity go global and showcase Dunhuang's culture to the world.

c) Promotion of cultural and creative products

Although the research and development of Dunhuang's cultural and creative products have continued to strengthen and improve, the promotion and marketing of cultural and creative products are relatively weak. In the future, we should continue to push the boundaries by organising promotional activities and participating in various domestic and international exhibitions to showcase the new achievements Dunhuang has made in the research and development of cultural and creative products so that more and more people can understand the profundity of Dunhuang and the cultural products behind the culture(Wang, 2018).

CONCLUSION

This study reviews the literature related to Dunhuang culture and cultural and creative products to understand these basic concepts and their relationships. It analyses textual records, physical products, and product images about Dunhuang cultural and creative products, analyses basic design methods for the application of Dunhuang culture to cultural and creative design, and makes some recommendations for future Dunhuang cultural and creative research and development. This study demonstrates the results achieved in Dunhuang's cultural creation and contributes to the promotion of the sustainability of Dunhuang's cultural heritage.

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