

Exploring Shape and Colors from Existing Silk Scarf by Integrating Chinese Dunhuang Mural Elements to Contemporary Perception from Historical Evolution and Cultural Perspective in China

Fei Liu ¹, Irwan Syah Md Yusoff ^{2*}, Hassan Hj Alli ³

¹ PhD Candidate, Faculty of Design and Architecture, University Putra Malaysia, Selangor, Malaysia

² Dr, Faculty of Human Ecology, University Putra Malaysia, Selangor, Malaysia

³ Dr, Faculty of Design and Architecture, University Putra Malaysia, Selangor, Malaysia

* **Corresponding Author:** irwansyah@upm.edu.my

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ABSTRACT

Dunhuang murals are the world's oldest and most culturally rich world-class cultural treasure in China. How combining classical Dunhuang murals with new-era clothing and jewelry design is crucial for the inheritance and development of Dunhuang culture. Based on analyzing the line and shape architecture of Dunhuang murals, this study interprets the aesthetic attributes of Dunhuang murals' designs and further reveals the aesthetic attributes of Dunhuang murals' colors from the perspectives of color style and cultural connotations. Based on the above aesthetic and cultural factors, this study further analyzes the application practice and innovative principles of Dunhuang murals and proposes a method and artistic means of mural design reconstruction based on modern pragmatism. The research results indicate significant differences in the color and design styles of Dunhuang murals in different historical periods. The changes in the size of unit designs, the thickness of contour lines, and the changes in hue, brightness, and saturation in color in Dunhuang murals refer to the changes in the arrangement of designs in a fixed area. They not only serve to separate different mural contents for the sake of aesthetic decoration but also highlight the structural characteristics of the cave. The edge decoration designs created based on the structure itself will have more intuitive properties. In the process of designing Dunhuang mural empowering scarves, digital prints can be inputted into a computer through digital means, and then processed through a computer color separation printing system. Specialized software can directly spray various specialized dyes onto the silk fabric through the printing system, and then undergo later processing to obtain the required printing products on the material.

Keywords: Dunhuang; Arts Murals; Scarf Design; Historical Evolution; Cultural Inheritance.

INTRODUCTION

Dunhuang is located at the western end of the Hexi Corridor in Gansu Province, China. It is an important town on the Silk Road, serving as a hub for trade between China and the West, and a crossroads of diverse civilizations. The Mogao Grottoes are the most precious cultural and artistic treasure left behind on the Silk Road (Bedjo, 2023). The Mogao Grottoes of Dunhuang, commonly known as the Thousand Buddha Cave, is located in Dunhuang at the western end of the Hexi Corridor. It is the largest and most diverse group of grottoes in China (Borg, Dunn, Ang, & Villis, 2020). It is the oldest, richest, and most fully preserved cultural and artistic treasure trove in the world. Dunhuang culture has had a significant impact on the development of Chinese culture (Peitroni, 2021). The historical relics and cultural landscapes of the Dunhuang region have become an essential component of Chinese history and culture. They are of great significance for studying ancient Chinese politics,

economy, culture, and other aspects (Z. Zhou et al., 2020). Secondly, Dunhuang culture has also had an impact on world culture. The artworks and literature of Dunhuang have been collected and studied by museums and scholars worldwide, becoming a part of the world's cultural heritage (Z. Zhou et al., 2020). Dunhuang murals are treasures of ancient Chinese painting art, and their exquisite artistic techniques and unique style have had a profound impact on later painting art. By protecting and studying Dunhuang murals, we can learn and learn from the creative techniques and artistic expression techniques of ancient artists, and promote the innovation and development of Chinese painting art. Dunhuang culture integrates cultural elements from ethnic groups such as Han, Hui, Tibetan, and Uyghur, forming a unique and diverse cultural landscape. This fusion and fusion of various cultures reflects the inclusiveness and diversity of the Chinese government. By protecting Dunhuang culture, we can inherit and promote the excellent traditional culture of the Chinese government, and enhance national pride and cohesion. The murals of Mogao Grottoes are heading towards extinction at a speed 100 times faster than in ancient times. China has a civilization history of thousands of years, and Dunhuang art is the crystallization of the collective creative wisdom of the Chinese people. Murals are a significant component of Dunhuang Grotto art, achieving high achievements in art and color expression. Its unique style provides creative inspiration for contemporary design art.

As people's spiritual pursuits advance, their living standards become increasingly inclined toward artistic sensibilities (Das & Richman, 2022). Dunhuang mural culture is an essential manifestation of China's national image and cultural soft power. As one of the representatives of ancient Chinese culture and art, Dunhuang culture has become a critical window and platform for China's foreign cultural exchange. By promoting and disseminating Dunhuang culture, China's influence and competitiveness on the international stage can be enhanced. (Malletzidou et al., 2021). Various entities, including the nation, numerous institutions, and select artists and designers, have undertaken systematic efforts to unearth, arrange, and save the murals found in Dunhuang (Du, Zhu, Yang, Wang, & Jiang, 2021). The deliberate integration of unique elements of art and modern design, with a conscious emphasis on incorporating Dunhuang elements in art design, serves to both preserve the traditional art culture of the nation and foster the growth and advancement of national characteristics in contemporary design (Nabais et al., 2021). The Dunhuang murals hold significant value within the realm of Dunhuang culture, serving as invaluable historical artifacts that offer rich insights into several aspects of feudal life in China, including its history, culture, politics, economy, dress, music and dance, and folk customs (Papathimiu, E. Laci, & S. Laci, 2022). The edge decorating designs observed throughout the Tang Dynasty exhibited a vibrant and opulent color palette (Kovalev et al., 2020). Scarves are not just simple scarves, they can be clothing, jewelry, bags, and belts, and can be decorated anywhere you want. The existing scarves are mainly divided into small square scarves and large square scarves in shape. Currently, most scarves are primarily decorated with brand logos or a wide range of colors, and several scarf designs will include designs and designs. According to Zhang (2021), when the ways of edge decoration are planned and applied directly, they exhibit a higher level of rigidity and require contemporary design innovation. Dunhuang murals are rich in color, containing the aesthetic culture and ethnic color culture of the Chinese government for thousands of years. Combining the millennium-old mural culture with scarf design in the new era is not only a promotion of culture but also a significant improvement and aesthetic leap in contemporary scarf design.

Based on analyzing the line and shape architecture of Dunhuang murals, this study interprets the aesthetic attributes of Dunhuang murals' designs and further reveals the aesthetic attributes of Dunhuang murals' colors from the perspectives of color style and cultural connotations. Based on the above aesthetic and cultural characteristics, this study further analyzes the application practice and innovative principles of Dunhuang murals and proposes a method and artistic means of mural design reconstruction based on modern pragmatism. Finally, this study interprets the extraction techniques of Dunhuang mural design decoration and color elements, as well as the design method of silk scarf inheritance. It provides a silk scarf design scheme and design effect diagram that combines the aesthetic colors of Dunhuang murals.

LITERATURE REVIEW

Interpretation of the Aesthetic Characteristics of Dunhuang Mural Patterns

According to J. Yang, Cao, H. Yang, Li, & Wang (2021), the inception of cave designs, painted sculptures, and murals within the Mogao Caves can be attributed to the Northern Liang dynasty, marking the first known instances of such artistic expressions. During that period, China adopted Confucianism as its predominant cultural ideology, while painters in Dunhuang consistently incorporated influences from overseas Buddhist art (Ge, Yu, & Zhang, 2023). In order to enhance the dissemination and advancement of Buddhist art within China, artists employed their artistic abilities to adapt foreign Buddhist art to cater to the specific requirements of the local context (Fanost et al., 2020). The amalgamation of Chinese and Western design elements, characterised by

diverse forms, has also surfaced. The primary step in constructing a visual representation is the delineation of its outline, with the depiction of lines being the pivotal factor in moulding such an outline (d'Ayala Valva & Noverraz, 2022). The presence of Feitian in the murals of the Mogao Grottoes in Dunhuang is widespread and integral, rendering it an essential component of the paintings. Furthermore, Feitian serves as a prominent exemplar within the realm of Dunhuang murals (Tomilina, 2020). Feitian is recognised as one of the eight Dharmapala within the Buddhist tradition. The depictions of Feitian bear resemblance to the Western concept of the Cupid Angel, as they both exhibit the characteristic of hovering above the deities. Nevertheless, a notable distinction lies in the fact that their ability to fly is not contingent upon the diminutive wings, modest bows, and arrows adorning their physiques, but rather hinges upon the capacity of the human body to achieve direct flight. According to Iazurlo, Piqué, and Moretti et al. (2021), the dynamic pictures and spatial positioning of the figures in Feitian are represented through the use of their clothing and ribbons. This domain of artistry operates at an elevated level. The Feitian style serves as a medium for the manifestation of individuals' conceptualizations of perfect beauty. In recent years, scholars have shown considerable interest in the use of lines and sophisticated approaches for representing body shape and garment patterns (W. Zhou, 2022). Figure 1 displays the network of research hotspots in mural painting from 2013 to 2023. According to Zhang (2021), when the designs for edge decoration are designed and applied directly, they exhibit a higher level of rigidity and necessitate contemporary design innovation.

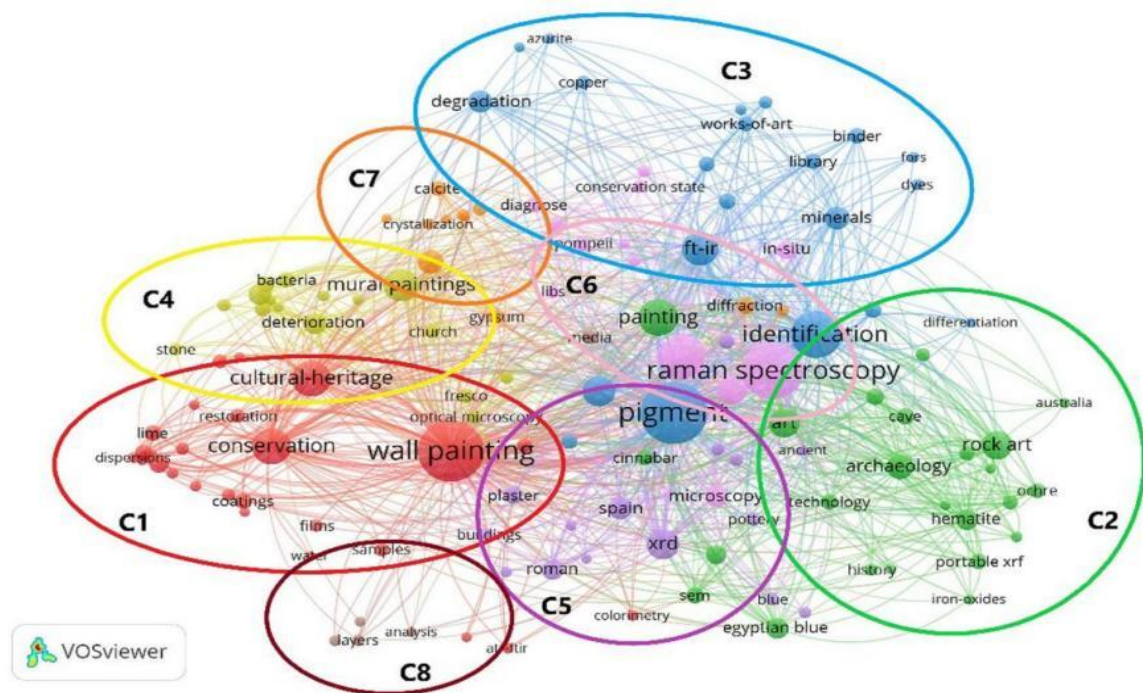


Figure 1. The Co-Occurrence Network of Research Hotspots in Mural Art From 2013 to 2023

The depicted Feitian image, as illustrated in Figure 2, a partially exposed upper body, characterized by fluid and harmonious bodily gestures. Notably, the image showcases a well-developed and curvaceous chest, a subtly prominent lower abdomen, and a robust physique. According to L. Gao (2021), the depiction of lines in this portrayal exhibits a natural and seamless quality, accentuating the graceful contours of the female form and highlighting the voluptuous and supple physical attractiveness of women. The dynamic nature of the Feitian picture might be attributed to the pivotal role played by the shawl adorning its torso. According to N. Cao et al. (2021), the mantle has a graceful drape, enveloping the posterior region of the neck and extending along the arms towards the rear aspect of the physique. Its contours are characterized by a seamless and organic aesthetic, evoking a sense of strength and elegance that harmonizes with the feminine form. The alterations in the hierarchy of the lines illustrate the shifts in the perceived significance of virtual and tangible elements before and following the introduction of the shawl, thereby exemplifying the ethereal elegance of flight. According to Yan, Li, Chan, Shen, & Yu (2021), the lower portion of the Feitian picture is adorned with a skirt with an ankle-length hem. The waistline of the skirt is cinched, while the bottom hem has a modest excess in width from the upper to lower regions. Hence, the Feitian depiction prominently showcases the presence of both lower limbs. According to Philippidis, Mikallou, and Anglos, (2021), the skirt has a seamless flow, while dresses commonly feature intricate descriptions.

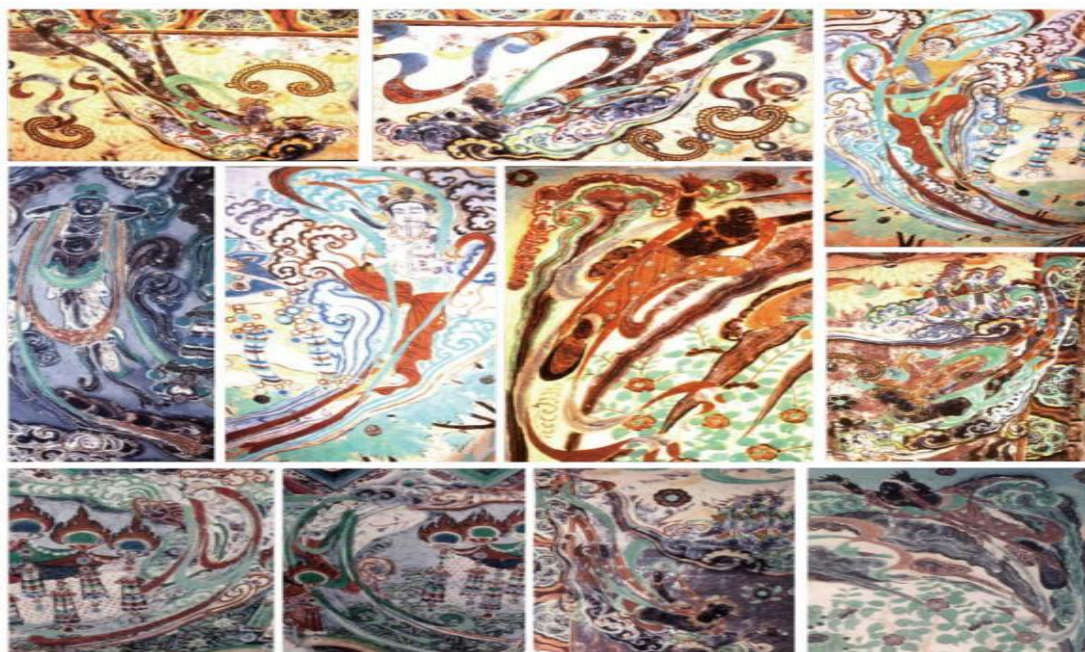


Figure 2. Feitian Pattern in Dunhuang Murals

ANALYSIS OF PAINTING CHARACTERISTICS AND CULTURAL EXPRESSION OF DUNHUANG MURALS

The Dunhuang murals encompass two primary categories of stylistic characteristics. One type of character in this play is the layman, who is predominantly depicted wearing attire representative of the Central Plains Han culture. The visual representations exhibit a significant presence of lifestyle elements while also highlighting prominent attributes of the contemporary era. The character expression technique utilizes the halo dyeing method. Another form of character expression approach is the deity, characterized by apparel that predominantly has an exotic crown with exaggerated and innovative shapes but exhibits minimal variation. In terms of expressive strategies, the predominant approach is typically the concave-convex technique employed in the Western Regions. The formal representation of Dunhuang murals predominantly adheres to the conventions of conventional painting, skillfully delineating a diverse array of human figures as well as flora and fauna. Following the Sui and Tang dynasties, there was a notable emphasis on three-dimensional representation, a tendency towards realism, and a reduced degree of deformation. The depiction of the character and heavenly Buddha form in the Dunhuang paintings is illustrated in Figure 3.



Figure 3. Character and Buddha Shapes in Dunhuang Murals

It is vital to bring up the caisson patterns in the murals, as seen in Figure 4, in relation to the beautiful design of the Dunhuang murals. The caisson represents the pinnacle and focal point of the Buddhist grottoes. Buddhist artists have employed this particular element to create intricate and aesthetically pleasing designs, symbolising the celestial realm beyond the earthly sky and the realm of transcendence beyond ordinary perception. The caisson pattern, situated at the uppermost section of the Dunhuang grottoes, embodies the quintessence of this artistic motif. According to Gil et al. (2021), both human and natural forces pose challenges in terms of being influenced by objective conditions; however, the integrity of these conditions is generally preserved. The properties of the caisson will also exhibit variations corresponding to temporal shifts. Initially, throughout the Northern Wei Dynasty, the caisson designs had a rather modest and uncomplicated nature. According to N. Wang, W. Wang, Hu, Fenster, & Li (2021), the dominant hues present in the designs were earth red, deep ochre, white, and earth yellow. The pattern structure consisted of four sets, each containing various representational elements, including geometric patterns, lotus patterns, flying patterns, water vortex patterns, flame patterns, and honeysuckle patterns. The primary motif typically observed is a circular lotus pattern, featuring an outer layer adorned with water vortex patterns (Lv, Lan, Yu, & Li, 2022). The floral motifs seen in the corners predominantly consist of flying patterns, flame patterns, or edge embellishments that incorporate honeysuckle and geometric designs.



Figure 4. The Patterns and Characteristics of the Caisson in Dunhuang Murals

The Sui Dynasty's caisson designs began to use contrasting colors, with the contrast between extensive regions of stone blue and little portions of eosin making the motifs more noticeable. The design pieces exhibit a vibrant and diverse array of colors, characterized by dynamic shapes, fluid lines, and aesthetically pleasing imagery. The caisson designs during the Tang Dynasty were characterized by their luxury, featuring several motifs. The color processing technique uses a gradient dyeing procedure, progressing from dark to intermediate to bright shades. A recent development in the field of composition (Cortea, Ghervase, Țentea, Pârău, & Rădvan, 2020) pertains to the artistic practices of Tang Dynasty painters. These artists primarily emphasized using a centrally positioned design while working with screens, complemented by meticulous edge decorations. This approach not only conveys a feeling of hierarchical arrangement within the design but also contributes to the overall rhythmic quality of the screen. Notably, the caissons of the Western Xia Dynasty had diverse dragon-shaped decorations, which were characterized by distinct ornamental techniques including painting, gilding, and sculpting (Zalbidea-Muñoz, 2021). During the Five Dynasties period, a notable feature of the caisson design was the incorporation of floral motifs alongside depictions of dragons and phoenixes. According to Seok, Joo, and Nam (2020), caisson designs throughout the Song Dynasty predominantly incorporated circular and geometric motifs, leading to a

somewhat uniform and repetitive visual impression.

During the Sui Dynasty, a notable transformation occurred in the caisson designs, characterized by the incorporation of contrasting colors. The design pieces exhibit a vibrant and diverse array of colours, with dynamic shapes, fluid lines, and aesthetically pleasing imagery. The caisson designs during the Tang Dynasty were characterised by their luxury, with prominent themes such as grapevine designs, treasure phase flowers, three rabbits, and a Feitian, all positioned at the centre of the caisson. In contrast to the Sui Dynasty, the designs during this period exhibited a greater degree of vibrancy and diversity in terms of their lines, colours, and techniques. A halo dyeing procedure has been employed in colour processing, including a spectrum of shades from dark to intermediate to bright. A recent advancement in composition has been observed in the works of Tang Dynasty painters (Cortea et al., 2020). These artists primarily emphasise the central design of the screen, accompanied by decorative elements along the edges. Notably, the caisson of the Western Xia Dynasty included a range of dragon-shaped embellishments that were distinguished by their distinctive cosmetic techniques, including painting, gilding, and sculpting (Zalbidea-Muñoz, 2021). During the Five Dynasties period, a notable element of the caisson design was the incorporation of floral motifs alongside depictions of dragons and phoenixes. According to Seok et al. (2020), during the Song Dynasty, most caisson designs exhibited a combination of circular and geometric motifs, which led to a somewhat uniform and repetitive visual effect.

The Dunhuang murals have endured millennia, exhibiting distinct chromatic variations across many historical epochs. The colour languages employed in Dunhuang art have a remarkable capacity to evoke strong emotional responses, effectively conveying the most poignant aspects of this artistic tradition (J. Cao, Z. Zhang, Zhao, Cui, & Q. Zhang, 2020). The initial creations of Dunhuang murals can be traced back to the Northern Wei Dynasty. These early works employed the Kucha style's rendering process for character expression, which involved the application of red clay followed by black line painting (B. De-Miguel-Molina & M. De-Miguel-Molina, 2021). According to Martínez-Carazo, Santamarina-Campos, and De-Miguel-Molina (2021), this painting technique not only incorporates visually appealing colours but also accentuates the visual elements. Figure 5 displays the customary designs of edge ornamentation observed in Dunhuang murals. The Tang Dynasty, characterised by its prosperity, represents a significant phase in the development of Dunhuang mural painting. During this time, there was a notable refinement in the use of colours, with a greater emphasis on more prosperous and more nuanced shades. This allowed for a more expressive and sophisticated portrayal of various subjects.

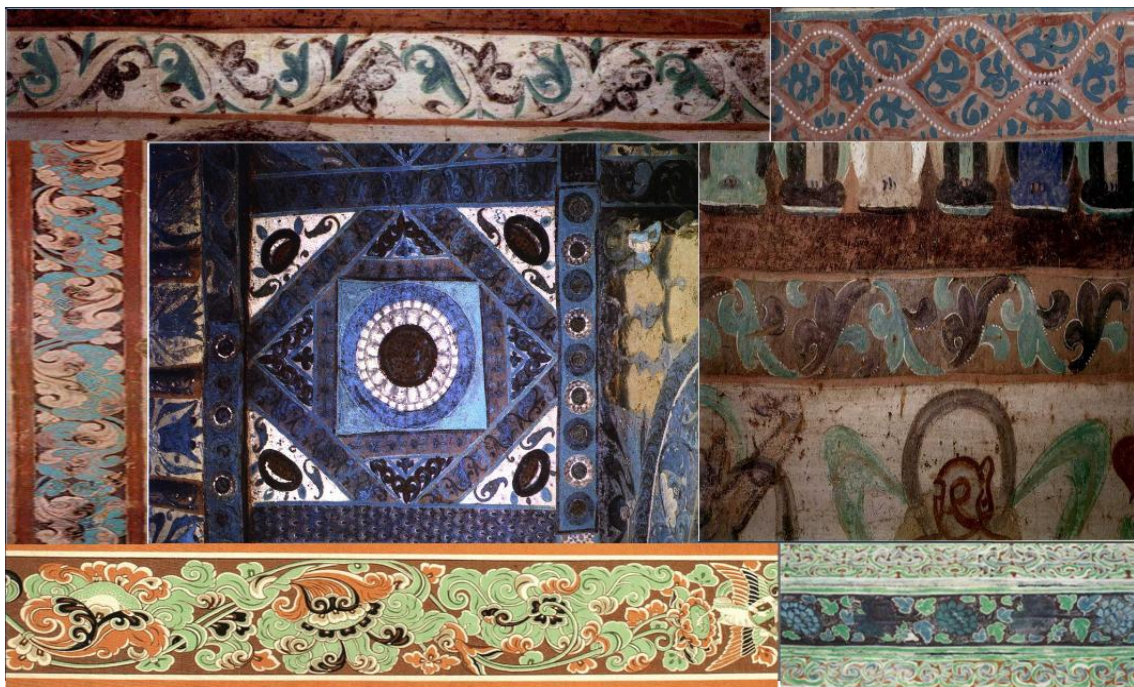


Figure 5. Typical Edge Decoration Patterns in Dunhuang Murals

The complexity of the design formations gradually increased, accompanied by a heightened vibrancy and visual appeal of the colours. Additionally, there was a steady shift towards adopting an elegant and splendid colour palette under the affluent Tang Dynasty. During the prosperous Tang Dynasty, China's feudal dynasty experienced its pinnacle of development. During this era, there were extensive and amicable interactions with

foreign nations, leading to the assimilation of Western culture and Zhongyuan culture. Consequently, the incorporation of colour in mural art experienced a progressive increase. The chromatic aesthetics of the latter Tang Dynasty exhibit resemblances to those observed during the middle Tang Dynasty. Throughout this historical time, known as the Guiyi Circuit period under the leadership of Zhang Yichao, the ruling authority was held by the Han great landlord group, which governed the sandbar region throughout the middle Tang Dynasty. The identifying mark that sets apart the mural styles of the mid and late Tang Dynasties is the depiction of Tubo Zanpu, together with various Folk costumes.

The advent of Buddhism had no discernible impact on the societal standing of Confucianism. The primary components of the Tang Dynasty's edge decoration designs encompassed a diverse range of motifs, which may be categorised into many groups such as plant designs, animal designs, geometric designs, celestial designs, figure designs, and animal designs. Every design is associated with specific cultural implications. Figure 6 illustrates the juxtaposition of warm and cold colours in the Dunhuang murals. The identifying mark that sets apart the mural styles of the mid and late Tang Dynasties is the depiction of Tubo Zanpu, together with various Folk costumes.

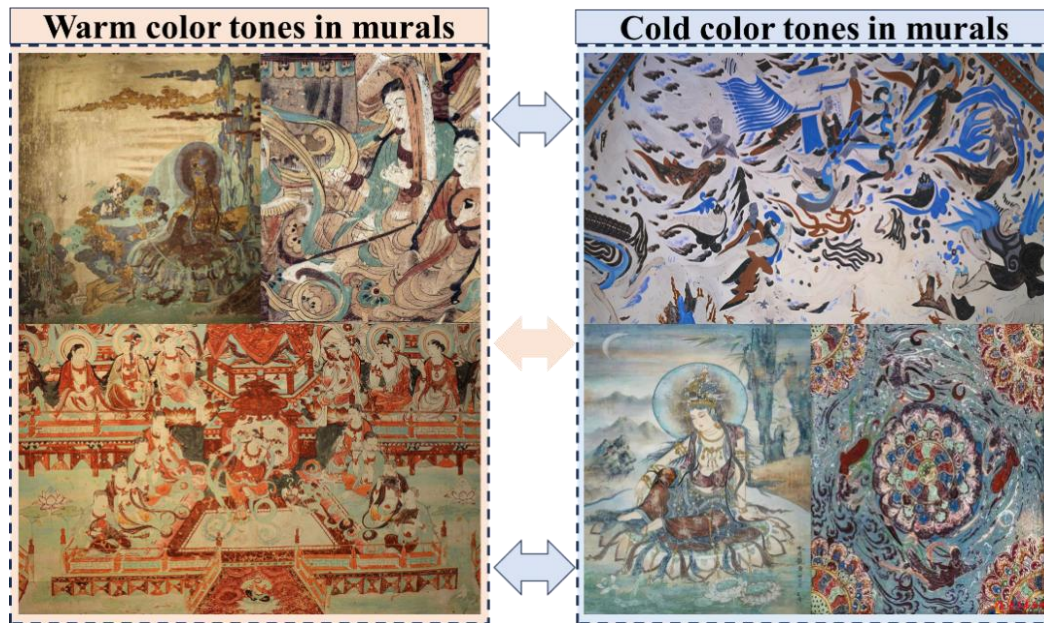


Figure 6. Comparison of Warm and Cool Colors in Dunhuang Murals

The Dunhuang Grottoes are renowned for their exceptional murals that seamlessly integrate cultural elements from several nations and incorporate intricate designs. These murals also encapsulate the essence of design beauty as perceived by the artists. The detailed representation of unit designs elicits a profound appreciation for the exceptional artistic abilities of painters. Painters can select the most appropriate method for depicting the aesthetic qualities of a design within a given spatial and temporal context while also conveying the inherent sacredness embedded within the design. These criteria serve as indicators for evaluating movement, tension, and life within designs. The alterations in ornamental motifs typically pertain to modifications in shape, hue, and composition. Figure 7 illustrates the colour grading employed in mural art to represent different age groups.

The Dunhuang Grottoes are renowned for their stunning murals, which demonstrate a harmonious fusion of several cultural influences and incorporate intricate patterns. These murals also serve as a testament to the artistic interpretation of pattern beauty by the painters involved. The intricate portrayal of unit patterns elicits a profound appreciation for the exceptional artistic abilities of painters. The consolidation of various patterns within a confined space, while ensuring their interconnectedness, serves as a fundamental principle in attaining a harmonious fusion of content and form within the overarching pattern. Pattern, architecture, and sculpture each adhere to distinct sets of principles, and the aesthetic appeal of form is subject to fluctuations influenced by natural, social, human, temporal, and fortuitous elements. Painters possess the ability to select the most appropriate method for capturing the aesthetic essence of a pattern within a given spatial and temporal context while effectively conveying its inherent sacredness. This capability is rooted in the existence of a pre-established criterion for beauty, which, when applied, engenders a visually pleasing outcome on the canvas. Change and unity are intrinsic qualities that permeate all entities and manifest in various patterns. These criteria serve as indicators

for assessing the presence of movement, tension, and liveliness within patterns. The alterations in decorative patterns typically pertain to modifications in shape, hue, and composition. Figure 7 displays the colour grading of age groups in mural painting.

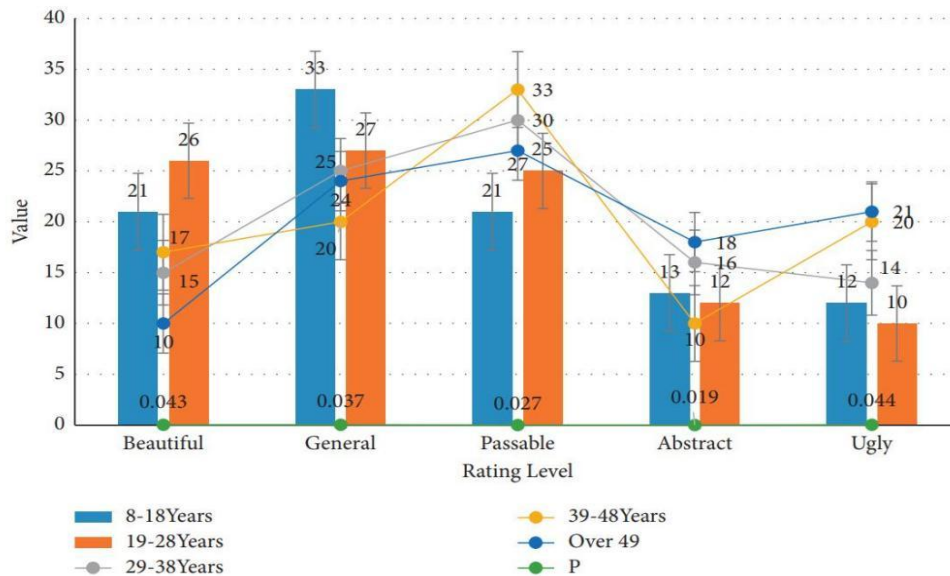


Figure 7. Color Grading of Age Groups in Mural Art

The changes in the size of unit patterns and the thickness of contour lines in terms of form, as well as the changes in hue, brightness, and saturation in terms of color, arrangement refers to the changes in the arrangement pattern in a fixed area. It is precisely with the interdependence of these factors in the pattern that the pattern changes, making it more attractive. Uniformity refers to the determination of the theme style and fundamental color tone of the image, which, while the pattern changes, does not appear disorderly due to excessive changes, maintaining the overall harmony of the image, and unity includes changes. Change and unity are interdependent, and both are indispensable. The unity in the pattern enhances the coordination of the relationships between the elements in the picture, but excessive unity can backfire, making the picture rigid and monotonous. Change and unity, regardless of which aspect is emphasized separately, will make the pattern less attractive.

RESULTS

The Application Practice and Innovative Principles of Dunhuang Mural Painting

The Mogao Grottoes of Dunhuang, regarded as a significant repository of artistic heritage from various civilizations, boast remarkably well-preserved patterns and vibrant colours, which hold considerable practical significance. The Tang Dynasty was characterised by a flourishing era of mural art. The decorative patterns of the Tang Dynasty were exceptionally well-preserved, characterised by intricate and exquisite designs adorned with vibrant and dynamic colours. These patterns showcased the remarkable artistic and technical prowess of the artisans during this era. The Dunhuang paintings, being a valuable representation of art and culture, ought to be preserved, revitalised, and communicated through contemporary media platforms in order to foster a distinct cultural impact. Traditional art, culture, and forms possess both national and global significance. Contemporary art practitioners assume a heightened responsibility for fostering a broader comprehension of this cultural domain among younger generations, ensuring the enduring preservation of traditional artistic expressions.

The incorporation of Tang Dynasty Dunhuang border decorating patterns into contemporary design and presentation through scarves as carriers has garnered significant attention from the general public, leading to an increased interest in the traditional cultural and creative market. The inventive design ought to conform to principles of aesthetics, practicality, and innovation throughout its development. The silk scarf that has been meticulously crafted exhibits a high level of comfort when worn, owing to its exceptionally soft and gentle texture that minimizes any potential irritation to the wearer's skin. Simultaneously, it is imperative to prioritize practicality as the foundational principle in design, while also adhering to the principles of staying abreast of contemporary trends, aligning with prevailing patterns and colours, and adapting to market fluctuations.

Practice of Silk Scarf Design Integrating Dunhuang Mural Art Forms

The genesis of the rolling grass pattern is a subject of considerable controversy. One hypothesis posits that the development of this pattern can be traced back to the introduction of the honeysuckle motif by Buddhism in the Six Dynasties era, which afterwards underwent influences from Chinese cultural elements. During this particular era, the pomegranate rolling grass design exhibited a graceful and fluid aesthetic, characterised by the presence of a branch across the perimeter of the decorative region in undulating waves, effectively dividing it into two distinct parts. The intricate network of branches is adorned with an abundance of floral elements and intricate designs resembling grass. The organisational structure of the pattern is characterised by the unfolding of the tangled branches in a wavy configuration. The branches and stems exhibit intricate grass motifs that are curled, as well as a diverse array of floral patterns consisting of several flowers. The floral embellishments include leaf motifs characterised by numerous minuscule fissures resembling thorns. The entirety of the edge ornamentation region is adorned with intricate embellishments depicting a complex arrangement of intertwined branches. The procedure for extracting elements involves delineating each enclosed region of the edge embellishment pattern in the central line draught and preparing the interconnection between the surfaces of the blocks for the application of colour. Figure 8 illustrates the process of extracting the elemental components of the edge decorating pattern depicted in the mural. Simultaneously, the depiction of botanical components in the artwork has a heightened level of intricacy derived from the source image, accentuating the aesthetic allure of Dunhuang ornamental motifs and safeguarding the symbolic significance conveyed by Dunhuang wall paintings.



Figure 8. Element Extraction of Mural Edge Decoration Patterns

The group flower design holds significant scientific and creative value as a timeless motif in ancient Chinese culture. The characteristics of the floral motif employed in various periods of the Tang Dynasty exhibit notable variations. During the Tang Dynasty, there was a notable increase in the prevalence of eight-petal round blooms, reaching a peak during this period. This proportion remained consistent with that observed in the early Tang Dynasty. The combination of four-petal and eight-petal blooms constitutes the predominant proportion. During the Middle Tang Dynasty, there was a notable transformation in the distribution of floral kinds. Specifically, there was a substantial increase in the prevalence of five-petal and six-petal flowers, accompanied by a corresponding decrease in the proportion of other floral types, which diminished to one-third of their previous prevalence. This pattern persisted into the late Tang Dynasty, remaining relatively stable without significant alterations. Hence, the author derived the constituent elements of the group flower border design pattern from the historical period of the Tang Dynasty.

In the realm of industrial art design, one may opt to only draw inspiration from the design designs found in Dunhuang murals. By using popular colours, this approach aims to enhance the appeal and fashion ability of scarves, rendering them more compatible with contemporary apparel trends. The term "scattered composition" pertains to the non-uniform distribution of several unique designs within an image, where these designs may consist of identical or interconnected items. The correlation between the border design pieces and the planned

background design elucidates the intimate connection between the border design and the Mogao Caves. The silk scarf design, which has been designed based on the design and colour reconstruction, is depicted in Figure 9.



Figure 9. Reconstructed Design of Finished Scarf Patterns from Mural Patterns

In the context of scatter composition, the unit patterns are systematically organised and merged in a continuous manner along four axes. The author derived the unit patterns from the edge decorating patterns of the turtle shell pattern from the Tang Dynasty. In order to emphasise the geometric characteristics of the turtle shell pattern, the inclusion of the tiny four-leaf flowers within the patterns was deleted. The scatter composition technique involves the constant arrangement and combination of unit patterns in four directions. The unit designs were derived by the author from the edge decoration patterns found on the turtle shell pattern of the Tang Dynasty. In order to emphasise the geometric characteristics of the turtle shell pattern, the author chose to exclude the tiny four-leaf flowers that are often present within the patterns.

Digital printing technology is the result of integrating digital technology with conventional printing and dyeing techniques. This represents a significant advancement within the conventional printing and dyeing sector. Within the realm of digital networking, digital printing serves as a pivotal technological advancement that signifies the future trajectory of the printing and dyeing sectors. Digital patterns are uploaded to a computer and subsequently processed through a computer colour separation printing machine using digital means. Subsequently, a dedicated software application employs the printing equipment to precisely disperse a range of specialised dyes into the silk fabric. Following the necessary post-processing procedures, diverse printed goods are achieved on the cloth. The mural exhibits a harmonious composition with the skillful integration of vibrant red hues alongside smaller patches of yellow, gold, stone green, sapphire blue, and black. This deliberate arrangement of colours results in a visually captivating artwork that effectively balances unity and contrast. The author is profoundly drawn to these colours. By employing diverse filters and blurring techniques within the Photoshop software, the author only preserves the initial colour tone while applying a blur effect to a specific image within the original photograph. The process involves the manipulation of photographs with varying dimensions to produce scarves that exhibit aesthetic qualities reminiscent of Dunhuang murals. By employing comparable processing procedures, Photoshop is utilised to a certain degree in order to process the image. The scarf effect is achieved by several artistic techniques, including rotation, amplification, reduction, and displacement. The author employed a comparable approach to create two silk scarf patterns by utilising the colour scheme of a Dunhuang painting that underwent twisting and deformation subsequent to splicing. The incorporation of Dunhuang mural stylistic elements and colour components can be employed in the design of scarves. The colour palette employed in the Dunhuang paintings has a remarkable sense of harmony and elegance, exemplified by the sophisticated use of contrasting shades of grey. The colours of warm brick red, cool stone green, and diamond blue are often found to be complementary on various screens. The presence of a greater proportion of warm colours will result in the perception of a warm grey tone, while a higher concentration of cold colours will yield a serene grey tone. When the areas of cold and warm are of similar magnitude, a high-end grey colour system that integrates both cold and warm tones will manifest. Figure 10 illustrates the process of converting and merging various mural colour systems.

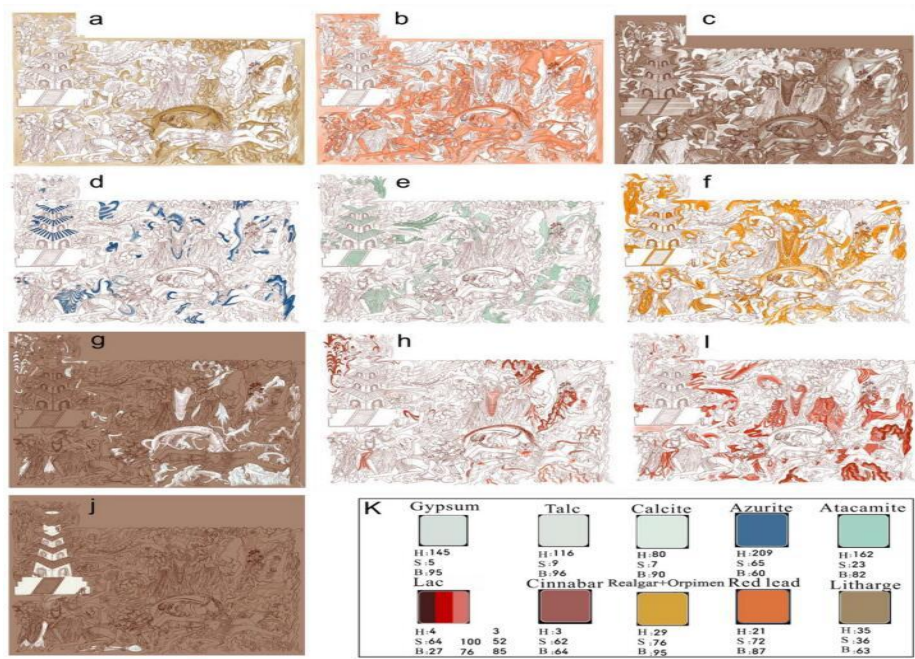


Figure 10 Conversion and Fusion Between Different Mural Color Schemes

CONCLUSION

The Dunhuang art, which has been designated a global heritage site, has garnered increasing attention from individuals. Moreover, governmental entities, designers, and artists have been actively engaged in the exploration and preservation of this artistic heritage. This essay aims to enhance and reconfigure the components of Dunhuang by means of comprehensive aesthetic research, then incorporate them into the design of scarves. The inclusion of Dunhuang features in this article represents a continuation and broadening of the integration between contemporary fashion art and an ancient civilization that spans over a thousand years. This amalgamation encompasses elements of both fashion and romance, as well as the juxtaposition of contemporary and historical influences. In the pursuit of enhancing our comprehension of Dunhuang murals, our objective is to explore methods for preserving and advancing their artistic legacy. By employing silk scarves as a medium for pattern application, we aim to demonstrate the visual impact of incorporating edge decoration patterns within the framework of contemporary design principles. This endeavour serves to both celebrate the artistic and aesthetic merits of Tang Dynasty edge decoration patterns and expand the utilisation and dissemination of Dunhuang elements within the realm of modern silk scarf design.

The utilisation of Dunhuang culture in contemporary garment design exemplifies the multifaceted nature of cultural evolution in China. The traditional culture and art it embodies assume a foundational role in contemporary garment design. By means of persistent investigation, it is possible to incorporate elements of traditional Chinese culture into the designs, colours, patterns, and craftsmanship of modern Chinese clothes, thereby generating more succinct syntheses and novel advancements. This endeavour paves the way for a fresh trajectory in the realm of artistic design.

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