

The Research on Carpet Design Development as a Homage to William Morris.

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This study aims to develop carpet designs suitable for modern urban households, based on William Morris's natural style, by incorporating natural elements to meet consumer demands. The research analyzes William Morris's works from three different periods, extracting their design characteristics and color elements, and utilizes Adobe Photoshop software to create new carpet designs. The carpets from each period were conceptualized with the themes of "Ocean of Leaves", "Mirage Forest", and "Blue Landscape", respectively, featuring natural curves, contrasting colors, and plant motifs. This study proposes a new carpet design methodology that is expected to respond to market changes and industry demands, thereby contributing to innovation and development in the carpet design field. Furthermore, the research is anticipated to provide a theoretical foundation and practical reference materials for related fields.

Keywords: era interior design, William Morris, carpet design

Introduction

Research Background and Objectives

Consumer expectations for interior design are continuously increasing, and as demands diversify, various styles of interior design are emerging. In interior spaces, carpets significantly influence the overall ambiance. Carpet design must harmonize with the interior decoration style and, at the same time, express a unique, distinctive style. This approach provides both unity and originality to the interior space, enhancing its functionality and aesthetic value. Therefore, it is crucial to develop new carpet designs that are innovative and distinct from existing products (Wi & Eom, 2023).

The purpose of this study is to design carpets that combine the art of William Morris with modern interior spaces for widespread application. William Morris, a theoretical leader of the Arts and Crafts Movement, has profoundly influenced modern art over the past century through his contributions to design thought and visual communication of color use. Therefore, this research aims to analyze the color characteristics and design principles of William Morris, propose new carpet designs that reflect individuality and traditional craftsmanship, and through this, create new market demands and enhance market competitiveness.

Scope and Methodology of Research

The scope of this study involves categorizing William Morris's creative works into three periods, summarizing and organizing the characteristics and colors of each. To achieve this, a historical examination of William Morris's works and related research on carpets were conducted. Finally, motifs were extracted from works of the three periods, and carpet designs were developed using the main colors of those works.

The research methods are as follows. First, through the analysis of William Morris's definitions and works, characteristics of these works were summarized based on prior studies and literature reviews. Second, historical data and related research on carpets were examined to organize the types of carpet materials and fabrication methods. Third, innovative carpet designs were developed by combining the characteristics and primary colors of William Morris's works to add a warm psychological feel to family spaces.

Examination of William Morris's Works

Historical Background of William Morris

William Morris (1834-1896) was a significant leader of the British Arts and Crafts Movement in the 19th century, and his influence has been deep and widespread. Morris was born into an affluent family and received a quality education. While studying at Oxford University, he was deeply influenced by medieval art and Gothic architecture, which greatly impacted his work. By the end of the 18th century, the Industrial Revolution had shifted the production of consumer goods to mass production using machinery, resulting in a decline in quality compared to handcrafted products. William Morris believed that the corruption of art was due to mechanical production methods and division of labor, which led him to initiate the Arts and Crafts Movement (Han, 2002). As a designer and representative of the Arts and Crafts Movement, Morris founded "Morris, Marshall, Faulkner & Co." which focused on producing high-quality products such as furniture, wallpaper, textiles, and carpets. The textiles featured distinct characteristics across various forms, including tapestry, woven textile designs, printed textiles, embroidery, and carpets (Song, 2022). The artworks reflected the essence of human life and the sanctuary of nature, moving towards a direction that allowed one to experience beauty and satisfaction.

Stylistic Characteristics of William Morris's Works by Period

William Morris's textile works feature the Gothic style, characterized by simple and robust forms and organic shapes inspired by nature. Influenced by medieval art, these works exhibit a variety of color uses, including complementary color effects and elegant decorative patterns (Xiang & Wu, 2018). Through an analysis of William Morris's works by period, changes in design styles and distinctive design features were identified, providing inspiration for carpet development and design.

Characteristics of William Morris's works from 1861-1875. William Morris and his colleagues founded the Morris, Marshall, Faulkner & Co. in 1861. During this period, Morris's works exhibited an independent and conservative tendency. The popular works of the time featured patterns characterized by geometric transformations or planar modifications. Additionally, the works of the period integrated natural themes, resulting in the creation of his first design, "Trellis", in 1862, followed by "Pomegranate" and "Daisy" before 1870 (Xiang & Wu, 2018). The two works are characterized by their natural colors. Among them, "Pomegranate" features a creamy yellow background contrasted with green fruits and leaves, expressing vitality and the richness of nature. The background of "Trellis" is dominated by blue birds and green vines. Additionally, the design of "Daisy"

combines red and yellow flowers with gray leaves on a soft background, adding warmth and liveliness to the space (Figure 1).



Figure 1. From left to right, “Trellis”, “Pomegranate”, “Daisy”.

Between 1870 and 1875, William Morris lived at Kelmscott Manor in London with his wife Jane Morris and their two daughters, Jenny and May¹. During this period, the expression of themes in his works can be divided into two types. One type features realistic depictions of plant vines and leaves, exemplified by “Acanthus” and “Vine”. The other type portrays flowers and branches, as seen in “Jasmine” and “Tulip”². The works from William Morris’s second period primarily utilize natural and cool colors. “Acanthus” emphasizes plants in light yellow, brown, and grey, while “Vine” features grapes and green leaves, mainly using green and purple with some brown and grey, characterized by clear colors. “Jasmine” creates a warm and soft atmosphere with a green background, green flowers, and leaves, while “Tulip” uses pink and white to create a romantic ambiance, characterized by warm and soft colors contrasted with other colors. Thus, the works of the 1870s extensively used natural colors to enhance visual effects. The overall color tone is harmonious and unified, with various colors complementing each other to form a complete visual effect (Figure 2).



Figure 2. From left to right, “Acanthus”, “Vine”, “Jasmine”, “Tulip”.

Characteristics of William Morris’s works from 1876-1883. From 1876 to 1883, the style of William Morris’s works was centered around strict vertical repetition and bilateral symmetry, markedly different from the curvilinear and natural styles of his earlier phases. During this period, Morris’s works were less intricate in pattern details compared to those of the 1870s, with more emphasis on practicality in everyday life. He utilized repetitive structures based on natural curves to express natural elements. Key works from this period include “Acorn”, “Brother”, and “Bird and Anemone”³. During this period, William Morris’s works utilized a variety of colors and natural motifs. “Acorn” features brown leaves set against a deep blue background, while “Brother” displays red leaves and pink rabbits, conveying vibrancy and passion. “Bird and Anemone” uses red leaves and light brown

¹ <https://zh.wikipedia.org/wiki> (2024.06.10).

² <https://collections.vam.ac.uk> (2024.06.10).

³ <https://wmgallery.org.uk> (2024.06.10).

to create a soft and romantic atmosphere. The characteristic expression of colors in these works includes natural colors, clear colors, and contrasting colors (Figure 3).



Figure 3. From left to right, “Acorn”, “Brother”, “Bird and Anemone”.

Characteristics of William Morris’s works from 1884-1890. From 1884 to 1890, the works of this era employed diagonal structures extensively, unlike the vertical repetition and bilateral symmetry of previous periods. Many flowers and vine leaves were used to create a sense of stability. The works of this period depict plant forms in a general sense but with very minimal detail in their portrayal. Key representative works include “Garden Tulip” and “Wandle”⁴. Between 1884 and 1890, William Morris’s work “Garden Tulip” primarily features red, composed of red flowers and intricate vines against a light-colored background. “Wandle” mainly uses shades of gray and light blue, with details in light yellow and white. The use of cool tones gives the piece a tranquil and elegant feel, with light blue floral patterns and a gray background creating a contrast that enhances the depth of the pattern. The overall color scheme is harmonious and unified, providing a visually clear effect. The composition techniques exquisitely utilize prominence and contrasting colors, creating a serene atmosphere while adding depth and visual appeal (Figure 4).



Figure 4. From left to right, “Garden Tulip”, “Wandle”.

From 1890 to 1896, William Morris’s style of work was similar to that of the 1870s. Key works from this period include “Blackthorn”, “Double Bough”, and “Hammersmith”⁵. The characteristics of the works from this period include a recombination of naturalism and formalism, featuring natural curves. The compositions predominantly utilize green, yellow, and red flowers, creating a refreshing and natural atmosphere. The methods of composition exquisitely employ prominence and contrasting colors, fostering a tranquil ambiance while enhancing depth and visual appeal.

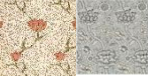
From 1890 to 1896, William Morris’s style of work was similar to that of the 1870s. Therefore, the analysis showing the three distinct period characteristics of William Morris’s works is presented in the Table 1.

⁴ <https://collections.vam.ac.uk> (2024.06.10).

⁵ <https://collections.vam.ac.uk> (2024.06.10).

Table 1

Periodic Characteristics of William Morris's Works

Years	Characteristics	Work image	Color	Color features
1862-1875	Geometricity Vibrancy Naturalness Natural curves		 PANTONE 7180C  PANTONE 1012C  PANTONE 4034C  PANTONE 4023C  PANTONE 7180C  PANTONE 9123U	Natural colors Contrasting colors Cool colors Clear colors Warm and soft colors
1876-1883	Vertical repetition Bilateral symmetry Repetitive structures Contrastiveness		 PANTONE 2320U  PANTONE 7581C  PANTONE 8585C  PANTONE 492CP  PANTONE 7521U	Natural colors Clear colors Contrasting colors Rich colors
1884-1890	Naturalness Stability Diagonal structure Pattern composition		 PANTONE 4007U  PANTONE 1035C  PANTONE 167U  PANTONE 403UP	Contrasting colors Visual appeal Unified color tones Layered colors

Case Analysis of Carpet Designs Applying William Morris's

Bullerswood Carpet. The Bullerswood Carpet is a hand-knotted wool carpet co-designed by William Morris and his assistant J. H. Dearle in 1889. It received high acclaim for its intricate craftsmanship and complex design, becoming one of the hallmark creations of Morris and his company. The carpet was specifically designed for the Bullerswood House in Chislehurst, Kent, which was decorated by Morris's company as part of a broader decorative project. The Bullerswood Carpet is made from hand-knotted wool using cotton warp threads. It employs the Turkish Ghiordes knotting technique, featuring 25 knots per square inch. This dense knotting not only enhances the durability of the carpet but also allows for more detailed and meticulous patterns⁶ (Figure 5).

*Figure 5. Ghiordes knotting method.*

⁶ <https://m.search.naver.com> (2024.06.10).

In William Morris's works, natural themes are a core element, and the Bullerswood Carpet exemplifies this with its rich natural patterns and colors. The carpet includes a variety of floral and leaf patterns such as roses, lilies, and chrysanthemums, reflecting the natural landscape of the English countryside. These designs embody Morris's love and respect for nature, and the patterns of vines and branches add vitality and a natural feel to the carpet. Morris emphasized not only aesthetic pursuit but also practicality, aiming for the carpet to be a comfortable and enjoyable part of home life⁷ (Figure 6).



Figure 6. Redcar carpet.

Bullerswood Carpet. The Redcar Carpet is a classic hand-knotted carpet designed by William Morris, showcasing superb craftsmanship and intricate design. It is one of the representative works of Morris and his Arts and Crafts Movement, with the design dating around 1881 and its production occurring in the early 20th century. Originally produced at Kelmscott House in Hammersmith, London, the carpet uses hand-knotted cotton warp with a weft blend of mohair, camel hair, wool, and jute. This combination renders the carpet sturdy and durable while providing a soft touch. The carpet predominantly features light tones; the background is camel-colored, detailed with soft pink, blue, and green hues that contribute a calm and warm feeling. The design of the Redcar Carpet is highly symmetrical, surrounded by repetitive floral and geometric patterns around the central motif. This symmetrical arrangement not only enhances the beauty of the carpet but also offers balance and a sense of order. In addition to natural elements, the carpet includes many geometric patterns that, combined with the botanical patterns, create a complex and harmonious design⁸ (Figure 7).



Figure 7. Redcar 카펫.

Bullerswood Carpet. The Holland Park Carpet is a classic handcrafted carpet designed by William Morris in 1882, showcasing the unique style and craftsmanship of his Arts and Crafts Movement. The carpet was produced either at Merton Abbey or Hammersmith, both of which were key production bases for Morris's company. This carpet exemplifies Morris's commitment to reviving traditional textile arts and crafts, integrating

⁷ <https://collections.vam.ac.uk> (2024.06.10).

⁸ <https://collections.vam.ac.uk> (2024.06.10).

them with his own innovative designs. The Holland Park Carpet is made from hand-knotted wool with both the warp and weft crafted from high-quality cotton threads. These materials ensure the carpet's durability and softness. The vine and branch designs make the patterns more vibrant and natural, giving the impression that the plants are freely growing across the carpet. The composition of the pattern is quite intense, providing a sense of stability throughout the carpet. This contributes to both the aesthetic appeal and the functional quality of the carpet, aligning with William Morris's philosophy of beauty in utility⁹ (Figure 8).



Figure 8. Holland Park Carpet.

General Examination of Carpets

History of Carpets

The history of carpets dates back to the 4th century BCE in ancient Egypt, where they were initially made from natural fibers such as palm leaves and grass, and used as indoor carpets and wall decorations. During the Middle Ages, carpets were considered luxury items by European and Asian nobility, adorning palaces and aristocratic homes as symbols of wealth and status. With the development of trade, carpets from the Middle East and Asia were introduced to Europe, where they also gained significant popularity in Western society (Wi & Eom, 2023).

During the Industrial Revolution, the invention of the power loom enabled large-scale carpet production, reducing costs and making carpets widely accessible for use in both households and commercial spaces. In the 20th century, the introduction of synthetic fibers such as nylon and polyester improved durability and stain resistance. Modern carpet production now focuses on environmental protection and sustainability, using recycled materials and advanced dyeing technologies to meet the diverse needs of consumers while also addressing environmental concerns¹⁰.

Classification of Carpets

A carpet (especially a handmade carpet) is a textile product that covers the floor, primarily made from natural fibers such as wool, although synthetic fibers like nylon and polypropylene can also be used (Saeedi, Nabilou, & Masouleh, 2020). The classification of carpets is as follows: classification by production method, classification by pile type, classification by material, and classification by form (Cha & Park, 2017).

Classification by production method. Handmade tufted carpets are crafted using a handheld tufting gun to insert yarn into a base fabric. These carpets are made from materials such as wool and cotton, offering high

⁹ <https://collections.vam.ac.uk> (2024.06.10).

¹⁰ <https://ruggallery.net/> (2024.06.10).

quality, though not as high as handwoven carpets. In terms of durability, handwoven carpets can last up to 200 years, while machine-made and handmade tufted carpets typically have a lifespan of around 20 years¹¹ (Figure 9).



Figure 9. Handmade tufting production method.

Robot tufting is a modern method of carpet production that utilizes advanced automated equipment for high efficiency. The production process involves preparing the base fabric, generating and transferring the design pattern using CAD software, and inserting yarn with robotic tufting equipment to form loop or cut piles. This equipment precisely controls the depth and density of the yarn insertion, allowing for the creation of various textures and effects¹² (Figure 10).



Figure 10. Robot carpet tufting tool.

Woven carpets are made by interlacing warp and weft threads, using various types of looms. The warp threads are fixed on the loom, and the weft threads are inserted between the warp. Patterns are created by passing the warp through the holes and heddles of the loom, and the tension of the warp must be maintained evenly. By changing the color and insertion method of the weft, a variety of patterns and textures can be produced, with techniques such as plain weave, twill weave, and jacquard weaving¹³ (Figure 11).



Figure 11. Robot tufting.

¹¹ <https://khazairugs.com/> (2024.06.10).

¹² <https://efab.de/products/etuft/> (2024.06.10).

¹³ <https://www.jaipurrugs.com/> (2024.06.10).

Hand-knotted carpets are a complex and time-consuming craft where yarn is knotted by hand on a loom to create intricate patterns and textures. Wool and silk are primarily used; wool provides durability and natural colors, while silk adds shine and softness. First, a strand of pile yarn is folded to form a loop, which is then inserted between two warp threads. The loose end is pulled through the loop to create a knot. Patterns and designs can be created by using pile yarns of various colors. Each row is knotted, ensuring the size and density of the knots remain consistent¹⁴ (Figure 12).



Figure 12. Carpet knotting method.

Classification by pile type. Cut pile carpet is a type of carpet where the looped carpet fibers are cut to create a smooth and soft surface. After securing strong jute or cotton fabric to a frame, a punching gun is used to push the yarn through the fabric, forming loops. Then, professional scissors are used to cut the loops, resulting in a smooth surface¹⁵. Loop pile carpet is highly durable and resilient, providing a sturdy surface by securing fiber loops to the base. A tufting gun is used to pass the yarn through the base fabric, creating loop-shaped piles, and the yarn is not cut. It is produced in two ways: level loop (with uniform loop height) and multi-level loop (with varying loop heights), forming various textures and patterns¹⁶.

Classification by material. Synthetic fiber carpets are made from nylon, polyester, and polypropylene, and are widely popular due to their durability and ease of maintenance. Additionally, they have resilience, allowing them to return to their original state after being subjected to pressure (Zhao, Le, & Wu, 2024). Polyester carpets are suitable for home use due to their soft texture and provide vibrant, long-lasting colors. They naturally offer stain resistance, making them easy to clean and ideal for households with pets (Heintze, Gries, & Wang, 1997). Polypropylene carpet (Olefin carpet) is primarily made from polypropylene fibers, which do not absorb water, have excellent stain resistance, and maintain color without fading easily. Additionally, it is cost-effective, making it suitable for high-humidity areas such as basements, outdoor spaces, and high-traffic areas¹⁷. The primary natural material used in carpet production is wool. Wool carpets exhibit excellent sound absorption performance in the mid-high frequency range (1,250-7,000 Hz), making them suitable for noise control. Wool carpets are highly durable, making them ideal for high-traffic areas, and they possess natural fire-resistant properties, ensuring safety even in the event of a fire (Aygun, 2017).

Classification by form. Rugs can be classified into rectangular, circular, and oval shapes depending on the usage scenario. Rectangular rugs have a simple design and great adaptability, making them suitable for most homes and commercial spaces. Circular rugs provide a soft visual effect and can be used under coffee tables, in

¹⁴ <https://www.deirdredyson.com/> (2024.06.10).

¹⁵ <https://www.carpetguys.com/> (2024.06.10).

¹⁶ <https://www.carpetguys.com/> (2024.06.10).

¹⁷ <https://learning-center.bulldirect.com/> (2024.06.10).

children’s rooms, or entryways. Oval rugs offer an elegant feel and are ideal for long rooms or spaces requiring smooth transitions (Goswami, 2018) (Figure 13).



Figure 13. The form of carpets.

Carpet Design Development

With the Fourth Industrial Revolution and the improvement in living standards, interest and demand for interior design products are increasing. William Morris’s designs, with their unique artistic style and aesthetic value, meet the modern individual’s need for distinctive and innovative design, emphasizing not only beauty but also practicality and comfort.

“Sea of Leaves” Carpet Design

The carpet design was created to reflect the characteristics of William Morris’s works from 1862 to 1875, such as “Trellis”, “Pomegranate”, and “Acanthus”. In Morris’s works from this period, numerous elements were used to depict plants, and thus the carpet design prominently highlights the geometric charm associated with the plants themselves. The thematic layout expresses the natural vibrancy of the carpet through the design of natural curves and geometric plant forms. High-contrast colors such as purple, red, blue, and others were chosen to emphasize a natural atmosphere, with the background decorated in light blue. Overall, the design emphasizes a natural style, providing a warm atmosphere in modern interior decoration. The carpet is designed in a rectangular shape, with dimensions of 2,000 × 3,000 mm. Nylon was selected as the material to ensure the carpet maintains its quality despite long-term friction and wear (Table 2 and Figure 14).

Table 2
Analysis of the Design Concept for the “Sea of Leaves” Carpet

Concept	Work image	Color	Design
Geometricity Vibrancy Naturalness Natural curves		 PANTONE 4001C	
		 PANTONE 8540C	
		 PANTONE 7687C	
		 PANTONE 202C	
		 PANTONE 6089U	
		 PANTONE 6038C	
		 PANTONE 2147C	



Figure 14. "Sea of Leaves" carpet design.

"Mirage Forest" Carpet Design

The "Trellis" carpet design reflects the characteristics of William Morris's works from 1876 to 1883, such as "Acorn", "Brother", and "Bird and Anemone". The carpet design uses flora and fauna of the natural world as the main motifs, showcasing a detailed observation and admiration for nature. It also extracts features like symmetry and vertical repetition from Morris's works during this period to enhance the decorative effect of the pattern. The designed carpet is characterized by complex naturalistic patterns and rich use of colors. Through high-quality hand-weaving techniques, it perfectly combines images of flora and fauna from the natural world with decorative art, creating a harmonious, beautiful, and richly detailed artistic carpet. The green leaves, flowers, and bird patterns give a natural and refreshing feel, making living spaces warmer and more comfortable. From case studies of works and carpets, Pantone colors were extracted with blue and green as the primary colors used for matching. The carpet is designed in a rectangular shape, with dimensions of 2,500 × 2,500 mm. The material used is wool, following Morris's handcrafting spirit, providing excellent tactile comfort underfoot (Table 3 and Figure 15).

Table 3

Analysis of the Design Concept for the "Mirage Forest" Carpet

Concept	Work image	Color	Design
Vertical repetition Bilateral symmetry Repetitive structure Contrastiveness		 PANTONE 6187U	
		 PANTONE 7762C	
		 PANTONE 4001C	
		 PANTONE 577U	
		 PANTONE 2276U	
		 PANTONE 2170	



Figure 15. “Mirage Forest” carpet design.

“Blue Landscape” Carpet Design

The carpet design was created by extracting design motifs from William Morris’s works “Garden Tulip” and “Wandle” from 1884 to 1890. The concept of the carpet design was inspired by flowing rivers and riverside plants, as seen in the “Garden Tulip” and “Wandle” pieces, aiming to express the dynamic beauty of natural landscapes. In terms of color use, the colors in Morris’s works from this period include soft beige, brown, light pink, and other neutral tones, combined with low-saturation light blue tones to create a calm and harmonious natural atmosphere. For the carpet pattern design, the characteristics of symmetry and continuity, typical of Morris’s works during this era, were utilized to provide a harmonious and natural visual sensation. The pattern design is complex and highly intricate, requiring high-quality hand-weaving techniques to express the precision and richness of the patterns. The carpet is designed in a rectangular shape with dimensions of 2,000 × 3,000 mm. The material used is wool, embodying a naturalistic and modern minimalist design style. In summary, the carpet creates a warm and comfortable home atmosphere through the use of soft neutral tones and simple natural patterns (Table 4 and Figure 16).

Table 4
Analysis of the Design Concept for the “Blue Landscape” Carpet

Concept	Work image	Color	Design
Naturalness stability Diagonal structure Pattern composition		PANTONE 9422U	
		PANTONE 4224C	
		PANTONE 5545U	
		PANTONE 8482C	
		PANTONE 5503U	
		PANTONE 2217U	



Figure 16. “Blue Landscape” carpet design.

Conclusion

With the diversification of interior environment design today, carpet design is introducing new styles that provide consumers with various forms of psychological satisfaction. Consumers focus on expressing individuality and personal style through visual sensations, favoring innovative and original products. Therefore, carpet design must not only harmonize with interior decoration but also emphasize originality and creativity, meeting consumer demands through abstract expression. This study aims to develop a carpet reflecting William Morris’s natural style, introducing natural elements into modern urban homes, and satisfying both the aesthetic and functional needs of consumers. Through this, the study seeks to enhance the aesthetic value of interior spaces, provide a theoretical foundation for carpet design, and promote industry innovation and academic research. Therefore, this study analyzed the shapes and characteristics of William Morris’s works and conducted case studies on his works to develop a carpet design reflecting his style. The carpet design from the first period of William Morris includes natural elements such as green leaves, blue birds, fruits, and small plants. These elements were combined with highly contrasting colors like green, yellow, pink, and blue, resulting in a rectangular carpet with a warm, light yellow background.

First, the carpet design theme reflecting William Morris’s first period is “Sea of Leaves”. The design expresses the natural vibrancy of the carpet using natural curves and geometric plant forms in its thematic layout. High-contrast colors such as purple, red, blue, and other shades were chosen to emphasize a natural atmosphere, with the background decorated in light blue. Second, the carpet design theme reflecting William Morris’s second period is “Mirage Forest”. The design enhances the decorative effect of the pattern by extracting features such as symmetry and vertical repetition. The green leaves, flowers, and bird patterns provide a natural and refreshing feeling, making the living space warmer and more comfortable. Through case studies of works and carpets, Pantone colors were extracted with blue and green as the primary matching colors. Third, the carpet design theme reflecting William Morris’s third period is “Blue Landscape”. The carpet pattern design utilizes the characteristics of symmetry and continuity seen in Morris’s works during this period, providing a harmonious and natural visual sensation. Blue tones were used to create a calm and harmonious natural atmosphere.

This study proposes a new method for deriving designs through an analysis of William Morris's three periods and demonstrates the applicability of these designs to design and market changes. It will contribute to the carpet industry, help pioneer new markets, and meet consumer demands. Additionally, it will contribute to leading future design trends.

References

- Aygun, H. (2017). Characterization of acoustical properties of felt and carpet made of natural and environmentally friendly materials. *Open Journal of Acoustics*, 7(2), 27-38.
- Cha, Y.-S., & Park, S.-L. (2017). A historical study of 16th century Egyptian, Turkish, and Persian carpets. In *Korean society of formative design* (pp. 33-47). Seoul Metropolitan City, Korean Society of Sculpture and Design.
- Goswami, K. K. (2018). *Advances in carpet manufacture*. Cambridge: Woodhead Publishing.
- Han, J. I. (2002). A study on William Morris's textile designs. *Journal of Korean Society of Design Culture*, 8(2), 367-379.
- Heintze, A., Gries, Th., & Wang, J. (1997). Status and prospects of polyester carpet fibers. *International Textile Herald*, 4, 4-5.
- Saeedi, N., Nabilou, H., & Masouleh, S. A. (2020). A review on Iran's carpet industry situation in international markets. *African Journal of Business Management*, 6, 8902-8909.
- Song, S.-J. (2022). Lounge wear design utilizing the characteristics of William Morris's works (Master's thesis, Hanyang University, 2022).
- Wi, W.-C., & Eom, K.-H. (2023). Research on carpet design development utilizing Kandinsky's works. In *Korean society of design culture* (pp. 355-367). Hwaseong City, Korea Design Culture Association.
- Xiang, Y. Z., & Wu, W. (2018). Exploration of pattern design works of William Morris, a representative figure of arts and crafts movement. *Hunan Packaging*, 33(4), 74-77.
- Zhao, L. J., Le, X. L., & Wu, Z. W. (2024). Research on the application of fabric decoration in interior home design. *Design*, 9(1), 1055-1061.