

Proceedings

of the International Colour Association Conference



AIC 2024 Midterm Meeting

Color Design,
Communication
Marketing

São Paulo, Brasil
16-19th September

PUBLISHED BY



ORGANIZED BY



| DESIGN ESPM

SUPPORT BY



The Role of Aesthetics and Color in Sustainable Textile Practices

Marjan Kooroshnia

The Swedish School of Textiles, University of Borås, Sweden

ABSTRACT

This paper investigates how color can enhance sustainability in textile and fashion design, based on the Sustainable Consumption and Production framework. It highlights the significance of extending product lifespans and deepening user attachment through strategic color use, which fosters emotional connectivity and promotes sustainable consumer behaviors. A qualitative analysis of four case studies from the Swedish School of Textiles demonstrates that integrating color enhances product appeal and supports environmental sustainability by influencing user behavior. These cases illustrate varied methods of incorporating color in design processes to improve product longevity and minimize environmental impact. The discussion points out that despite the industrial focus on speed and cost, using color strategically can extend textile durability and promote sustainable industry practices.

1. INTRODUCTION

The prevailing economic system, with its focus on mass production and low prices, significantly undermines sustainable practices by promoting short product lifespans. According to Bermejo (2014), consumers often overlook the environmental impact of their habits. Manzini (2009) proposes the Sustainable Consumption and Production approach, emphasizing the extension of product lifetimes and enhancing user attachment as essential for sustainable consumption. This approach advocates for designing longer-lasting products and fostering stronger connections between users and their products.

Mugge et al. (2008) state that products must hold special significance to delay replacement, as mere functionality doesn't foster emotional attachment. Deep connections with a product encourage care, repair, and prolonged use, enhancing user satisfaction and long-term relationships. Niinimäki (2010) highlights that product attachment is influenced not only by personal history but also by design styles, quality, and functionality. The aesthetic aging process of a product is crucial for its longevity, with materials like high-quality wool and leather aging well, thus increasing aesthetic appeal and product durability.

Harper (2018) argues that aesthetics and expressional durability in design are crucial for long-term satisfaction and product longevity. Enhancing the psychological and sensuous bond between users and products encourages longer retention and transcends traditional sustainability methods.

Color plays a significant role in shaping user perceptions and attachments to products. It can evoke emotions, convey meaning, and enhance the visual appeal of a product (Hirschler et al., 2022), contributing to its expressional durability. By carefully considering color in the design process, designers can create products that resonate more deeply with users, fostering stronger attachments and promoting longer product lifespans. This paper aims to explore the role of color in aesthetic design as a driver for enhancing product longevity and sustainability. By qualitatively analyzing four case studies from the textile design program at the Swedish School of Textiles, this study demonstrates how the strategic use of color can contribute to more sustainable and enduring user experiences. The investigation highlights the potential of color in fostering sustainable design practices that extend the functional and aesthetic life of textile products.

2. METHOD

2.1 Case 1: Maelis Ray's 'The Transformable Textile Interior'

In 2023, Maelis Ray designed a versatile textile that transitions from a teapot cover to a tablecloth, showcasing her commitment to sustainability and longevity. The teapot cover features soft pastel hues of blue, green, and yellow, while the tablecloth is a vivid dark purple with pastel accents, enhancing adaptability across different settings and styles. The design incorporates leaf patterns, adding a graceful and organic touch that promotes comfort, reduces eye strain, and enhances comfort during prolonged use. This choice of contrasting colors not only attracts attention but also increases engagement levels and complements various environments, emphasizing the textile's functional and aesthetic flexibility (Figure 1, left).

2.2 Case 2: Mia Lehtonen Madsen's 'The Sky is the Mirror'

In 2023, Mia Lehtonen Madsen launched a personalized collection of wearable textiles inspired by zodiac signs and their colors, enhancing users' connection to their garments and creating a sense of ownership. She uses the zodiac charts of two individuals to tailor unique color palettes aligned with the four elemental zodiac themes, incorporating universally resonant colors into simple geometric patterns like circles and narrow rectangles for stability and identity expression. Her piece, the 'SUN-MOON-ASCENDANT SKIRT' for Person A, showcases a reversible design with a bold green, black, and blue side featuring structured stripes and a calmer blue, white, and black side. Both sides offer aesthetic versatility and prolonged engagement. The top edge features a textured fringe, enhancing tactile engagement. Tunnels for ropes are integrated, serving both functional and decorative purposes, increasing user engagement and attachment (Figure 1, right).



Figure 1: Case 1 (left): a versatile textile transitioning from a pastel-hued teapot cover to a dark purple tablecloth. Case 2 (right): the skirt with reversible designs and distinct color palettes.

2.3 Case 3: Luna Gil's 'Seen-UnSeen'

In 2020, Luna Gil's collection of three textiles transcends mere decoration, embodying stories that evoke strong emotional reactions and address environmental concerns from human activities. These textiles portray the journey through the oceans and the effects of plastic pollution, using color and hand-drawn patterns to deepen user engagement. Each piece features organic fish shapes and seaweed patterns against a light blue backdrop, symbolizing an underwater scene. The textiles come alive under RGB lighting, shifting colors to convey trust, pollution awareness, or danger, depending on the light's hue. This interactive element increases user involvement, enhancing the narrative experience of the textiles (Figure 2, left).

2.4 Case 4: Emilie Palle Holm's 'OriOri'

In 2023, Emilie Palle Holm introduced a series of textile forms that dynamically change colors and patterns through lenticular effects and can be turned inside out to reveal new designs, encouraging deep interaction. These transformations foster a strong sense of curiosity and attachment. The featured piece, a three-dimensional woven origami structure, displays a circular, starburst pattern with radial symmetry and color transitions from deep blue to black, enhancing its tactile and visual appeal and evoking peace and calmness. Its side view is a cylindrical structure with a dark blue zigzag pattern at the top and a black zigzag pattern at the bottom, with white lines outlining the edges, creating contrast and emphasizing the geometric design. It creates a sense of stability and strength. Closing the piece from the weft direction reveals complex, tall accordion-like folds and contrasting zigzag patterns, creating a visually engaging, interactive experience that deepens users' emotional connections (Figure 2, right).

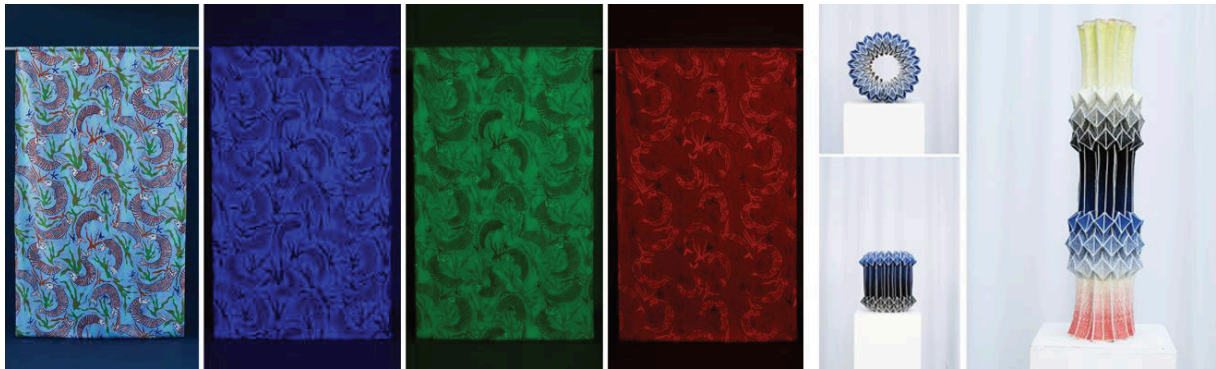


Figure 2: Case 3 (left): textiles shift colors under RGB lighting, enhancing user engagement. Case 4 (right): the piece transforms from a starburst pattern to a cylindrical structure, fostering curiosity and attachment.

3. DISCUSSION

In textile and fashion design, color communication often involves using standardized color systems like Pantone, alongside digital technologies, to ensure precise communication and quality control. This paper expands the discourse on color communication by exploring how colors can communicate concepts of sustainability and longevity in fashion and textile design. The prevailing economic system, focused on mass production, challenges sustainable design practices. Manzini's Sustainable Consumption and Production approach (Manzini, 2009) advocates for products designed for longer lifespans and deeper user attachments, as seen in the minimalist and personalized color palettes used by designers like Maelis Ray (2023) and Mia Lehtonen Madsen (2023).

Furthermore, Mugge et al. (2008) and Niinimäki (2010) have highlighted the role of emotional attachment and product longevity, suggesting that aesthetic qualities, such as those achieved through strategic color use, are crucial for enhancing user satisfaction and extending product life. This is apparent in the collections of Luna Gil and Emilie Palle Holm, which engage users emotionally through interactive storytelling and dynamic color integration.

Harper (2018) highlights the role of expressional durability in enhancing long-term product satisfaction. Our findings reveal that aesthetic expressions, influenced by color choices, are crucial for fostering attachment and extended use. Contrary to the belief that neutral colors promote sustainability, our case studies indicate that various color palettes, including pastel and highly saturated hues, support themes of longevity and sustainability. This suggests that the psychological effects of colors, combined with design elements like patterns, textures, and forms, can positively influence user behavior and attachment, encouraging extended usage.

The environmental impact of textile dyeing, including biodiversity loss from natural dye use, raises concerns. Strategic color use and educational campaigns to shape consumer perceptions

can enhance sustainability and longevity. Future research should explore quantitative measures of user attachment and product lifespan in relation to color choices to substantiate these qualitative findings. Expanding this research to include diverse cultural contexts could uncover universal and culture-specific color strategies that enhance sustainable design practices globally.

4. CONCLUSIONS

In conclusion, this discussion underscores the critical role of color in textile design as a medium for emotional and sensory connectivity, which in turn promotes sustainability through longevity. By prioritizing aesthetic appeal and emotional resonance, designers can transcend conventional sustainability practices, offering solutions that encourage consumers to form lasting relationships with their products.

REFERENCES

- Bermejo, R., 2014. *Sustainable consumption*. In Handbook for a Sustainable Economy.
- Gil, L. 2020. *SEEN UNSEEN: Changing patterns perception using colored layers in sketching method and colored light*, Bachelor's thesis, The Swedish School of Textiles, University of Borås, Sweden.
- Harper, K., and Simonsen, R. R. 2018. *Aesthetic sustainability: Product design and sustainable usage*. Routledge Taylor & Francis Group, London and New York.
- Hirschler, R., and Briggs, D. J., and Schwarz, A., and Westland, S. 2022. Contemporary analysis of traditional color theory. In *Proceedings of (AIC) Conference: Sensing Colour*
- Lehtonen Madsen, M. (n.d.). Graduate Profile. Retrieved from <https://www.hb.se/en/department-of-design/graduates-list/mia-lehtonen-madsen/>
- Manzini, E. 2009. Small, local, open and connected – Design research topics in the age of networks and sustainability. *Proceedings of the LeNS Conference*, Bangalore, India
- Mugge, R. and Schoormans, J. P., and Schifferstein, H. N. 2008. *Product attachment: Design strategies to stimulate the emotional bonding to products*. In H. N. J. Schifferstein & P. Hekkert (Eds.), *Product experience* (pp. 425-440). Elsevier.
- Niinimäki, K. 2010. Product attachments and longevity in sustainable design strategies. In *Proceedings of the LeNS Conference*, Bangalore, India (pp. 113-120).
- Palle Holm, E. (n.d.). Graduate Profile. Retrieved from <https://www.hb.se/en/department-of-design/graduates-list/emilie-palle-holm/> [June24, 2024]
- Ray, M. 2023. *The transformable textile interior: Designing transformable textiles for interior applications through jacquard weaving*, Master's thesis, The Swedish School of Textiles, University of Borås, Sweden.

*Associate Professor, Marjan Kooroshnia,
Department of Design, The Swedish School of Textiles,
University of Borås, Allégatan 1, 50190 Borås, Sweden*

Marjan.kooroshnia@hb.se