

## **Printed hanging textile designs between the designer's subjectivity and AI technologies**

**Basant Awad Mandour**

Lecturer at the Department of Textile Printing, Dyeing, and Finishing, Faculty of Applied Arts, Damietta University, basantmandor@du.edu.eg

### ***Abstract:***

Subjectivity is an essential aspect of design as an artwork. It expresses the designer's authentic style, which involves his/her paths and engagement throughout the design process. Printed hanging textile design in particular requires a high degree of uniqueness, personality, and artistic sense that are mainly reflected through the designer's subjective vision and interaction with the textile material. Traditional textile printing techniques provide vast potential to enable this interaction and enhance the emergence of the designer's authentic perspective. On the other hand, AI technologies have revolutionized the art and design fields by facilitating complex processes and improving productivity and efficiency. The textile designer needs to keep pace with technological advancements and achieve maximum benefits from them. Thus, the current study discusses the integration of the designer's subjective and creative perspective with the wide potential of AI technologies. The researcher establishes an approach in this regard in the printed hanging textile design field. It is based on creating original designs using traditional textile printing techniques and utilizing AI technologies to generate various possibilities for these source designs. Ultimately, the applied approach allows for maintaining the designer's subjective vision and utilizing AI potential to save time and effort while improving productivity in the printed hanging textile design.

**The research problem:** The advancement of AI applications and technologies has had a significant impact on art practice, pedagogy, and subjectivity in general, albeit indirectly. Technological innovations are likely to influence how subjectivity is produced in the art fields [O'Sullivan, 2008]. AI technologies offer numerous advantages such as saving time and energy while increasing efficiency in various tasks. However, they may lack the same level of originality and subjectivity as human designers [Fatima, 2023, P. 2]. In the hanging textile design field, which requires a higher degree of authenticity, there is a conflict between the need for the emergence of designer subjectivity and the use of AI technologies to improve performance. As a result, the following questions form the basis of the study's problem: What is the role of the designer's subjectivity in printed hanging textile design? What are the possibilities of using AI technologies in textile design in general? How can the designer balance subjectivity and the use of AI technologies in printed hanging textile design?

**Objectives:** Describing the role of subjectivity in design as an artwork and the wide potential of AI technologies in the textile design field. Interpreting the tension between subjectivity and AI technologies in the art and design creation process. Predicting what might result from the descriptive and interpretive perspectives to propose and apply an approach for balancing the designer's subjectivity with the utilization of AI technologies in printed hanging textile design.

**Significance:** Highlighting the role of traditional textile printing techniques in enhancing the interaction between the designer and textile material leads to a greater emergence of the textile designer's subjectivity. Emphasizing the textile designer's crucial position as the cornerstone of the creative design process and how he/she may utilize AI technologies to their fullest potential while preserving subjectivity and true authentic sense.

**Methodology:** The current study followed a qualitative methodology in its two main parts: The theoretical framework: the researcher followed the retrospective approach in reviewing the role of subjectivity in design as an artwork and the descriptive analytical approach in discussing the relationship between AI technologies and the designer's subjectivity. The experimental framework: the researcher followed the experimental approach to apply the proposed method for balancing designer subjectivity and the use of AI technologies in printed hanging textile design.

**Results:** 1. The designer's subjectivity is a key concept in design processes in general and in hanging textile design in particular, no matter the degree of technological advancement, as it validates the creativity, personality, and authenticity of the final product. 2. The wide potential of traditional textile printing such as tie and dye, silkscreen, and direct painting on fabric allows the emergence of the designer's subjective style by enabling more engagement with the textile material. 3. The greatest design concepts come from human imagination, creativity, and experiences, not from a series of algorithms. Thus, textile designs that are entirely generated by AI technologies may lack personality and authenticity. However, AI technologies could be used as a tool to facilitate and improve creation and production processes. 4. Balancing the designer's subjectivity and keeping pace with artificial intelligence technology could be achieved by depending on AI technologies to edit original hanging textile designs created by traditional printing techniques based on the designer's subjective

interaction with the textile material by generating various possibilities for the original/source design. 5. Through the provision of an unlimited number of possibilities for each original/source design, the use of AI technologies in hanging textile design editing processes, such as the Leonardo AI platform and the Picsart application, helps to facilitate the process, save time and effort, and improve productivity. Concerning AI-generated designs, these AI editing tools are more protective of privacy. 6. AI editing tools provide the advantage of enhancing and accelerating productivity in hanging textile designs. However, a wide range of traditional textile printing techniques, such as transparency and raised surfaces, could not be imitated by AI technologies

### **Keywords :**

subjectivity- AI technologies- Printed hanging textile design- Design authenticity

### **References :**

- 1- Alexandrov, E., Botnari, V., & Gaina, B. (2018). Vines and Art. Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development. 18 (1), 37-44.
- 2- Amer, N. (2023). Architectural design in the light of AI concepts and applications. MSA Engineering Journal, 2 (2), 1-18.
- 3- Amershi, S., Cakmak, M., Knox, W., & Kulesza, T. (2014). Power to the people: The role of humans in interactive machine learning. AI Magazine, 35, 105–120.
- 4- Badoe, W., Samadu, K., & Frimpong, C. (2015). Exploration of innovative techniques in printed textile design, International Journal of innovative research and development, 4 (1), 199-211.
- 5- Caramiaux, B. & Alaoui, S. (2022). Explorers of unknown planets: Practices and politics of artificial intelligence in visual arts. Proceedings of the ACM on Human-Computer Interaction, 6 (CSCW2), art. n°477, pp 1-24.
- 6- Dove, G., Halskov, K., Forlizzi, J., & Zimmerman, J. (2017). UX design innovation: Challenges for working with machine learning as a design material. In Proceedings of the 2017 chi conference on human factors in computing systems. 278–288.
- 7- Drutt, M. (2004). Kazimir Malevich: Suprematism, Guggenheim Museum Publications, New York.
- 8- El-Aasy, H. (2023). Employing Artificial Intelligence (AI) Technology in Advertising Design on Social Media. Journal of Design Sciences and Applied Arts, 4 (2), 247-263.
- 9- Fallahzadeh, A., & Rahbarnia, Z. (2023). Mondrian's rendition of Schopenhauer's metaphysics of will and disinterested aesthetic experience. Rupkatha Journal on Interdisciplinary Studies in Humanities, 15(3). 1-20.
- 10- Fatima, I. (2023). Designing with AI. Stockholm: Södertörns University.
- 11- Figoli, F., Mattioli, F., & Rampino, L. (2022). Artificial intelligence in the design process. Italy: Franco Angeli.
- 12- Gatys, L. A., Ecker, A. S., & Bethge, M. (2016). Image style transfer using convolutional neural networks. 2016 IEEE Conference on Computer Vision and Pattern Recognition (CVPR).
- 13- González Rey, F. (2021). The Topic of Subjectivity in Psychology: Contradictions, Paths, and New Alternatives. Perspectives in Cultural-Historical Research, 37–58. [https://doi.org/10.1007/978-981-16-1417-0\\_3](https://doi.org/10.1007/978-981-16-1417-0_3).
- 14- Haenlein, M. & Kaplan, A. (2019). A Brief history of artificial intelligence: On the past, present, and future of artificial intelligence. California Management Review, 61(4), 1-10.
- 15- Haggag, H. (2003). Design and art: Design as an artwork, Craft Publishing, El Mansoura.
- 16- Haggag, H. (2006). Applied Studies in the Design Fundamentals, Faculty of Applied Arts, Damietta.
- 17- Hagag, M. (2023). Using artificial intelligence techniques to create printable designs and enrich the aesthetic value of clothing design. Journal of Research in the Fields of Specific Education, 9 (45), 2275-2331.
- 18- Hamdy, Y. (2022). Applying artificial intelligence in developing interior design process management. Journal of Design Sciences and Applied Arts, 3 (2), 239-245.
- 19- Inie, N., Falk, J., & Tanimoto, S. (2023). Designing Participatory AI: Creative Professionals' Worries and Expectations about Generative AI. In Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (CHI EA'23), April 23–28, 2023, Hamburg, Germany.
- 20- Irbite, A., & Strode, A. (2021). Artificial intelligence VS designer: The impact of artificial intelligence on design practice. Society. Integration. Education. Proceedings of the International Scientific Conference, 4, 539–549. <https://doi.org/10.17770/sie2021vol4.6310>
- 21- Jang, S., & Lee, G. (2024). BIM Library Transplant: Bridging Human Expertise and Artificial Intelligence for Customized Design Detailing. Journal of Computing in Civil Engineering, 38(2).
- 22- Kamal, D. (2022). Design of printed textile hangings between material and anthology of design structure. Journal of Heritage and Design, 2(12). 114-132.
- 23- Karaata, E. (2018). Usage of artificial intelligence in today's graphic design. Online Journal of Art and Design, 6(4), 183-198.
- 24- Lacko, I. (2013). Out of the Blue and into the Sewer: The Drip Painting of Jackson Pollock and the Devised Theatre of Stoka. ARS AETERNA, 5 (1), 92-103.
- 25- Lu, S. C.-Y., & Liu, A. (2011). Subjectivity and objectivity in design decisions. CIRP Annals, 60(1), 161–164.
- 26- Mandour, B. (2022). The art of hanging textiles between individual style and design authenticity: Blended learning model in art education. Art, Design & Communication in Higher Education 21 (2): 191-216.
- 27- Mandour, B.A. (2024). Traditional textile printing between spontaneity and planning: A study of creative practice. International Journal of Education & the Arts, 25(4). 1-28.

- 28- Marr, B. (2019). Artificial Intelligence in Practice: How 50 Successful Companies Used AI and Machine Learning to Solve Problems. John Wiley & Sons, Incorporated.
- 29- Mattison, R. (2013). Franz Kline: Coal and Steel. Allentown Art Museum of the Lehigh Valley, USA: Allentown.
- 30- Mikhail, Y. (2002). Psychology of Inspiration. Dar Gharib for Printing and Publishing. Cairo.
- 31- Nguyen, H. (2023). Impact of Artificial Intelligence in Design. Bachelor Thesis, LAB University of Applied Sciences.
- 32- Nicolaus, F. (2023, July 12). AI-Designed Fabric is here. Business of Home. <https://businessofhome.com/articles/ai-designed-fabric-is-here>.
- 33- Nilsson, L. (2015). Textile Influence: Exploring the Relationship between Textiles and Products in the Design Process. [Doctoral Dissertation], University of Borås, Sweden.
- 34- O'Sullivan, S. (2008). Academy: The Production of Subjectivity. In: Irit Rogoff, ed. Academy. Frankfurt: Revolver, pp. 238-244.
- 35- Park, S. (2013), Suspended Subjectivity: Intention in Making Art, [Master thesis]. Goldsmiths, University of London.
- 36- Pchelnikova, I. (2020). Artificial Intelligence in Digital Design. [Bachelor's Thesis], Haaga-Helia University of Applied Sciences, Finland.
- 37- Power, S. (2023, August 10). Is AI a threat to the world of fabric design?. BBC News. <https://www.bbc.com/news/business-66437928>.
- 38- Quan, H., Li, S., & Hu, J. (2018). Product innovation design based on deep learning and Kansei engineering. Applied Sciences, 8(12), 2397.
- 39- Soonsan, P. (2017). Creative textile designing inspired by royal song composition, Proceedings of International Seminar on Language, Education, and Culture (1): 256-259.
- 40- Stolz, J. (1960), Aesthetics and Philosophy of Art Criticism, Cambridge, MA: Houghton Mifflin.
- 41- Taylor, R. (2002). Order in Pollock's Chaos. Scientific American, 117-121.
- 42- Tomić, I., Juric, I., Dedijer, S., & Adamović, S. (2023). Artificial Intelligence in Graphic Design. Proceedings of the 54th Annual Scientific Conference of the International Circle of Educational Institutes of Graphic-Media Technology and Management, The Hellenic Union of Graphic Arts and Media Technology Engineers, Greece, pp 85-93.
- 43- Torres, C. (2019). Hybrid Aesthetics: Bridging Material Practices and Digital Fabrication through Computational Crafting Proxies. [Doctoral Thesis]. Berkeley: University of California.
- 44- Vuruskan, A., Devecioglu, O., Bulgun, E., Mura, G., & Ince, T. (2022). Use of artificial intelligence for creative textile designs. In 21st World Textile Conference AUTEX 2022 Passion for Innovation, June 7-10, 2022, Lodz, Poland.
- 45- Worbin, L. (2010). Designing Dynamic Textile Patterns. [Doctoral Thesis], University of Borås, Sweden.

### ***Paper History:***

**Paper received January 18, 2024, Accepted April 02, 2024, Published on line May 01, 2024**