

Growing Furniture as a Method for Enhancing Sustainable Design

Prof. Mohamed Hassan Emam

Professor of Furniture Design, Faculty of Applied Arts, Helwan University, M_emamart@yahoo.com

Prof. Doaa Abdel Rahman Mohamed

Professor of Design Fundamentals, Faculty of Applied Arts, Helwan University,
Doaagoda2018@gmail.com

Prof. Ramadan Mohamed Mohamed Sayed

Vice-Dean for Environmental Affairs, Community Development and Academic Guidance, Horticultural Research Institute, Agricultural Research Center, Rmms@yahoo.com

Mohamed Elshahat Mohamed Elshall

Teaching Assistant, Interior Design & Furniture Department, Faculty of Applied Arts, Badr University in Cairo, elshall208@gmail.com

Abstract:

Contemporary furniture design is continually advancing, offering new materials, manufacturing techniques, and creative visions for designers. However, a notable shift can be observed in contemporary furniture design, where a strong emphasis on sustainability has emerged, reflecting the prevailing spirit of the era. With growing environmental concerns and climate change issues, innovative manufacturing approaches have arisen to shape sustainable and visually integrated furniture pieces, diverging from traditional wood-cutting practices for furniture production. This research delves into the challenges and prospects of cultivating furniture as a plant-based innovation, exploring its impact on achieving environmental visual integration in the modern environment. The study highlights the transformation of the furniture industry towards sustainability and eco-friendly design, investigating how to reintegrate aesthetics, functionality, and harmonious coexistence with the surrounding nature. The study also examines current opinions on plant-formed furniture design and assesses its contribution, with a primary focus on the importance of sustainable design for eco-friendly furniture and innovative manufacturing techniques in the development of furniture elements. Several case studies and practical models from furniture designers are scrutinized, illustrating the practical application of these theoretical concepts and emphasizing the potential of plant-formed furniture as a manifestation of sustainable design. The findings of this research contribute to elucidating the significance of achieving a balance between aesthetics and sustainability in the realm of plant-formed furniture design. Moreover, it provides insights into future directions for advancing this field, promoting environmental visual integration and sustainable development within the broader context of furniture design. New thinking has emerged, and a new movement in furniture design has been catalyzed by various influences, including new creative artistic materials, modern and creative manufacturing methods, and the contemporary philosophy that has established standards and conditions for furniture development

Keywords:

Growing furniture, Tree Shaping furniture, Sustainable Design

References:

- 1- Mack, Daniel (31 December 1996), Making Rustic Furniture: The Tradition, Spirit, and Technique with Dozens of Project Ideas (illustrated ed.), Lark Books, p.79-80, ISBN 1-887374-12-4, archived from the original on 23 November 2021.
- 2- John Krubsack 1908. treeshapers.net. (2011, April 30). Retrieved January 4, 2023, from <https://www.treeshapers.net/john-krubsack>.
- 3- live houses 1986 by Hermann Block. treeshapers.net. (2011, April 30). Retrieved January 4, 2023, from <https://www.treeshapers.net/live-houses-by-hermann-block>.
- 4- Lebendlaube. (n.d.). Retrieved December 26, 2022, from <http://www.lebendlaube.de/index.html>.
- 5- Growing village. Growing Village : EXPO 2005 AICHI, JAPAN. (n.d.). Retrieved December 26, 2022, from <http://www.expo2005.or.jp/en/venue/experience04.html>.
- 6- Richard Reames (2007), Arborsculpture: Solutions for a Small Planet, Oregon: Arborsmith Studios, ISBN 0-9647280-8-7.
- 7- Grown up trees 1996 by Chris Cattle. treeshapers.net. (2011, April 30). Retrieved January 4, 2023, from <https://www.treeshapers.net/grown-up-trees-by-chris-cattle>.
- 8- "Grown Furniture at the Museum of English Rural Life <https://archive.ph/20121223072624/https://www.scribd.com/document/379057360/Tree-Shaping>.
- 9- Pooktre by Peter Cook / Becky Northey. treeshapers.net. (2011, April 15). Retrieved January 4, 2023, from <https://www.treeshapers.net/pooktre-by-peter-cook-becky-northey>.
- 10- CBS Interactive. (2019, March 10). Harvesting chairs: How an English craftsman shapes furniture from the ground up. CBS News. Retrieved December 26, 2022, from <https://www.cbsnews.com/news/gavin-munro-full-grown-shaping-nature-into-furniture/>
- 11- Front Page. Full Grown. (2022, June 7). Retrieved December 26, 2022, from <https://fullgrown.co.uk/>.
- 12- Patowary, K. (2016, August 14). The Art of Tree Shaping. AMUDING PLANET. Retrieved July 23, 2021, from <https://www.amusingplanet.com/2011/09/art-of-tree-shaping.html>.

- 13- Scott, B. (2016b, July 29). A chair grows in England -. Woodworkers Journal. Retrieved December 21, 2021, from <https://www.woodworkersjournal.com/chair-grows-england>.
- 14- Boran, S., Çavdar, A. D., & Barbu, M. C. (2013). EVALUATION OF BAMBOO AS FURNITURE MATERIAL AND ITS FURNITURE DESIGNS. International Conference “Wood Science and Engineering in the Third Millennium”, BraşOv, Romania, 7-9 November 2013., 9(4), 811–819. https://www.proligno.ro/ro/articles/2013/4/Boran_final.pdf.
- 15- JIANG Ze-hui, WANG Ge, FEI Ben-hua, YU Wen-ji. 2002. The Research and Development on Bamboo/Wood Composite Materials[J]. Forest Research, 15(6): 712-718.
- 16- Hiroki. (2017, August 15). Tea Ceremony Chair – takadadesign.com. Takadadesign. Retrieved September 3, 2022, from <http://www.takadadesign.com/wp5/2017/08/15/tea-ceremony-chair/>
- 17- . Latka, Jerzy. (2017). Paper in architecture. Research by Design, Engineering and Prototyping.
- 18- Brownell, B. (Ed.). (2010). Transmaterial 3: a catalog of materials that redefine our physical environment. Princeton Architectural Press.
- 19- Youssef, Diana Muhammad Kamel. (2016). Definitive research on sustainable furniture as a mainstream trend for the third millennium. Journal of Applied Arts and Sciences, Volume 3, Issue 1, pp. 79-92.
- 20- Morsi, Muhammad Metwally, Abdul Rahman, Imad Shafiq, Al-Ghannam, & Ahmed Saeed Gharib. (2020). A proposed methodology for integration into design as one of the goals of sustainable design for light metal structures. Journal of Architecture, Arts and Humanities, 5(24), 361-373.
- 21- Awad, Ismail Ahmed, Abdel Rahim, Samah & Noha Fakhri Abdel Salam. (2021). The impact of sustainable furniture design methods on achieving the maximum usage cycle of furniture. Journal of Architecture, Arts and Humanities, 6(25), 120-134.
- 22- Alter, loyed. "sustainable product design " <https://www.treehugger.com/sustainable-product-design/gosun-introduces-flatware-s-really-flat.html>, (accessed Nov6, 2020).
- 23- Vicente, J.; Frazão, R.; Rocha, C.; Silva, F. M(2010). The integration of social criteria in sustainable design for furniture. In: ERSCP-EMSU 2010 – Knowledge Collaboration and Learning for Sustainable Innovation, Delft, October 25-29.
- 24- Fei, T., Liu, Y., & Guo, J. (2022). Visual Integration Relationship between Buildings and the Natural Environment Based on Eye Movement. Buildings, 12(7), 930. <https://doi.org/10.3390/buildings12070930>.
- 25- Sayuti, N. (2016). Biophilic design? a study of emotions, influences, and perceptions of furniture design incorporating living organisms. University of Canberra Canberra, Australia.

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