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ORIGINAL

Vernacular architecture and modern design: towards a new aesthetics and functionality

Arquitectura vernácula y diseño moderno: hacia una nueva estética y funcionalidad

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ABSTRACT

Introduction: the article aims to investigate the influence of vernacular architecture on modern design, seeking to understand how the latter can integrate traditional principles and techniques to address contemporary challenges related to sustainability, cultural identity and energy efficiency.
Method: the study was carried out through a comprehensive review of related scientific literature. Databases such as Scielo and Google Scholar were used, searching for relevant articles with terms such as "vernacular architecture" and "modern design". The search process was conducted between August and September 2023, reviewing articles published between 2021 and 2023 and excluding less relevant manuscripts, resulting in a final corpus of four articles relevant to the review.
Results: the results show that vernacular architecture has a significant influence on the sustainable housing model, especially in rural areas, by employing local materials and techniques that promote energy efficiency and climate adaptation. In Europe, its integration into modern design promotes the preservation of cultural traditions and fosters innovation by combining traditional practices with contemporary technologies. In Central America, this architecture helps strengthen the sense of belonging and improves the comfort of living spaces.
Conclusions: vernacular architecture is not only relevant to preserve cultural identity, but also offers practical and sustainable solutions that align with current needs. The fusion of traditional techniques with modern innovations can result in buildings that are more efficient and adapted to their surroundings, promoting an environmentally responsible approach. Through adaptation to local conditions and the use of available materials, vernacular architecture can serve as a model for developing housing solutions that respond to contemporary challenges. These conclusions highlight the importance of integrating lessons learned from vernacular architecture into modern design to improve the sustainability and functionality of our built spaces.

Keywords: Architecture; Vernacular Architecture; Modern Design; Aesthetics; Functionality.

RESUMEN

Introducción: el artículo tiene como objetivo investigar la influencia de la arquitectura vernácula en el diseño moderno, buscando comprender cómo esta última puede integrar principios y técnicas tradicionales para abordar desafíos contemporáneos relacionados con la sostenibilidad, la identidad cultural y la eficiencia energética.
Método: el estudio se llevó a cabo mediante una revisión exhaustiva de la literatura científica relacionada. Se utilizaron bases de datos como Scielo y Google Académico, buscando artículos relevantes con términos como "arquitectura vernácula" y "diseño moderno". El proceso de búsqueda se realizó entre agosto y septiembre de 2023, revisando artículos publicados entre 2021 y 2023 y excluyendo manuscritos menos relevantes, resultando en un corpus final de cuatro artículos pertinentes para la revisión.
Resultados: los resultados muestran que la arquitectura vernácula tiene una influencia significativa en el modelo de vivienda sostenible, especialmente en áreas rurales, al emplear materiales y técnicas locales que fomentan la eficiencia energética y la adaptación climática. En Europa, su integración en el diseño moderno promueve la preservación de tradiciones culturales y fomenta la innovación a través de la combinación de prácticas tradicionales con tecnologías contemporáneas. En Centroamérica, esta arquitectura ayuda a fortalecer el sentido de pertenencia y mejora la comodidad de los espacios habitacionales.
Conclusiones: la arquitectura vernácula no solo es relevante para preservar la identidad cultural, sino que también ofrece soluciones prácticas y sostenibles que se alinean con las necesidades actuales. La fusión de técnicas tradicionales con innovaciones modernas puede resultar en edificios más eficientes y adaptados a su entorno, promoviendo un enfoque

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ambientalmente responsable. A través de la adaptación a las condiciones locales y el uso de materiales disponibles, la arquitectura vernácula puede servir como un modelo para desarrollar soluciones habitacionales que respondan a los desafíos contemporáneos. Estas conclusiones resaltan la importancia de integrar las lecciones aprendidas de la arquitectura vernácula en el diseño moderno para mejorar la sostenibilidad y la funcionalidad de nuestros espacios construidos.

Palabras clave: Arquitectura; Arquitectura Vernácula; Diseño Moderno; Estética; Funcionalidad.

INTRODUCTION

Vernacular architecture is understood as a cultural expression of a community, expressed in its buildings and reflecting its traditions, values, and ways of life. Unlike formal architecture, which focuses on particular styles and techniques, vernacular architecture is distinguished by its ability to adapt to local conditions, use available materials, and be influenced by cultural practices.[1] Modern design focuses on functionality, innovation, and sustainability. Its goal is to develop spaces that respond to the needs of today's society while fostering a dialogue between logic and creativity.[2]

In this context, vernacular architecture in modern design refers to the fusion of traditional principles, materials, and construction techniques, adapting them to current needs. This approach is based on accumulated knowledge and seeks to solve contemporary challenges such as sustainability, energy efficiency, and cultural identity. Its fundamental elements include using local materials, which helps reduce costs and carbon footprints; adaptation to climatic conditions, which optimizes energy efficiency; preservation of cultural heritage; and innovation that arises from combining traditional techniques with new technologies.[3]

Vernacular architecture has played an essential role in modern design in Central America, as it helps preserve cultural identity by incorporating traditional elements, strengthening the sense of belonging. It has also made it easier for architects to adapt their projects to the region's climatic conditions, using local materials and techniques to create sustainable buildings. Its emphasis on functionality has resulted in spaces that meet everyday needs, improving comfort and efficiency. Ferrufino[4] notes that vernacular architecture, being in tune with the natural environment and local conditions, can inspire modern design, promoting a more respectful approach to the environment and cultural traditions.[5]

In the European context, vernacular architecture in modern design is manifested through the use of local materials, which not only reduces costs but also improves energy efficiency by adapting to each region's climatic conditions. In addition, it promotes the preservation of cultural traditions and encourages innovation by combining traditional methods with modern technologies.[6] It also offers solutions to the habitability needs of localities, continuously adapting to their natural environment.[7]

Vernacular architecture in contemporary Asian design promotes sustainability and cultural preservation. It fosters the local economy, innovation, and adaptation to environmental conditions, offering a comprehensive and responsible approach to current architectural development.[8]

METHOD

A comprehensive review of the scientific literature was conducted to investigate the influence of vernacular architecture on modern design using databases such as Scielo and Google Scholar. To refine the search, terms such as "vernacular architecture," "modern design," "multisensory," and "education" were used in Spanish and English (vernacular architecture in modern design). Boolean operators such as AND and OR were used to optimize the search scope. This process was carried out between August and September 2023, reviewing articles published between 2021 and 2023. Texts in any language were included, specifically excluding manuscripts such as case reports, interviews, letters to the editor, and theses due to their lesser empirical relevance. Initially, 15 relevant articles were identified through the search. Of these, eight were related to vernacular architecture, contemporary design, and other topics. After removing two duplicate articles and excluding one that did not align with the study's objective and one more that focused on the derive of architecture, a final corpus of four articles relevant to the review was obtained

RESULTS

Table 1. Reviewed articles

Author(s)	Title	Year	Url/doi	Summary
Barturén Carrasco, Yuliana Cecilia	Influence of vernacular architecture on the sustainable housing model in rural areas of the district of Mórrope, 2022	2022	https://hdl.handle.net/20.500.12692/101594	The study evaluated the influence of vernacular architecture on the sustainable housing model in the rural area of Mórrope in 2022, with 195 participants. Using a quantitative approach and correlational design, the results indicated that 62 % of respondents consider vernacular architecture to be at a regular level, and 67,2 % feel the same about sustainable housing. A high positive correlation (Spearman's coefficient 0,883) and an R-squared value of 0,903 were found, demonstrating that vernacular architecture contributes significantly to the sustainable housing model.

Carlos Ferrufino Martinez	The architecture of Ernesto de Solar in El Salvador: from historicism to modernity	2022	https://doi.org/10.18537/est.v011.n021.a02	Ernesto de Sola's analysis highlights the crucial role of vernacular architecture in modern design in El Salvador. This architecture provides a frame of reference that integrates local and traditional elements, promoting adequate adaptation to the specific environmental and cultural conditions of the region. In addition, it allows contemporary architects to establish a dialogue with the past, enriching architectural design and creating a unique identity that reflects Central American culture, highlighting its authenticity and connection to tradition.
Lerma Elvira, Carlos. Tomás, M. Ángeles	The flat roof in European architecture		https://riunet.upv.es/handle/10251/180192	Vernacular architecture significantly influenced modern design in Europe, especially flat roofs, which originated in Mediterranean civilizations. During the Romantic movement, it sought authenticity in the face of industrialization. Nineteenth-century architects, such as Adolf Loos with the Scheu House (1912), took vernacular inspiration to modernize architecture, emphasizing simplicity and functionality.
Alejandro Ferreiro	LIVED ARCHITECTURE. ICONIC (GRAPHIC) REFLECTIONS ON LIVING BRANCHES AND WALLS	2023	https://www.researchgate.net/publication/377845859	In Central America, vernacular architecture, being in tune with the natural environment and local conditions, can serve as inspiration for modern design, promoting a more respectful approach to the environment and cultural traditions.
Barturén Carrasco, Yuliana Cecilia	Influence of vernacular architecture on the sustainable housing model in rural areas of the district of Mórrope, 2022	2022	https://hdl.handle.net/20.500.12692/101594	In Europe, vernacular architecture offers solutions to the habitability needs of localities, continuously adapting to their natural environment.

Vernacular architecture plays a crucial role in preserving cultural identity and represents a valuable source of practical and sustainable solutions that align with contemporary needs. Deeply connected to local traditions, this architecture has evolved to respond to each region's climatic, geographical, and social conditions, using indigenous materials and techniques adapted to their environment. This direct relationship with the local context allows for creating more energy-efficient and environmentally friendly structures while maintaining a strong connection to local traditions and customs.

The fusion of traditional techniques with modern innovations in architectural design can result in buildings that not only meet today's aesthetic and functional demands but also maximize energy efficiency, reducing environmental impact. For example, the integration of local materials such as earth, wood, or stone, together with current technologies such as passive solar systems or thermal insulation, can create homes that are not only sustainable but also affordable.

In addition, vernacular architecture can serve as a model for developing housing solutions to contemporary challenges such as climate change, rapid urbanization, and the need for affordable housing. Due to their ability to adapt to the local climate and available resources, Vernacular techniques offer strategies that reduce non-renewable materials, improve energy efficiency, and promote self-sufficiency in rural and urban communities. In this way, vernacular architecture preserves cultural heritage and provides concrete solutions to global challenges, helping to create more sustainable and resilient environments.

CONCLUSIONS

In conclusion, vernacular architecture represents a comprehensive approach that not only preserves history and cultural identity but also provides a solid foundation for the architectural design of the future, adapting to the modern world's needs for sustainability and energy efficiency.

FINANCING

None.

CONFLICT OF INTEREST

Authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Cristian Yhojan Flores Gutierrez.
Data curation: Cristian Yhojan Flores Gutierrez.
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Drafting - original draft: Cristian Yhojan Flores Gutierrez.
Writing - proofreading and editing: Cristian Yhojan Flores Gutierrez.

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