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Exhibition architecture, expression of the relationship between aesthetics, cognition and context

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Abstract

This article explores the multidisciplinary nature of the exhibition space design process, in line with the conference theme "Convergence." Through case studies, books, and academic articles, it identifies how socio-cultural factors, the psychological influence of design elements and principles, consideration of space flexibility, and a good theoretical understanding of exhibition methods shape the architectural object so that it integrates into the exhibition narrative become an active cognitive environment capable of generating meaning and influencing people's perceptions and behavior. This paper also mentions some of the consequences of ignoring, not knowing, or not respecting these factors, highlighting the negative impact that such an attitude can have on both the analyzed process and the resulting architectural object.

Keywords: exhibition architecture, multidisciplinarity, design, perception

Introduction

This paper examines how exhibition architecture serves as a framework for dynamic intersections, addressing the theme of "Convergence" by exploring how factors such as socio-cultural context, the psychological impact of design elements and principles, and adaptability to different modes of presentation influence the design of exhibition architecture.

As art explores new forms and concepts, the environment in which it is installed and presented becomes as important as the artwork itself. The exhibition space can no longer be considered a simple passive container, neutral to the objects it houses, and asserts itself as an active cognitive environment, capable of generating meaning, stimulating perceptions, and profoundly shaping the behaviors and emotions of visitors. This paradigm shift means that exhibition architecture transcends the limits of simple functionality, becoming an integral part of the exhibition narrative.

There are many challenges in designing such architecture, starting with contextualism, through a good understanding of the effects that principles (unity, variety, emphasis, center of interest, scale, proportion, balance, rhythm) and design elements (line, shape and volume, texture and pattern, illusion of space, illusion of movement, value, and color) have on the perception and psyche of the users of the space, and even reaching a solid theoretical foundation for the possibility of adapting the future space to different types of presentation ("white box," "black box," or "gray zone"). Ignoring, not knowing, or not respecting these can lead to architecture that's out of sync with the nature and message of the exhibits, competing with them, overshadowing them, and sabotaging them by diluting or distorting the exhibition's message and negatively affecting its impact and memorability.

Literature Review

The first challenge of exhibition architecture is contextualism, which consists of in-depth documentation of the entire set of conditions and circumstances in which the building will be integrated. The design of an exhibition space cannot be dissociated from its cultural, historical, and symbolic environment, as exhibition architecture is not only a support for art objects, but also an instrument of cultural mediation, a vector of meanings that contributes to the reinterpretation of works by relating them to the expectations of the audience to which they are addressed. The diversity of factors in this ensemble allows it to be organized on several dimensions: physical contextualism, historical contextualism, socio-cultural contextualism, and climatic contextualism (Fig. 1).

Physical contextualism involves elements such as scale, shape, proportion, texture and colours, material details, geometry, accessibility, orientation, landscape, vegetation, local topography, urban fabric and building density (Tabarsa & Naseri, 2017, p. 358). Historical contextualism designates the relationship between the museum and the past, treating the place as a historical event and an essential component of cultural heritage (Tabarsa & Naseri, 2017, p. 364). This approach respects the living tradition so that the past is applicable to the present, being important for the pre-existing values and memories of the place and seeking to coherently combine the new with the old. Socio-cultural contextualism extends the study to human, social, and cultural aspects, including common meanings, values, and community goals (Tabarsa & Naseri, 2017, p. 357). Climatic contextualism recognizes the importance of climatic factors (sun, wind, humidity, temperature) in order to strive for sustainable architecture and minimize the use of fossil fuels (Tabarsa & Naseri, 2017, pp. 358-359).

Among the interdisciplinary factors examined, socio-cultural contextualism emerges as particularly critical in contemporary exhibition design. This dimension encompasses what Bourdieu (1993) conceptualizes as "cultural capital" – the accumulated knowledge, skills, and tastes that influence aesthetic reception. In exhibition architecture, socio-cultural contextualism operates through multiple layers: the macro-level cultural framework shaping visitor expectations, the meso-level community dynamics influencing collective meaning-making, and the micro-level individual experiences determining personal engagement.

The complexity of socio-cultural contextualism is exemplified in contemporary museums operating in multicultural urban environments. Unlike historical or physical contextualism, socio-cultural contextualism must navigate competing value systems and diverse aesthetic traditions within a single architectural framework. This challenge is particularly acute in exhibition spaces presenting global art collections to diverse audiences, where architectural design must facilitate multiple interpretive frameworks simultaneously.

Another factor with a strong influence on the design process of exhibition architecture is design principles (unity, variety, emphasis, center of interest, scale, proportion, balance, and rhythm), which play fundamental roles in shaping users' perceptions and experiences and have a profound and diverse impact on their psyche. At their core lies the operational nucleus of design elements (line, shape and volume, texture and pattern, illusion of space, illusion of movement, value and color). Each of these principles and elements contributes uniquely to the coherence and harmony of the space, directing attention, creating visual and psychological balance, and ensuring a coherent, high-quality, aesthetically pleasing, and effective final design.

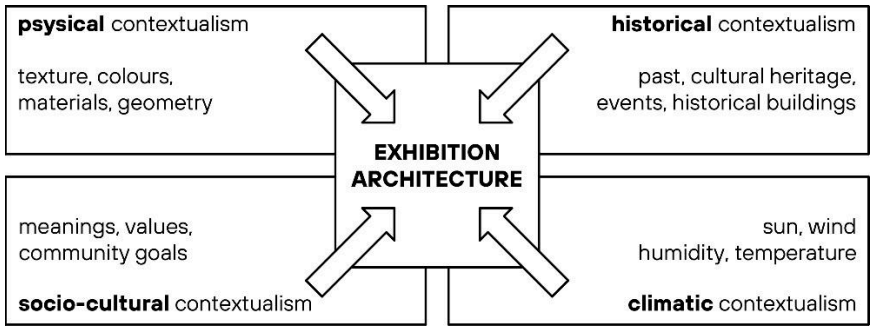

Fig. 1 The dimensions of contextualism with an impact on exhibition architecture

Unity denotes the presence of a deliberate organization between elements, making them appear to be part of a cohesive whole and playing an important role in consolidating a visual identity, amplifying its recognition and memorability (Lidwell, Holden & Butler, 2003, p. 46). In the "Level Green" exhibition designed by J. Mayer H. Architects, unity and consistency are articulated through a chromatic palette of green and black, amplified by the coherent use of common elements of visual language, such as curved strips, which intertwine in a fluid aesthetic, derived from the PET symbol and referring to the complexity of global resources and individual responsibility (Yu, 2011, p. 68).

The scale of an interior influences the level of openness of the people who meet in it, with fewer words being used to answer a question in a small room compared to a larger one (Okken, Rompay & Pruyn, 2013). In rooms with high ceilings, users feel unrestrained, which has an impact on their thinking styles and, implicitly, on how they process information (Meyers-Levy & Zhu, 2007, p. 175). The Holocaust Museum in Washington is an example where the common design practice is to increase the scale to intensify the feeling of domination, making people feel tiny and helpless. Plus, the repetition of symmetries and angles in the museum reinforces feelings of domination.

The line, as a fundamental visual element, has the ability to define both position and direction within a composition. In the Nadir Afonso Museum of Contemporary Art designed by Álvaro Siza, the line asserts itself as the most perceptible design element, managing not only to facilitate lighting, but also to direct specific routes, define spaces, introduce diversity through its variable angles, restrict or guide movement, intensify focus, and stimulate curiosity through convergence with other lines toward specific objects. The use of curved lines helps people relax more than rectangular shapes and sharp angles, as the human brain perceives the latter as a potential danger (Cruz, 2013). There are studies using virtual spaces that show that people tend to judge curvilinear spaces as more beautiful than rectilinear ones (Vartanian, et al., 2013, pp. 10448-10449).

The shape and volume, defined by firm contours or subtle chromatic variations, articulate a three-dimensional presence that visually organizes the space, giving it clarity, structure, and perceptual depth in the complex relationship between the elements of the composition. UCCA Dune Art, designed by OPEN Architecture, is an example of clean, linear, and minimalist architecture that highlights the works on display, in which the volume refers to the excavations carried out by children on the beach where it is located, inspired by the primitive caves that housed cave art (Ideal Work, n.d.). The visual language chosen is reflected in the smallest details, with each element carefully designed: custom tables, lighting fixtures, etc.

The texture of materials in an exhibition space can create effects that distort the perception of dimensions, add depth and aesthetic variety, influence the user's perception of the object, enrich interaction, and amplify the communicative complexity of the piece in its exhibition context. The Eldridge Street Synagogue in Lower Manhattan is an example of an exhibition space where the original texture of architectural elements, such as the wooden floor, has been preserved

(Bedford, 2014, p. 112). The grooves created by the footsteps of generations of worshippers praying in the synagogue offer visitors a unique sensory experience, connecting them with the building's past.

The model provides structure and rhythm to the exhibition composition, allowing the viewer to recognize and anticipate aesthetic patterns. Through it, visual harmony is created, where continuity and coherence become fundamental elements. At the Kolumba Museum in Cologne, designed by Peter Zumthor, the meticulous integration of the pattern into carefully crafted details and finishes is evident. The effect of the wall perforated in a certain "pattern" creates an impression of fullness and continuity, allowing natural light to penetrate the interior. At the same time, it dramatizes the view to the outside and provides an ideal backdrop for the projection of the exhibits (Schittich, 2009, p. 10).

The colors used in a space can influence visitors' perception, mood, and behavior through their brightness, warmth, and saturation. Energy levels increase with color saturation and decrease with increasing brightness (Augustin, Frankel & Coleman, 2009, p. 64). The warmer the color, the more compact the space is perceived to be (Harrouk, 2020). Pink reduces anger, calms the nerves, and warm colors improve productivity and concentration (Birren, 2016).

In the exhibition context, light functions as a multifaceted agent that simultaneously mediates aesthetics, narrative comprehension, emotional involvement (Graser, 2023, p. 41), and heritage preservation through a sophisticated orchestration of layered lighting (Carter & White, 2024, p. 14) —ambient, task, focal, and decorative—that modulates and isolates the visual landscape, creates varied atmospheres (dramatic, relaxing, or playful), establishes spatial "anchors," and amplifies the visibility of details through directed light accents, while, through the manipulation of color temperature and

intensity, it contributes decisively to the construction of an immersive narrative that simultaneously stimulates the visitor's aesthetic, affective, and cognitive perception (Carter & White, 2024, p. 12), giving the impression of a true journey through time.

The third factor with a strong influence on the design process is the adaptability of the future space to the various current types of presentation, which requires a good knowledge of them. The "white cube" implies a white, neutral space that separates art from the outside world, presenting it as an object of pure contemplation (O'Doherty, 1986, p. 15). The "black box" implies a dark space, where video projections and interactive installations are enhanced by low lighting conditions (Juste, 2023, p. 6). The "gray area" is a hybrid space between the two and implies a large, empty space where performance and audience behavior interact in spontaneous and unexpected ways (Bishop, 2018, p. 38).

Methodology

The methodological approach combines systematic literature review with comparative case study analysis using three selection criteria: geographical diversity (European, Asian, North American examples), typological variety (traditional museums, contemporary venues, memorial architectures), and temporal distribution (established and recent projects). The analytical framework draws upon environmental psychology, architectural theory, and museum studies, evaluating each case against the four contextualism dimensions and design elements/principles.

The methodology adopted in this investigative approach involves, first and foremost, an extensive review of the specialized literature—including books, academic articles, and case studies—with the aim of identifying relevant principles, theories, and examples related to

exhibition architecture design, the psychological effects generated by various elements, and the design principles that support them. The information thus obtained is structured within the article in the form of distinct chapters, each organized to systematically address the factors analyzed. Within these chapters, each factor is first presented from a general perspective, and its specific impact is then illustrated through the analysis of concrete examples of museums relevant to the topic addressed.

Critical Analysis: The Primacy of Socio-Cultural Contextualism

While all four dimensions of contextualism contribute to successful exhibition architecture, this analysis reveals socio-cultural contextualism as the most complex and consequential factor in contemporary practice. Unlike physical or climatic contextualism, which operate through measurable parameters, socio-cultural contextualism requires architects to navigate intangible yet powerful forces that shape visitor engagement and meaning construction.

The comparative analysis of the selected case studies demonstrates that successful exhibition architecture achieves what might be termed "cultural resonance" – a condition where the architectural framework amplifies rather than competes with the cultural significance of displayed works. The Holocaust Museum's overwhelming scale strategy, while emotionally effective, represents a relatively straightforward application of spatial psychology. In contrast, Peter Zumthor's Kolumba Museum exemplifies a more sophisticated approach, where the perforated wall pattern creates multiple simultaneous readings: contemporary architectural innovation, historical reference to war damage, and spiritual metaphor for divine light.

This analysis suggests that socio-cultural contextualism operates through three primary mechanisms: cultural translation (making unfamiliar content accessible), cultural amplification (reinforcing existing cultural knowledge), and cultural negotiation (managing competing interpretive frameworks). The most successful exhibition architectures demonstrate fluency in all three mechanisms, adapting their spatial strategies to the specific cultural dynamics of their context while maintaining architectural coherence.

The implications for architectural practice extend beyond exhibition design to encompass broader questions of cultural architecture in globalized contexts. As cultural institutions increasingly operate as sites of cross-cultural encounter, the architectural frameworks that house them must evolve beyond modernist neutrality toward what might be termed "culturally intelligent" design – architecture that actively participates in meaning-making while remaining sensitive to diverse interpretive traditions.

Conclusion

This investigation reveals exhibition architecture as a complex mediating system where socio-cultural contextualism emerges as the primary determinant of visitor engagement and meaning construction. The analysis demonstrates that successful exhibition architecture achieves "cultural resonance" – a condition where architectural design amplifies cultural significance without imposing predetermined interpretations.

For architectural practice, these findings suggest the need for expanded methodological approaches that integrate cultural analysis and community engagement into the design process. Rather than treating socio-cultural context as an external constraint, exhibition

architects must recognize it as the fundamental medium through which their designs will be experienced and evaluated.

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Arhitectura expozițională, expresie a relației dintre estetică, cogniție și context

(rezumat)

Acest articol explorează natura multidisciplinară a procesului de proiectare a spațiilor expoziționale, în conformitate cu tema conferinței „Convergence". Prin studii de caz, cărți și articole academice, se identifică modul în care factorii socio-culturali, influența psihologică a elementelor și principiilor de design, luarea în considerare a flexibilității spațiului și o bună înțelegere teoretică a metodelor expoziționale modelează obiectul arhitectural astfel încât acesta să se integreze în narațiunea expozițională, devenind un mediu cognitiv activ capabil să genereze sens și să influențeze percepțiile și comportamentul oamenilor. De asemenea, articolul menționează unele dintre consecințele ignorării, necunoașterii sau nerespectării acestor factori, evidențiind impactul negativ pe care o astfel de atitudine îl poate avea atât asupra procesului analizat, cât și asupra obiectului arhitectural rezultat.

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