

Elevating the Museum Experience

The Impact of Architectural Interior Design on Visitor Engagement with an Exhibition

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ABSTRACT

This study examines the relationship between design elements and how visitors perceive exhibitions to assess how architectural interior design influences visitor engagement in museums. In light of the post-pandemic spike in museum visits, the study attempts to close the information gap regarding the connection between evolving exhibition narratives and architectural principles for creating immersive spaces.

Through fieldwork and literature reviews, this study investigates the complex relationship between visitor engagement and architectural design. The theoretical basis highlights the significance of layout, traffic flow, and how spatial design influences visitor behavior. The Maritime Museum in Rotterdam and Schoenenkwartier in Waalwijk serve as two case studies that highlight these concepts by showcasing how to integrate additional functions, achieve a balance between structure and freedom, and arrange interactive features effectively.

The research concludes that architectural interior design significantly influences visitor engagement through thoughtful layouts and varied installations. Achieving success requires establishing a balance between direction and liberty, catering to a variety of audiences, and integrating digital content into the exhibition. The outcomes offer architects and curators beneficial insights into designing impactful museum environments.

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INTRODUCTION

In 2019, there were 32.6 million visits to Dutch museums. Because of the pandemic in 2020, it dropped to only 13.2 million museum visitations. In 2022, the number of visits has increased to 23.5 million (Museumvereniging & Stichting Museana, 2023). Although not at pre-corona levels, the landscape of museum attendance has experienced a notable upsurge.

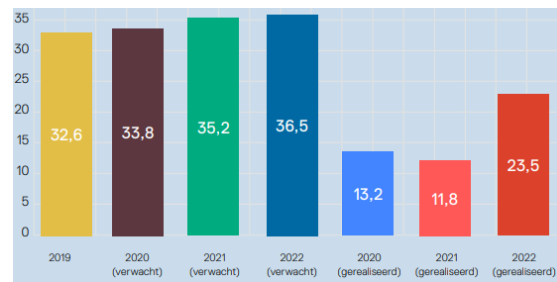


Fig 1. Realized and expected museum visit (x 1 million) 2019-2022. (Museumvereniging & Stichting Museana, 2023)

This new upsurge in visitor numbers prompts a deeper exploration into the variables influencing museum attendance. Leaving aside the immediately obvious impact external events such as a global pandemic can have, there is a fascinating relationship between architectural design and visitor engagement within museum spaces. This new resurgence in museum attendance calls for a critical analysis into the part architectural interior design plays in elevating visitor experience and perception of an exhibition.

As museums strive to navigate the ever-changing dynamics of public engagement, the architectural elements within these institutions can be seen as crucial components that shape the overall visitor experience. Architecture is more than just creating a physical space. Architecture provokes emotions, enhances a narrative, and contributes to the immersive experience of exhibitions. This study aims to investigate in detail the relationship between the architectural interior design of museums and visitors' increased engagement and perception of the exhibitions.

Thus, the primary focus of this thesis will be: How does architectural interior museum design elevate visitor engagement and perception of an exhibition?

To transcend the role of a mere art repository and evolve into vibrant cultural hubs, museums necessitate a redesign from their traditional conception. However, a notable knowledge gap exists in understanding the synergy between evolving exhibition narratives and cutting-edge architectural principles. Bridging this gap is crucial for creating immersive and impactful spaces. Through an examination of the relationship between principles of architectural design and the presentation of the exhibition subject, this research seeks to provide future architects and museum curators with the knowledge needed to enable them to design immersive and impactful spaces that add to and support the essence and significance of the exhibition subjects.

An approach that combines fieldwork, archival research, and literature studies has been used to compose this paper. Secondary resources, such as literature and papers about museum architecture, have been used to support and explain findings from primary resources. These include documents such as floorplans, elevations, and sections obtained from digital and conventional repositories. The fieldwork has resulted in an image analysis and experience rapport. These methodologies serve as the foundation for the thorough investigation and evaluation conducted to uncover the complex relationship between architectural design features and visitor engagement in museum spaces.

This thesis aims to clarify the impact of architectural interior design on visitor engagement and perception of exhibition subjects, focusing on its role within museum settings. The research will be conducted in separate but related sections, each with the goal of examining different aspects of architectural design and its influence on the visitor experience within museum settings.

The initial stage of this investigation entails a general review of current theories, design concepts, and conceptual frameworks related to museum exhibitions. This starting investigation includes an analysis of accepted design practices, spatial arrangements, lighting strategies, interactive displays, and narrative structures frequently used in museums.

Subsequently, the following section will examine two different case study projects chosen for their varying locations, popularity, and age. In order to determine how architectural interior design components affect visitor engagement and perception, these case studies will closely examine the utilization of architectural elements and their integration into the exhibition's story.

The culmination of these multi-faceted analyses' findings will be an overview leading to a critical evaluation of how architectural interior design either enhances or potentially detracts from visitor engagement and perception of the exhibition subject. This comprehensive approach looks for practical design strategies that preserve the integrity and authenticity of the subjects of the exhibitions while providing engaging and transformative experiences for museum visitors.

CHAPTER 1 - THEORY

This chapter provides a preliminary investigation into the complex relationship between architectural interior design and its effects on visitor perception and engagement in museum environments. The research approaches used involve a thorough analysis of current theories, design principles, and conceptual frameworks that shape museum exhibitions.

1.1 Visitor flow

“Exhibition development is a process aimed at realizing an idea” (Dean, 2002). After an initial idea for an exhibition and gathering the desired objects, designing the exhibition space would be next. At the base of exhibition design lies its layout, this is the first step. The interactions with and interpretations of visitors with exhibition content can be easily influenced by how they navigate the exhibition (Macdonald, 2007). The sequence structuring of viewing areas is a fundamental element of museum architecture and is crucial in facilitating movement and object arrangement (Tzortzi, 2007).

Dean (2002) defines three traffic flow approaches for designing a museum exhibition. First, the ‘Suggested approach’, guides visitors along a predefined route without physical barriers using visual cues and design elements. The ‘Unstructured approach’, on the other hand, provides visitors the freedom to navigate the exhibition space on their own. Finally, the ‘Directed approach’ provides a structured and directional flow but may result in traffic jams. Of course, each approach has its positive and negative aspects, depending on the exhibition concept and educational goals.

Other methods can also generate a desired visitor flow. With the implementation of see-through panels, exhibit cases, and windows, openness is created, attention can be captured, and visitors can be drawn into the next area, thus promoting interest and movement (Dean, 2002). Leaving openings in walls and other barriers allows for new sightlines to encourage visitors to explore the exhibition further (Cristea, 2016). Placing striking exhibited objects in the line of sight throughout an exhibition can further draw a visitor through the museum (Dean, 2002).

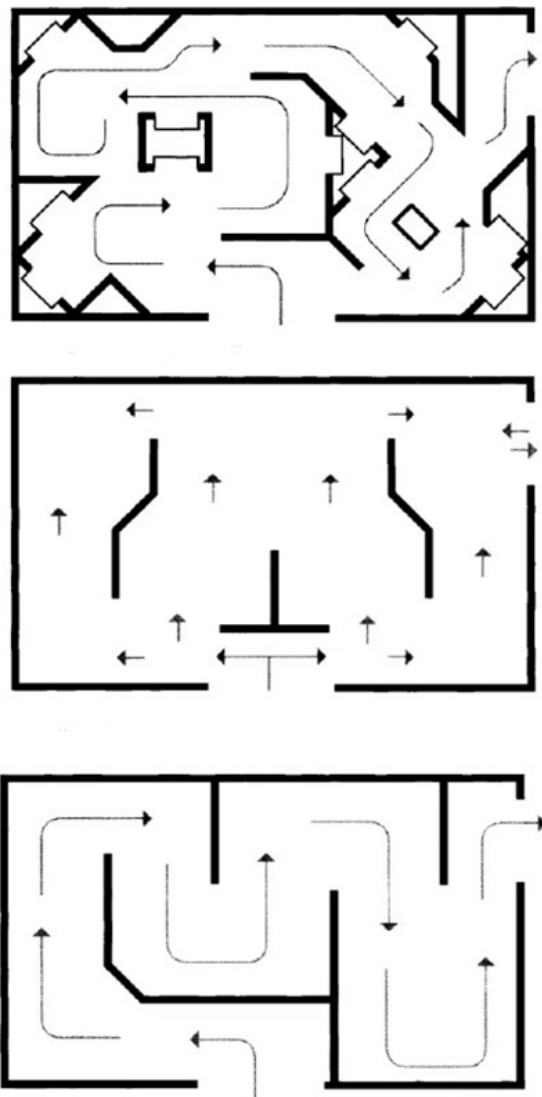


Fig 2. traffic flow approaches f.t.t.b. Suggested, Unstructured, Directed. (Dean, 2002)

1.2 Spatial

Another factor to consider in exhibition design is the perception and feeling of a space. Different types of spaces provoke natural and often predictable responses. Largely unknown spaces should be well-lit and more spacious. These spaces tend to feel less intimidating and encourage exploration (Dean, 2002). Conversely, smaller spaces risk creating a sense of crowdedness and confinement, which often have negative associations. Designing exhibition spaces can also be done for a particular goal or object on display. Small objects in a large hall may appear insignificant, but placing the same object in an intimate space with the object highlighted, makes it the focal point, and curiosity and close viewing are stimulated within the visitor (Dean, 2002).

“People must feel comfortable” (Black, 2008). A relaxed and comfortable environment where interaction between the viewer and the object can occur improves the retention rate and internalization of an otherwise academic topic (Dean, 2002). Since museums are trying to establish themselves as hubs for enriching experiences and education (Ahmad et al., 2018), having a space conducive to achieving that goal is crucial.

1.3 Supportive elements

The desired museum learning environment is not solely achieved through well-suited space. Black (2008) outlines a list of installations and elements that further enhance the exhibition and support the learning experience. Think of temporary exhibitions, hands-on study areas, dwell points, community space, interpretive media, and interactive elements. Exhibitions can benefit from digital content, such as movies, audio recordings, audio tours, interactive sites, and programs, as they provide additional depth and engagement (Museums Victoria, n.d.). The valuable entertainment component of exhibitions should thus not be disregarded. Especially since a positive response to the learning process is achieved when information is presented in an engaging and exciting way (Dean, 2002).

1.4 Visitor characteristics

Of course, this differs depending on the audience group. Understanding your target audience is essential to creating an effective exhibit that attracts and successfully conveys information to the visitor (Archives & Museum Informatics, 1993). Each visitor enters the museum with varying levels of prior knowledge, this variation can be attributed to factors like age and prior experience with the exhibition subject. Children, compared to their parents, will have different interests, but they will visit the exhibition at the same time. In his studies, Serrell (1997) found that in order to make visitors spend more time and attention in a museum, the exhibit elements must be made more intrinsically rewarding for a broader range of ages and abilities and increase their appeal to, and thus their use by, a broader range of visitors. This can be supported by the research of Ahmad et al. (2018), who found that children stayed longer at exhibits and learned more when they were accompanied by an adult who was actively involved with the exhibition. Furthermore, Serrell (1997) found a commonality within the top 11 engaging exhibitions, where every area of the exhibition contained elements that would be attractive to the majority of visitors.

Then a couple of intrinsic behaviors within almost every visitor should be taken into account when designing an exhibition. "Visitor behavior is not random, there are patterns" (Serrell, 1997). A few key visitor behaviors are listed below:

- When given a choice, visitors tend to turn right and follow the right-hand wall through a gallery.
- Exhibits near the entrance often get more attention than those at the end.
- The exit has a strong attraction. People often leave at the first opportunity to do so.
- If the main exhibition message requires extensive label reading, the majority of visitors will not be able to understand it.
- Large exhibitions have different averages for time spent than small ones.
- Few people move into the center to explore island exhibits.
- The time available to hold visitors' attention is limited.

In conclusion, the intricate relationship between architectural interior design and visitor engagement within museum environments is a multifaceted interplay of space, layout, and exhibit elements. The initial examination of this intricate relationship has shown how crucial exhibition layout is in directing visitors' movement patterns. Dean's three traffic flow approaches - directed, unstructured, and suggested - emphasize the significance of finding a balance between visitor freedom and structured guidance, all of which depend on the concept of the exhibition and its educational objectives. Additionally, the implementation of open layouts, thoughtful object placements, and well-lit areas create a welcoming ambiance that enhances guests' enjoyment and encourages exploration. Taking into account the diverse backgrounds, ages, and interests of the audience highlights even more how tailored design approaches are necessary for developing outstanding exhibits.

The importance of having well-suited spaces and varied installations and elements that improve the learning experience becomes evident as museums seek to become immersive hubs for educational and enriching experiences. Incorporating interactive technology, hands-on study areas, interpretative media, and temporary exhibitions are essential components in engaging and appealing learning settings. This echoes the notion that an entertaining element in displays shouldn't be disregarded as it promotes a positive response to the process of learning. In exploring the main research question, it becomes evident that a thoughtful combination of spatial layout, exhibit elements, and audience considerations is essential to captivate visitors and effectively convey information on the exhibition topic.

CHAPTER 2 - CASE STUDY: SCHOENENKWARTIER WAALWIJK

On the 28th of June 2022, the Schoenenkwartier, a museum about the rich past of the shoe and leather industry, opened its doors to the public. Following five and a half years of careful planning, relocating, and remodeling (Narinx, 2022), the museum emerged as a lively space with more to offer than a collection of shoes and historical leather industry equipment, unlike in its previous location where it wasn't much of a success.



Fig 3. Schoenenkwartier Waalwijk.

2.1 Layout

Situated on the ground floor are dynamic, multifunctional spaces that seamlessly flow into one another, like the café with integrated workshop areas and workspaces for guest and resident artists. Immediately visible from the adjacent town square, these spaces are openly accessible to the public, welcoming aside from visitors to the exhibition, also residents from the immediate area. Through a thoughtful arrangement of stairs and walkways, visitors can decide their journey through the museum, quickly accessing particular exhibits or the museum's book collection. The layout still allows them to instinctively follow a carefully curated route, enhancing their overall experience. Moreover, the museum's intentional design emphasizes accessibility and connectivity. Shortly after the grand front entrance, the expansive atrium offers a panoramic view of the entire museum. From the ground floor, its open layout provides visitors with captivating glimpses of each section of the exhibition and the seamlessly integrated aforementioned additional spaces, enticing them to embark on an immersive journey through the diverse offerings of the museum quarter.



Fig 4. Resident artist of the Schoenenkwartier working with leather and recycled products.

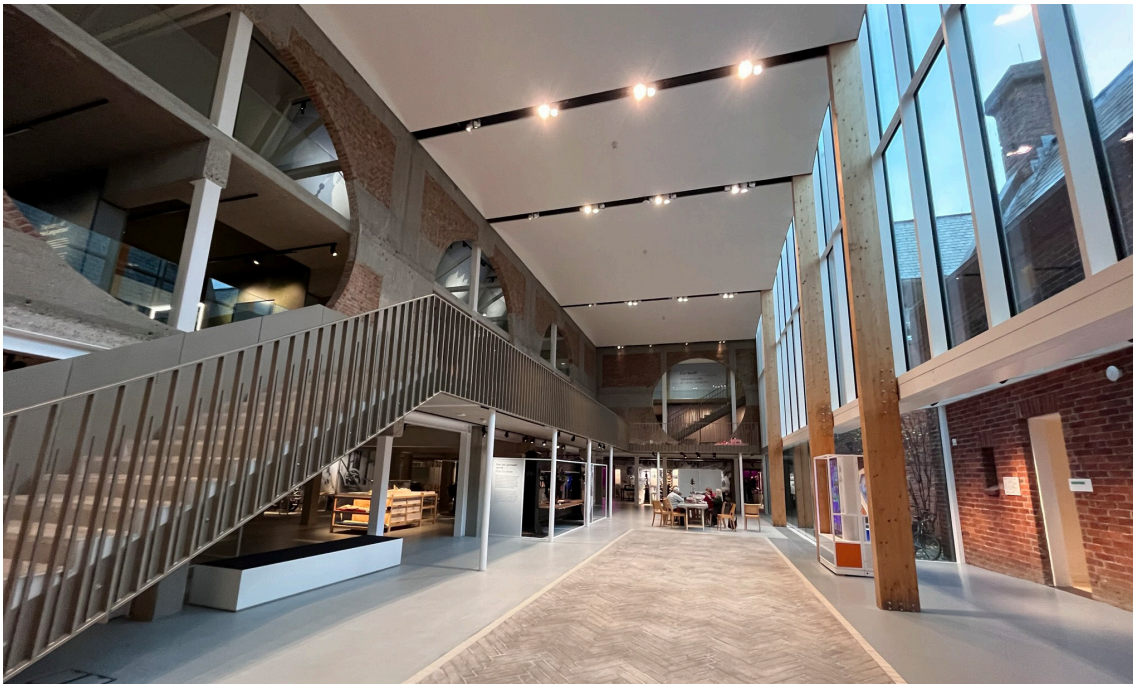


Fig 5. Centralized atrium allowing sightlines to almost the entire exhibition.

2.2 Supportive functions

Tucked away in the back of the museum lies a broad open-access bookshelf filled with industry-related books. This captivating feature draws in visitors with prior involvement in the industry or family members thereof. It acts as a bridge to the past, allowing visitors to explore past stories and see pictures of deceased family members connected to the industry, fulfilling the visitor's quest for meaningful engagement and connection to their heritage.

On the museum's second floor, an exhibit featuring shoes worn by famous public figures sparks a universal recognition among visitors, creating personal connections with the collection through a sense of familiarity. By embracing a broader functional scope and successfully intertwining these with the exhibition narratives, the museum strengthens and clarifies the basis of its exhibition while, as a bonus, attracting more visitors.

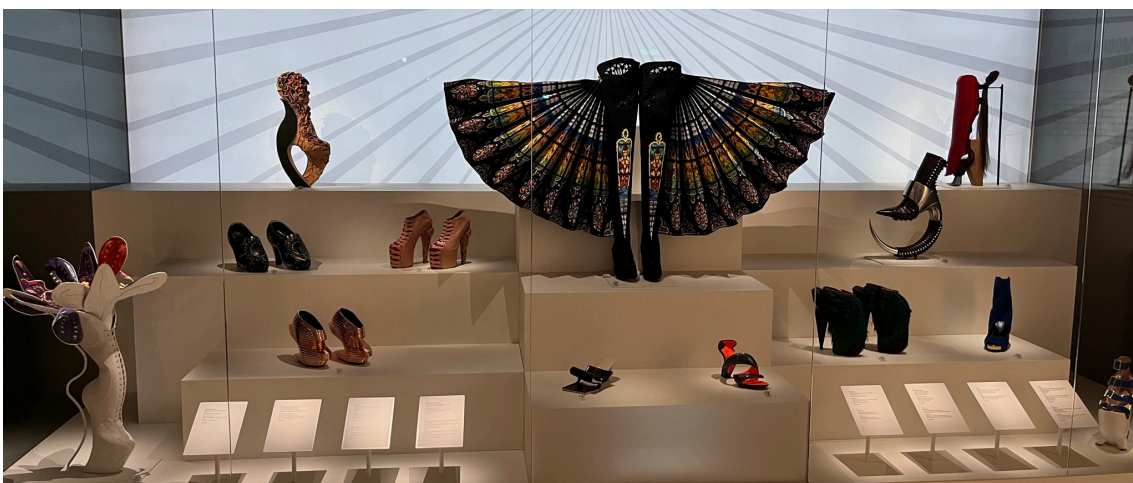


Fig 6. Exhibit featuring shoes worn by famous public figures.

To encourage repeat visits to the museum, various rotating elements complement the Schoenenkwartier's offerings. Apart from the previously mentioned dedicated workspace for guest artists for a three-month tenure, temporary exhibitions play a pivotal role. Among these, the museum hosts two distinct rotating displays. The small 'In the Spotlight' exhibit, updated every four months, captures attention with its focused showcases. This exhibit provides regular refreshing thematic content, but its limited size might not be sufficiently convincing for recurrent visits. Additionally, a larger changing exhibit on the second floor undergoes a thematic overhaul every six months. This exhibition exposes visitors to various immersive and diverse themes, enticing future revisitation. On the floorplans, close to 50% of the total publicly accessible floor space was reserved for additional functions (blue areas). The functions in these areas support the primary exhibition (red areas). Thus, the importance of additional supportive functions becomes apparent.

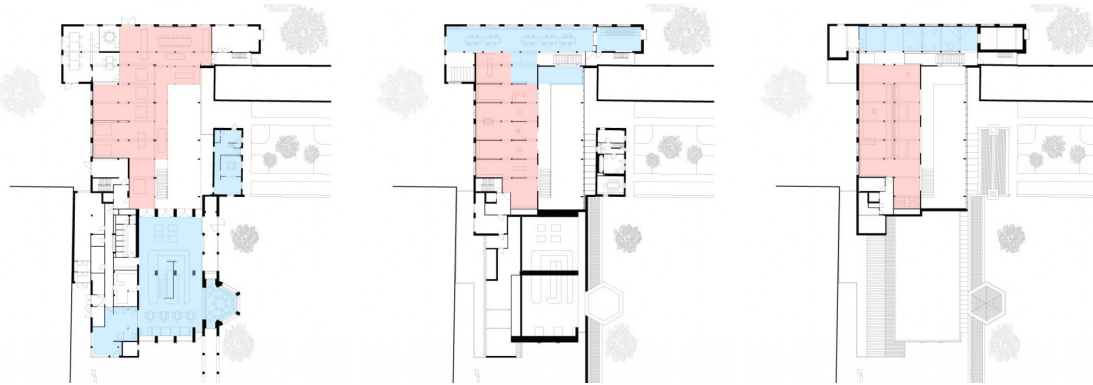


Fig 7,8,9. Permanent exhibition (red) and supportive functions (blue) in the floorplan f.l.t.r. groundfloor, first floor, and second floor. (Civic Architects, 2022)

2.3 Interactive elements

The museum uses innovative engagement tools, such as a catwalk with shoes from several cultures and times, appealing to multiple generations. Okki, the spider with eight shoes, is especially intriguing to the youngest visitors. By hiding their 'Mascot' throughout the exhibition, a scavenger hunt engages the children while their parents have time to explore the exhibition on a deeper level.

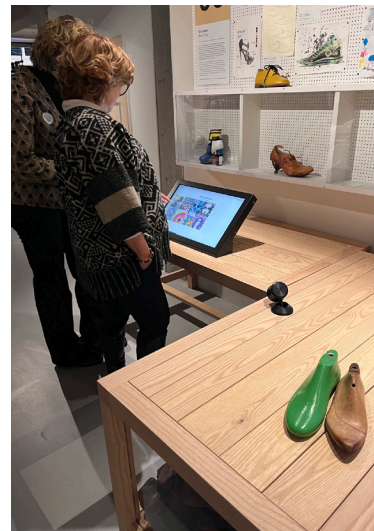


Fig 10,11,12. Engagement tools in the Schoenenkwartier f.l.t.r. Catwalk, Museum mascot Okki hidden in one of the exhibition elements, and interactive elements where you can design your own shoe.

CHAPTER 3 - CASE STUDY: MARITIME MUSEUM ROTTERDAM

The Maritime Museum in Rotterdam is almost 150 years old. What started as Prince Hendrik's personal ship model collection, which opened to the public in 1874 (Onze Koninklijke Roots, n.d.), is now one of the largest and most prominent maritime collections in the world (Museumcollectie, n.d.). The museum makes for an intriguing case study because of its longevity and how its exhibition is set up. Situated just a short walk apart, the main building, its annexed counterpart, and its harbor collectively form a unified entity. Through the use of a consistent style and holistic design strategy across these interconnected spaces, a feeling of cohesion and continuity is created.



Fig 13. Maritime Museum Rotterdam.

3.1 Layout

The harbor is home to a unique collection of historical ships, while the nearby side building houses a restaurant, port visitor center, and the museum's blacksmith and workshop. The permanent main exhibition is housed in the museum's primary building. The museum's layout allows visitors to walk their own path through the exhibition. However, a slightly raised pathway instinctively leads the visitor along sectioned-off areas, indicated with metro line stops, each assigned its specific theme. However, there might have been a missed chance to indicate the sections with maritime-themed transit stops, such as waterbus or water taxi stops, aligning with the overall theme of the museum.

Though the sections are clearly divided, thoughtful design strategies guarantee a seamless museum experience. A unified ambiance is created by having intentional gaps in the walls, not connecting the walls with the ceiling, and using open materials like drapes or mesh as walls. These intentional architectural choices allow sounds from nearby spaces to filter through, encouraging the curiosity within visitors to explore further.

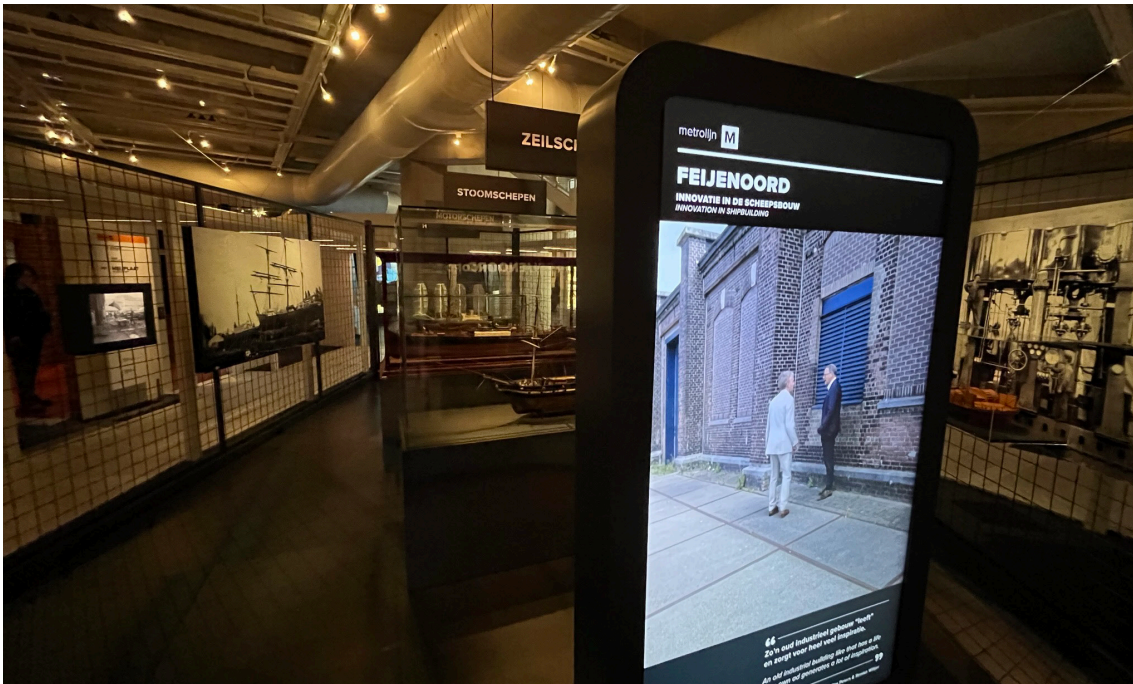


Fig 14. Section of the permanent exhibition, open through the use of mesh and lower than ceiling height walls.

3.2 Supportive functions

Besides the permanent exhibition, the museum has reserved a large section for their rotating exhibitions. The current theme is centered on migration by sea, incorporating personal stories of young Rotterdam residents with a migration background. This timely subject, while sticking with the maritime theme, reaches further than the permanent exhibition. This great addition holds immense potential for attracting visitors, particularly in a diverse city like Rotterdam, resonating with the locals.

3.3 Interactive elements

Lastly, the Maritime Museum makes use of several interactive elements. However, rather than being integrated throughout the exhibition, these interactive and child-focused elements are predominantly concentrated within two specific areas.

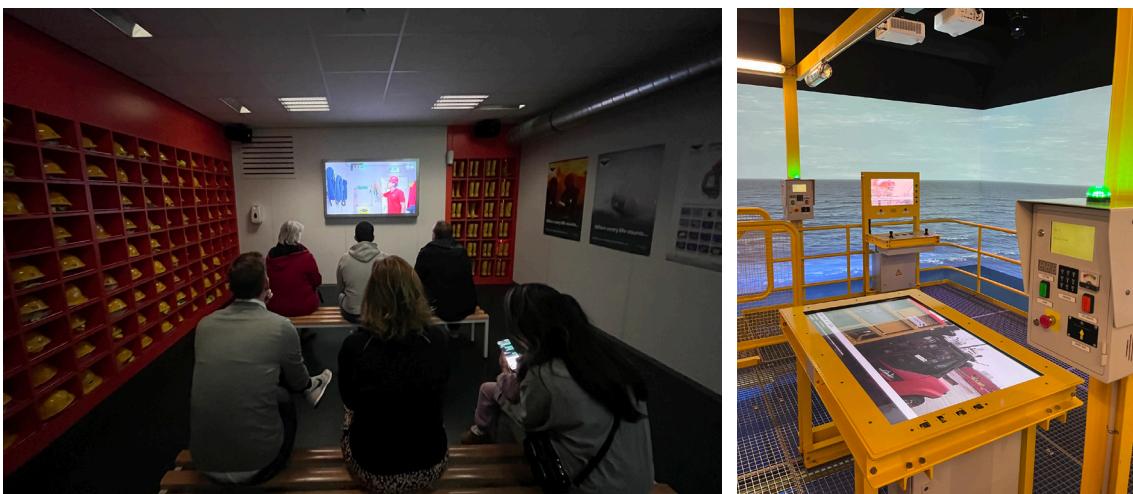


Fig 15,16. The Off-Shore Experience. Left: Instruction area & safety gear storage. Right: Test/Game area.

The 'Off-Shore Experience' is one of these interactive elements, which on its own is a well-executed installation. Almost all visitors enthusiastically adorned the unnecessary yet immersive safety vests and hard hats while engaging in several theme-based activities within a realistic recreation of an off-shore drilling platform. In the end, participants receive their scores and a diploma, which serve as a souvenir and might incentivize a return visit to improve their score. The 'Professor Plons' area is the other interactive element but focuses primarily on the youngest generation. This area allows kids to get rowdy while playing with theme-related installations and toys. Here, the children can let loose after going through the entire exhibition, which is less aimed at their age group.

Precisely here lies a significant problem with the Maritime Museum. Though both interactive areas are of high quality, having this spatial segregation with the main exhibition led to visible instances of bored children waiting for their parents at exhibits, paralleled by fatigued or frustrated parents waiting on their children in these specialized areas.



Fig 17. Professor Plons outdoor play area.

CONCLUSION

Both the Schoenekwartier in Waalwijk and the Maritime Museum in Rotterdam have well-designed layouts that play a significant role in positively influencing visitor engagement and perception of the exhibition, aligning with Dean's traffic flow approaches. The Schoenekwartier and the Maritime Museum both primarily use a suggested approach and have open and accessible layouts, allowing visitors to navigate freely or follow a curated route. Allowing both freedom and structure, where the visitor can choose between the two, enables an immersive tour through diverse exhibits. Each museum uses comparable methods to create openness in the divisions between sections of their exhibition to encourage further discovery.

This openness within the Schoenekwartier easily integrates additional functions within the permanent exhibition. The Maritime Museum on the other hand has its functions spread out over multiple buildings. The exhibition, however, still works as a successful unified entity through the use of a holistic design strategy, but mainly through the museum harbor which neatly connects the two buildings.

Another aspect of the theory that both museums show is the use of additional functions in support of the permanent exhibition. Temporary exhibitions, permanent artists with connections to the exhibition subject, hospitality services, and hands-on study areas are seamlessly integrated within both museums and lift the exhibitions to a new level.

Furthermore, the two museums have integrated digital content and interactive elements into the exhibition, though one was more successfully executed than the other. Through the case studies, it has become clear that this new exhibition form cannot be confined to one specific area. These elements have to be distributed equally throughout the exhibition in order to get the optimal results. As became apparent with the Maritime Museum, separating these new elements from the permanent exhibition results in part of the visitor group being bored in one place. Meanwhile, the other part feels exhausted in other sections of the museum. This diverse audience group needs to be engaged at the same time.

Theory	Schoenekwartier	Maritime Museum
Layout		
Suggested approach	70%	60%
Unstructured approach	30%	40%
Structured approach	0%	0%
Spatial		
Openings	enfilade & large openings	mesh panels & low walls
Lighting	adjusted to subject	mainly dimly lit
Supportive elements		
Temporary exhibitions	1 big & 1 small	1 big
Library & study space	always open	only open during week days
Archive	semi public	public
Café	same space	connected, but behind doors
Guest artists workspace	multiple	no
Interactive elements	spread throughout	concentrated in two areas
Visitor characteristics		
For a broad audience	yes	yes

Fig. 18. Comparison Theory, Schoenekwartier and Maritime Museum.

In essence, both case studies align with the theoretical foundations discussed in the preliminary investigation. They emphasize the importance of well-thought-out layouts, engaging tools, and varied installations to create immersive museum experiences. The success of these case studies lies in their ability to balance structured guidance with visitor freedom, accommodating diverse audience groups, and fostering a positive and interactive learning environment.

Architectural interior museum design enhances visitor engagement and perception by strategically influencing traffic flows, creating open and inviting layouts, and incorporating diverse elements like interactive displays, well-lit spaces, and additional functions. The design encourages balancing between structured guidance and visitor freedom, catering to diverse audience interests and ages. Integrating digital content and interactive elements throughout the exhibition ensures a cohesive and engaging experience, fostering positive responses to learning. Successful case studies, such as the Schoenenkwartier and Maritime Museum, exemplify the importance of thoughtful layouts and varied installations in creating immersive and impactful museum environments.

DISCUSSION

The use of only two case study projects in the research for this thesis allows the conclusions to be questioned. For more conclusive results, future research would be favorable. Furthermore, this research has little connection to the design course's heritage theme. This could be addressed by future studies evaluating how the exhibition was adapted to suit an already-existing structure. For now, however, that would have been too much work, given the time allocated and the anticipated size of this thesis assignment.

The combination of data from multiple reliable textual sources and its successful implementation displayed in two separate case study projects indicate the robustness of the findings from my research. Through practical application, these findings have translated into enhanced museum experiences, affirming their validity and usability for optimizing museum environments.

I am positive that these insights will significantly enhance and guide my design project for a new museum, ensuring enhanced visitor engagement and perception of the exhibition.

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