Graduation Research Plan

Enhancing Exhibitions of Technical Museums

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Final Research Plan

Title:	Enhancing Exhibitions of Technical Museums
Main Research Question:	How can architectural interior design optimize the permanent exhibition of technical museums in a pre-existing building?
Key words:	Interior architectural design, museum exhibition spaces, permanent exhibitions, pre-existing building

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Introduction

The museum, an institution of cultural preservation and education, has undergone a remarkable transformation over the years. Museums have changed from static collections of artwork, artifacts, and associated stories (Schwarz et al., 2006) to dynamic places where the past and present seamlessly converge, providing immersive experiences where a wide audience range is interactively integrated (Hoffman, 2016). The physical condition and architecture of a museum are integral parts of the experiential narrative it embodies (Sirefman, 1999). This research proposal aims to explore the correlation between architectural interior design and the optimization of permanent exhibition spaces in technical museums housed within pre-existing buildings.

In modern museums, there is a fine balance of architecture, content, and visitor interaction. The architectural design of museums has played an increasingly important role in the storytelling of their exhibitions. It is the unseen flow created by the spatial structure that should guide the visitor through the interior maze (Psarra, 2005), and bring the stories exhibited to life. The architectural design thus plays an active role in storytelling, influencing visitor engagement and interpretation. Simultaneously, the museum building must seamlessly accommodate the displayed objects and integrate a flexible interior with a meaningful exterior (Sirefman, 1999). While the exterior design undoubtedly contributes to the overall aesthetic appeal of a museum, the interior design holds a more direct and immediate influence on visitor engagement and interaction with the exhibited content, making it the primary focus of this research.

Though the relationship between museum architecture and the visitor experience is well-established, this research will primarily focus on technical museums, with an exclusive emphasis on optimizing permanent exhibitions within pre-existing buildings. These type of museums greatly differs from traditional art museums in their goals, types of displays, and spatial requirements. The often larger historical installations, machines, and objects housed in these more specialized museums, necessitate adopting an innovative approach to interior design and curation. The decision to concentrate on the adaptation of a pre-existing structure to the exhibition is in recognition of the challenges within the design assignment. The results from this thesis would support that design process.

“Architecture is integral to the museum experience” (Sirefman, 1999), and existing research has offered valuable insights into the effect of museum architecture on visitor experience. Further research has explored the influence of spatial layouts on visitor flow, the role of lighting and acoustics in creating immersive environments, and the integration of interactive elements to enhance engagement. However, specific documented material on these principles within technical museums seems limited. Although this paper will primarily serve to further my own personal design assignment, this research paper could perhaps also be a welcome addition to existing data and research.

Problem statement

As previously stated, the architectural interior design of museums has become a key element in enhancing the visitor experience. Existing research mainly focuses on art museums, while there is a lack of knowledge in the design of technical museums, and in particular those within an pre-existing building, which come with unique challenges and requirements. In support of the redesign process of the Baggermuseum in Sliedrecht, this research seeks to investigate how the architectural interior design of that particular museum type can effectively optimize a permanent exhibition within the limitations of a pre-existing building. For that reason, the main research question will be: How can architectural interior design optimize the permanent exhibition of technical museums in a pre-existing building?

Research questions

The research paper will examine the following sub questions to help narrow down the answer to the main research question:

What are the distinctive characteristics of technical museums, and how do they differ from art museums?

How does architectural interior design influence visitor engagement within these specialized museum contexts?

How is the design of an exhibition limited by fitting it in a pre-existing environment?

What strategies and design elements have been successfully employed in technical museums to optimize the exhibition experience?

Methodology

This research paper will comprise multiple methods to answer the primary research question. In the first stage of the research case studies, archival research, and literature studies will simultaneously take place. Several case studies of technical museums with diverse architectural interior designs will be conducted. These case studies will include on-site visits, visitor surveying, and documentation of architectural features. In support of the case studies, archival research, such as examining historical documents, will be conducted. As the final direction of the research paper is yet to be determined, the literature studies will probably still be ongoing until late in the writing process. This provides continuous insight from existing academic sources and articles that will largely shape the final product. To make proper use of their valuable time, expert consultations and interviews will only be started in the later stages of this assignment. The experience and opinions of the experts will be mainly used for guidance on the research topic and to gain insight into new developments.

All future research will be ethically conducted. As for the case studies, informed consent will be sought. Names, as well as other sensitive information, will be withheld. The archival research will respect intellectual property rights. Additionally, only data in the public domain or has been acquired with the necessary authorizations will be used. Proper recognition of the contributors and careful citation will be used at all times, regarding the literature studies. Finally, with the experts will be convened which information may be shared. All in the hopes of conducting this research with integrity and transparency.

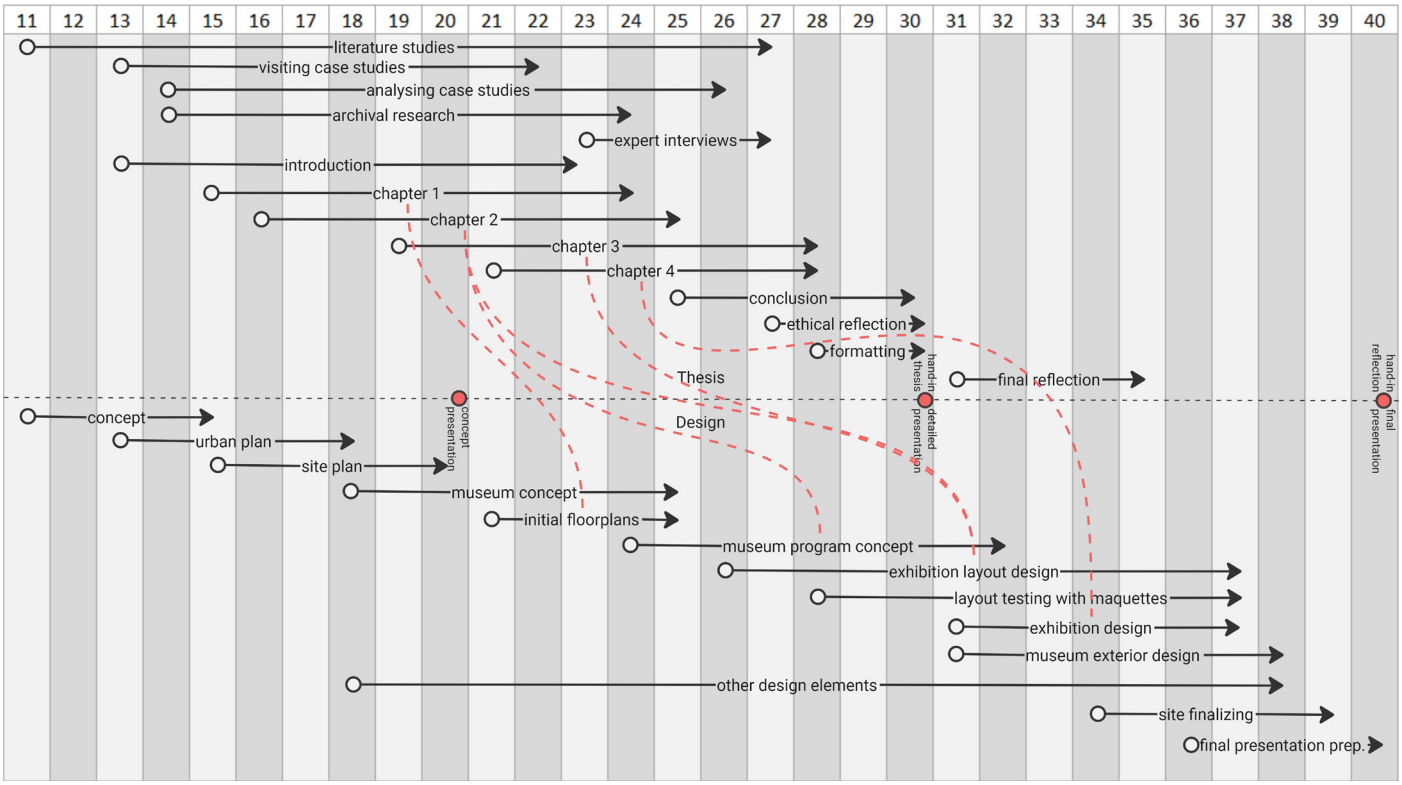

Figure 1. Proposed timeline of methodology. By author.

Frame of reference

My thesis is positioned within a pre-existing theoretical, historical, and practical context. At the core lies a vast theoretical body of literature in museum studies, architecture, and design. These concepts serve as the primary guide in the writing of the research paper. My future research will not only look at the present but also analyse past situations and choices and examine the evolution that has taken place.

Beyond theory and history, my research will extend to real-world practices to gain further insights. Case studies and expert consultations serve to bridge the gap between theoretical concepts and tangible design approaches.

Relevance

This research paper, which explores the relationship between architectural interior design and the enhancement of permanent exhibition spaces of technical museums in pre-existing buildings, will contribute to current knowledge in this field. Most importantly, however, this research will be of profound relevance for the (Baggermuseum) design assignment.


Figures 2 & 3. *Baggermuseum crammed and deserted versus sprawling. By author.*

This research will be an essential tool in my design process since it examines the crucial role architectural interior design plays in determining visitor experiences in these unique museum and built environments. It will hopefully give me a solid theoretical and empirical foundation that can be incorporated into the redesign of the Baggermuseum. My future decisions in said design process will be guided by the gained knowledge in this research, hopefully guaranteeing that the final product will cater to the needs of both a diverse range of visitors and clients, and turn the Baggermuseum from a cramped but deserted place, into a sprawling museum.

Theoretical framework for case studies

The fourth sub question of this research paper will primarily be answered through the use of previously mentioned case study projects. To start, outlined will be how each case study aligns with museological theories established in the answering of the first sub question. Furthermore, topics such as spatial layout, visitor engagement/experience, and unique elements of the case study projects will be analysed, relating back to the second sub question.

By linking the knowledge gained in previous sub questions to the case study projects, an answer to the final sub question, and as a result the main research question, can be answered.

Possible case studies

What follows is a selection of possible museums usable as case study projects in the research paper. To limit the scope of the research paper and for it to be of use in my design assignment, a choice to focus primarily on technical museums has been made. This is the main criterion in determining the case study projects. One other criterion for the case study projects is their location. To allow me enough time to visit them and write the paper, only museums within the Netherlands will be eligible for possible case study projects.

The provided array of case study projects acts as a starting point to guide my research. It is essential to remember that not all of these case studies may ultimately be used in the research paper. Furthermore, additional case study projects may be added in the future. The precise selection of case studies will ultimately be determined by the changing requirements of the research and the path the paper takes.

Maritiem Museum Rotterdam

Possibly the biggest competitor of the Baggermuseum, this technical museum attracts many yearly visitors and seems to have gotten it's exhibition and storytelling right. As the two museums closely relate in subject it could be interesting to analyse the differences between the two and determine one's shortcomings compared to the other.

Steenkolenmijn Valkenburg

A technical museum that as far as I can see mainly does tours, so I'm interested to see it's visitor engagement and the flow of the story.

Schoenenkwartier Waalwijk

This technical museum from my hometown has recently been moved into our old city hall. I haven't been able to visit yet, but I did get the chance to visit the old museum, which wasn't a great success. Now it's on the new site I have heard nothing but praise so it will be interesting to learn what it has done differently, and I think this will be of great value for my research paper, especially since it has taken an existing collection and fitted that in an already existing building.

Deltapark Neeltje Jans

Although being a technical open-air museum this might not be the most useful for the furtherance of this paper. However, this museum delves deeply into the Deltawerken which goes hand in hand with the dredging history. So this will be primarily of help for my design assignment.

Naturalis Biodiversity Center

A well-known museum in the Netherlands, could possibly be interesting for its routing and storytelling.

Afsluitdijk Wadden Center

This technical museum in Friesland also has a focus on educating it's visitors. This could offer insights into visitor engagement.

Annotated bibliography used

Hoffmann, H. W. (2016). Museum Buildings: Construction and Design Manual (1st ed.) [PDF]. DOM publishers. https://ebin.pub/museum-buildings-construction-and-design-manual-3869222174-9783869222172.html

This book shows a wide range of museums, both in type, size, and form. It goes over how museums have changed from static displays to interactive experiences.

Psarra, S. (2005). Spatial culture, way-finding and the educational message. In Reshaping Museum Space (pp. 82–98). Taylor & Francis. https://doi.org/10.4324/9780203483220-7

This book chapter analyses how spatial characteristics affect the patterns of movement and how the educational message is transmitted to the visitor. It provides design options that could improve the spatial, social and economic sustainability of museums.

Schwarz, U., Bertron, A., & Frey, C. (2006). designing exhibitions (1st ed.). Birkhäuser.

A guide that touches upon the five steps of designing and delivering a well working museum exhibition. Also includes examples / case study projects in the latter parts of the book.

Sirefman, S. (1999). Formed and Forming: Contemporary Museum Architecture. Daedalus, 128(3), 297–320. http://www.jstor.org/stable/20027576

An essay that looks at issues surrounding contemporary museum architecture in North America in 1999 (note to self: take the old age into account). This is done on multiple scales and aspects.

Annotated bibliography unused so far

Lord, B., Piacente, M. (1993, September 27). Manual of Museum Exhibitions (2nd ed.) [E-book]. Rowman & Littlefield. https://books.google.nl/ooks?hl=en&lr=&id=HohUAwAAQBAJ&oi=fnd&pg=PR5&dq=technical+museum+exhibition&ots=rWRx_jKoeQ&sig=lS9yaJanDmJf8yb_OwcOilmfBtw&redir_esc=y#v=onepage&q=technical%20museum%20exhibition&f=false

This book goes into the why, where, what, and how of museum exhibition design. Especially that final point will be most useful in the research for this paper.

Blackler, B. (2017, March 16). How to make your museum memorable - The importance of context. LinkedIn. Retrieved October 8, 2023, from https://www.linkedin.com/pulse/how-make-your-museum-memorable-importance-context-ben-blackler/

This short article explains in broad terms how you get your visitor to remember what they have seen in your exhibition. For example by decluttering the space, relaxing the guest, and having a context neutral space.

Galangau-Quérat, F. (2005). The Grande Galerie de l'Evolution. In Reshaping Museum Space (pp. 99–111). Taylor & Francis. https://doi.org/10.4324/9780203483220-8

Through the case study project the Grande Galerie de l'Evolution in Paris, this book chapter looks at its modern features after the renovation that exemplify new museological and museographical tendencies.

Greenberg, S. (2005). The vital museum. In Reshaping Museum Space (pp. 221–231). Taylor & Francis. https://doi.org/10.4324/9780203483220-18

This book chapter primarily talks about how we should fill the creative spaces within museums with modern technology and media. This could be interesting to assess the differences between a physical display with textual explanation and a digital display on the exhibition experience.

Hayatdawood, N. (2014). Evaluation of the Contemporary Art Museums with Emphasis on Interior Design Features [Thesis]. Eastern Mediterranean University. http://i-rep.emu.edu.tr:8080/xmlui/handle/11129/2047

This thesis investigates the interior design characteristics that have significant effect on the contemporary art museums. It does this by analysing 6 different museums that are divided into two groups, those in new buildings and those pre-existing buildings.

Kapukotuwa, A., & PhD Anedo, O. A. A. (2020). Museum Exhibition Techniques. University of Sri Jayewardenepura Nugegoda. https://www.researchgate.net/profile/Onukwube-Anedo/publication/342788591_Museum_Exhibition_Techniques/links/5f065d8ba6fdcc4ca4598d28/Museum-Exhibition-Techniques.pdf

A fairly detailed paper about a variety of exhibition techniques (for both permanent, temporal, and mobile collections) within museums.

Kemp, S. (2017). Design museum futures: Catalysts for education. Futures, 94, 59–75. https://doi.org/10.1016/j.futures.2017.04.002

This paper looks at design choices for museums and how they can shape future education methods.

Lindsay, G. (2020). Contemporary Museum Architecture and Design: Theory and Practice of Place (1st ed.). Routledge. https://books.google.nl/books?hl=en&lr=&id=gjDNDwAAQBAJ&oi=fnd&pg=PP7&dq=museum+architecture&ots=wX6lR2HFG4&sig=v1JBvstIZmQbM9Pepl9VTcgT3jw&redir_esc=y#v=onepage&q=museum%20architecture&f=false

This book has many different case studies that offer a new perspective into architectural museum design. It is a collection of 18 essays by different authors which highlight new kinds of experiences that museum architecture helps create.

Müller, R. (2013). Museums designing for the future: some perspectives confronting German technical and industrial museums in the twenty-first century. International Journal of Heritage Studies, 19(5), 511–528. https://doi.org/10.1080/13527258.2011.651736

This paper has looked at industrial and technical museums and has found that these are currently going through a change. Where they shift their focus to current issues and use new methods to present their exhibition.

Roth, M. W. (2000). Face value: objects of industry and the visitor experience. The Public Historian, 22(3), 33–48. https://doi.org/10.2307/3379577

This essay critiques the use of narrative to communicate about a subject that can be better communicated elsehow. In large lines it also advises on how those museum exhibits could be improved.

Simonsson, M. (2014). Displaying Spaces: Spatial Design, Experience, and Authenticity in Museums [Doctoral thesis]. Umeå universitet. https://www.diva-portal.org/smash/get/diva2:760025/FULLTEXT01.pdf

This thesis analyses five different museums in Rome on how spatial design affects experiences and meaning making in museums. The main question in this thesis is what messages do the forms and spatial features in museums convey to their visitors?

Skolnick, L. H. (2005). Towards a new museum architecture. In Reshaping Museum Space (pp. 122–133). Taylor & Francis. https://doi.org/10.4324/9780203483220-10

This book chapter explores the ways a museum can become more engaging and meaningful to the visitor by having the narrative front and center.

Skramstad, H. K. (2000). The mission of the Industrial Museum in the postindustrial age. The Public Historian, 22(3), 25–32. https://doi.org/10.2307/3379576

This paper analyzes the changing function of industrial museums through history and reflects on what the future mission of these types of museums should be.

Top Seven Design Tenets From the Museum World. (n.d.). Exhibitor. Retrieved October 30, 2023, from https://www.exhibitoronline.com/topics/article.asp?ID=2742

This site highlights seven important design aspects that should be taken into careful consideration at any exhibition.

Tzortzi, K. (2015). Museum Space: Where architecture meets museology. Ashgate. https://books.google.nl/books?hl=nl&lr=&id=Ppy1CwAAQBAJ&oi=fnd&pg=PP1&dq=museum+experience+architecture&ots=NvbOuuzsdC&sig=BQOFmx11HivEXYDiMxkaiabxipQ&redir_esc=y#v=onepage&q=museum%20experience%20architecture&f=false

This book analyzes how the layout of space interacts with the layout of exhibits to realize specific effects, express intended messages or create a richer spatial experience. I'm guessing that this book will be critical in the writing of my research paper.

Zeiger, M. (2005). NEW MuSEUMS: contemporary museum architecture around the world. Rizzoli International Publications, Inc.

A collection of contemporary museums, might quote one or two sentences for this book to backup findings from other sources.