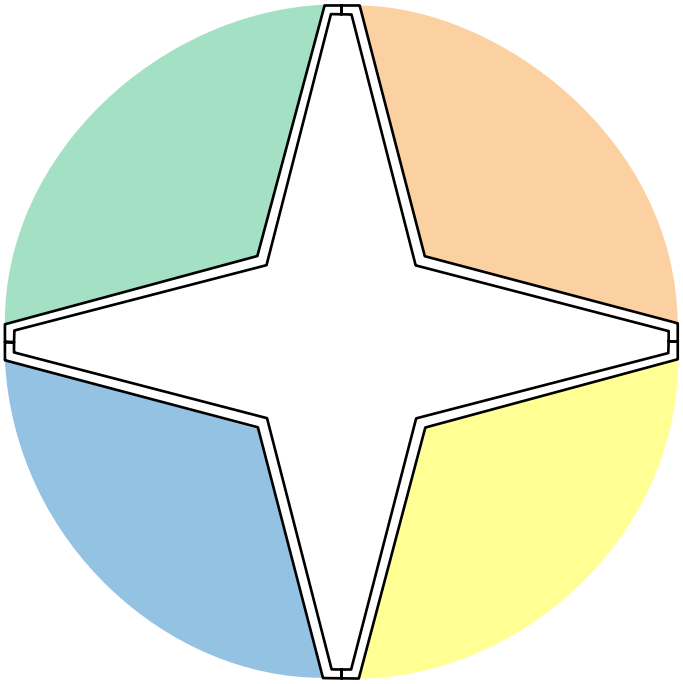
Master Graduation Project

Inspiration in Design Heritage

Augmenting Design Heritage Collection Through Tracing Its Inspiration



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September 26th, 2024

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Acknowledgments

This graduation project has significantly expanded my knowledge of educational methodologies, how to communicate in order to educate, and the value of past design products for educational purpose. The desire to create a physical exhibition allowed me to learn how exhibitions and museums welcome visitors and what message is conveyed. From the very beginning, this pushed me to prototype extensively to understand how best to create a complete and engaging experience with an educational purpose. This project has certainly tested my interpretative and communication skills, allowing me to explore different technologies and assess their communicative effectiveness.

I extend my gratitude to my supervisors, Ianus and Willemijn, who not only shared their expertise in an enthusiastic and constructive manner but also believed in my abilities and encouraged me to develop this complex and intriguing project. The project they proposed has been a constant challenge that has greatly contributed to my growth over the past few months. Thanks to them, we created a positive and enriching working environment, filled with creative ideas and continuous improvement. Their critical and wise guidance, combined with their positivity, was essential in helping me navigate challenges throughout the process. Thank you for this opportunity; you did an outstanding job, and I hope we remain in touch.

I also want to express my gratitude to everyone who lent me a hand over these months within the University, your help has been precious.

Lastly, the dedication and effort put into this project would not have been possible without the great support of my family, close friends, and Gaia, who motivated me to overcome every challenge. Their confidence in me served as a constant source of inspiration. Especially, I am grateful to my mentor in life, Victor, for always encouraging me from the beginning of my studies. "*Vincit qui patitur*"

I dedicate this achievement to my father, who is no longer here. I know you are proud of me, I love you.

Executive Summary

This project aims to introduce first year Industrial Design Engineering bachelor students to the world of Industrial Design through the creation of an exhibition that centers around the products from the faculty's Heritage Collection. The exhibition, located at the entrance of the faculty, is designed as an educational tool that uses the displayed products to showcase the various dimensions of Industrial Design. Currently, the products displayed in the faculty are not sufficiently contextualized and fail to fully convey their historical, technological, or cultural significance. This project seeks to address that gap, providing new students with a more comprehensive and accessible narrative to help them better understand the evolution of Industrial Design and its role in contemporary society.

The exhibition was created to fill a gap identified during the research phase: the lack of a historical educational approach to Design within the faculty's curriculum. It allows visitors to explore the history and identity of the displayed products, highlighting the importance of choices related to materials, production technologies, aesthetics, and functionality. This is done through four distinct thematic areas, each dedicated to a specific aspect of the product. The pieces in the Heritage Collection are not merely objects but concrete testimonies of how Industrial Design has addressed challenges and needs over time, offering innovative solutions that continue to influence daily life.

Another goal of the project is to spark students' interest in research and innovation, encouraging them to reflect on how past designers were able to anticipate future needs and how to carefully observe a product to fully understand its meaning. The exhibition, therefore, not only celebrates the past but also inspires a new generation of designers to look ahead with creativity, critical thinking, and an awareness of the emotional impact that an object can evoke.

For the creation of the exhibition and the communication strategy, various methodologies were explored and then integrated into the exhibition as essential parts of the process. Interactive design, storytelling, and emotional design methodologies were analyzed, all aimed at engaging visitors and creating an immersive educational experience. These techniques were then applied through the use of informational panels, multimedia supports, interactive installations, and narrative paths. The goal was not only to convey information clearly but also to spark curiosity and reflection, making the history of Industrial Design accessible and engaging for a diverse audience.

Glossary

Abbreviations:

IDE: Industrial Design Engineering

HBI: Henri Baudet Institute

AR: Augmented Reality

Report Structure

This project is organized into three main parts:

PART I: Contextual Analysis

PART II: Conceptualization and Embodiment

PART III: Conclusions

Research Topics

The research topics of the project are:

Understanding Design

Learning Theories

Design Education

Design History

IDE Design Education and Approach

HBI Collection

Museum and Exhibition Experience

Augmented Reality (AR)

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Project Introduction

PROBLEM DEFINITION

Students and the entire IDE community are hardly aware of the numerous artifacts within the heritage collection and their value and potential to be inspirational for new projects. At the moment the interaction you have with the objects of the heritage collection is minimal and is mostly visual. Now the learning process is currently kicked off with encountering historical design artifacts, on display, at the entrance of the IDE building. Then reflections, and development of ideas take place in the classroom. This is positive because it makes the approach to design based on observation and reflection and on awareness of the values of industrial design through the artefacts of the heritage collection. But on the other hand discussions on inspirations, and other associations, are currently not documented, and thereby lost for subsequent years to learn from.

While the current context is rather static.The objects shown from the design heritage collection are kept inside the display cases and are scattered throughout the university. They are very visually oriented. For these reasons there is no real interaction with them and they are often not even noticed by those who move within the faculty. The design of an interactive exhibition could make this process more dynamic and fun by allowing you to interact with these products and understand them thoroughly.

DESIGN CHALLENGE

The design challenge is how the heritage of the past can be used in a relevant way to design new products but also systems and services of the future. How could it be a source of inspiration for new students but also designers in general? What could a student understand, learn and what inspiration could he or she draw from the heritage collection?

By engaging with heritage collections, a student could gain a deeper understanding of Design domain like history, cultural values, and design principles that have stood the test of time.

Through this process, students may learn about the evolution of design, the socio cultural contexts that shaped it, and how timeless ideas can be reinterpreted to address contemporary needs. Heritage can inspire creativity, helping students to develop unique concepts that merge historical insights with modern technology and aesthetics. The challenge is to extract meaningful lessons from the past and apply them in ways that are relevant, innovative, and future-focused, enabling both students and designers to create designs that are not only functional but also rich in cultural significance.

RESEARCH QUESTIONS

The main focus of this project is to answer the following research questions:

- What is TU Delft's approach to introducing students to Design, and how could it be implemented?
- Is it possibile to introduce and educate people to Industrial Design through the use of design products from the past, how?
- What are the educational theories that, when applied correctly, can promote a more dynamic and engaging learning experience?
- What are the most efficient and suitable methodologies and tools for conveying information?

PREVIOUS PROJECTS

A similar topic to that of this project has already been addressed by a former TU Delft student, Mohamed Chajid, who explored Augmented Reality to "Augment" the products of the Henri Baudet Institute with the aim of creating an exhibition with an educational purpose. The project title is "ARchive" and was developed in 2022.

Passion for Design

Piaggio Vespa

My passion for Design stems from a mythical object: the Piaggio Vespa.

It was a friend who first introduced me to the world of Vespas. We rode together to the Formula 1 circuit in Monza on his blue 1981 Vespa PX, with him driving and me as the passenger. I instantly fell in love with it. Two months later, I bought myself a 1985 model in taxi yellow colour without even knowing how to ride it.

Within a short time it became overwhelming: I began to study its history and recognise all its models and curiosities. I have travelled thousands of kilometres all over Italy on my yellow Vespa, always in search of the most beautiful and exclusive roads, exploring places otherwise almost unreachable and getting to know the human dimension. Every time I talk about it my eyes light up and I try to convey this passion of mine by trying to convince my interlocutor... to buy one!

Just seeing it is a joy for me; when I start it up using the classic crank, I get excited every time. The sound of the two-stroke engine, the smell of the oil and petrol mixture, the vibrations, the wind in my face... it is my antidote to sadness. Everything vanishes when I am riding my Vespa. I think I am in love with it, there is a very deep bond between me and 'her'.

Several times I realized that the more time I spent with her, the more attached I became, and the more I wanted to share other adventures, as if she were a human being. I was surprised by this myself, almost incredulous, until I attended a gathering of 'Vespisti' (people with Vespas) for the first time.

When I arrived at the gathering, I realized I wasn't the only one feeling this way. I was surrounded by dozens of other people who, like me, had developed a deep bond with their Vespa. There was a sense of belonging, of community, that I had never experienced before. Each Vespa had its own story, its own character, and each of us seemed to attribute a sort of soul to it. We shared anecdotes of our adventures, talked about the modifications we had made, and exchanged tips on how to take care of them best.
It was there that I fully understood that the Vespa was not just a means of transportation.

It had become an extension of ourselves, a symbol of freedom, of travel, of discovery.

That day made me realize that it wasn't strange to become so attached to an object, because the Vespa was much more: it was the common thread of so many experiences, a faithful friend that had shared unforgettable moments with us.
Never would I have believed that such a thing could be created between a human being and his creation.

I think it's precisely due to this great passion that I became interested in design. The Vespa is one of the most iconic industrial design objects of all time, embodying not only functionality but also aesthetics, elegance, and an extraordinary ability to evolve over time while remaining true to its origins. Every line, every curve seems crafted to evoke emotions, to tell a story that goes beyond mere utility.

This made me reflect on how design, in all its forms, can deeply influence our daily lives. It's not just about beautiful objects to look at, but creations that accompany us and become part of our identity. The Vespa, with its timeless style, has managed to do just that: to traverse eras and generations, always remaining current and desirable.

From there, my curiosity about the world of design exploded. I started to become interested in how objects are created, the ideas behind aesthetic and functional choices, and I realized that design isn't just about appearance, but a perfect balance between form and function. Perhaps that's why I fell in love not only with the Vespa but with everything that represents good design: the ability to combine practicality, beauty, and innovation into a single creation.

I will always be grateful to my friend Carlo for passing on this passion and for unwittingly making me choose to dedicate myself to Industrial Design.

PART I.
CONTEXTUAL ANALYSIS


industrieel ontwerpen
DESIGN
FOR our
future

CHAPTER 1.

INTRODUCTION

The first chapter begins with a question that has accompanied me throughout the project and is intended to highlight a gap in the educational approach in IDE faculty: “Learning and Designing at Industrial Design Engineering - What Is Missing?”. Then the project is introduced, explaining its theme and analyzing the current situation. It specifically examines how first year bachelor’s students, the project’s target audience, are introduced to Industrial Design within the faculty and how the use of the faculty’s archive, the Henri Baudet Institute (HBI), could play an important role in the learning process of the Design domain.

Learning and Designing at Industrial Design Engineering - What Is Missing?

From my point of view

After almost two years of studying at TU Delft, at the Faculty of Industrial Design Engineering (IDE), I feel I can express an opinion about the approach to Design and the teaching methods. It is an excellent university, which strongly encourages students to apply theory in practical activities and constantly asks its students to reflect on their own activities and experiences. However, there is something missing in our faculty. I had a varied academic background: an Industrial Product Design bachelor's degree at Politecnico di Milano (IT), almost an Integrated Product Design master's degree at TU Delft (NL) and an exchange semester in Design Innovation at Čvut Praha (CZ).

This allowed me to develop a critical sense and understand what, in my opinion, is missing in each of the faculties I attended.
I found that TU Delft's bachelor's program has not offered a History of Design course for several years. During my studies, I had the benefit of taking History of Design I and II, which provided me with a deeper understanding of the field and significantly fueled my passion. Over the years I have realised that in order to become and be a good designer you need to be passionate about the discipline and the best way to do this is to study its history, keep up to date on how it is evolving by attending exhibitions and events or simply talk about it. This can lead to developing a critical sense towards the discipline.

I believe that TU Delft, in the faculty of Industrial Design Engineering (IDE), lacks an adequate interest in the historical dimension of Design. The lack of a historical "narrative" prevents students from learning how past Design has inspired and shaped contemporary Design. Without a solid understanding of this temporal connection and the historical role of design, it is difficult for students to fully appreciate its implications and applications today.

I am not the only one who feels this way within this university. There are also members of the IDE community with whom I've had the pleasure of speaking who think the same way. Ir.A.G.C. (Annemiek) van Boeijen, assistant professor at TU Delft, agrees that it is necessary to integrate the study of design history into the IDE curriculum with a focus toward the historical context of design to provide students with a well-rounded education.

Carlita Kooman, the director of the Henri Baudet Institute, has highlighted the lack of an educational approach rooted in the History of Design and what has allowed its development across different cultural and social contexts. According to her it is essential that students understand not only current techniques and trends but also the historical dynamics that have shaped design through the decades.

Finally, the students in the bachelor's program also emphasized that a deeper understanding of the origins of design and its historical evolution would make them more aware of the design choices and influences that shape contemporary design. This awareness would not only enrich their education but also prepare them to tackle future challenges with a more informed and critical perspective.

Figure 2: *10 Good Design Principles by Dieter Rams*

This deficiency prompted me to imagine through this project an alternative way to use the history of Design and its products for a deeper understanding of the domain of Design without having to create a Design History course.

We have always lived with the idea that history repeats itself. In school we are taught the importance of studying it both to develop a critical sense and to have an awareness of what has been and happened before us. Just as with the "History of Mankind," which is made up of events, dates, and people, the history of Design, if studied, also allows one to have a better understanding of the discipline and to develop a critical sense by avoiding repeating things and mistakes already made.

This importance is often emphasized by designers and design and architecture historians. Steven Heller, in the introduction to "Graphic Design History" (2001), notes, "Being able to design well is not always enough. Knowing the roots of Design is necessary to avoid reinvention, no less inadvertent plagiarism." Similarly, Dieter Rams, one of the most influential industrial designers of the 20th century, captures the essence of design with his insight: "To me, Design is about the ability to connect the past, the present, and the future" (Sophie Lovell, "Dieter Rams: As Little Design as Possible," 2011).

So, particularly in an educational context, it becomes obvious how important is to know the History, the roots and context of Design. This knowledge equips students and practitioners with a deeper understanding of the discipline, helping them to create innovative, relevant, and human-centered designs while learning from past successes and mistakes.

Figure 3: *Dieter Rams in his studio with Braun Radio T1000 (From the documentary "Rams", 2018)*

1.1 **Project Overview**

Project Theme

This project demonstrates how to select, utilize, and display design products from the past, sourced from the Henri Baudet Institute (HBI), the archive of the Faculty of Industrial Design Engineering (IDE) at TU Delft, to introduce first-year bachelor's students to the principles and values of Industrial Design. The educational goal of the project is to "augment" the products deemed historically and design-wise significant, in order to inspire and provide, through a physical exhibition at the entrance of the IDE building, a deeper understanding of the design domain as they embark on their academic journey. Additionally, it aims to spark interest and curiosity in the world of design and to lay the foundation for a comprehensive and mature approach to product analysis and understanding.

By showcasing these iconic design products, the project not only highlights the evolution of design but also contextualizes how historical innovations continue to influence contemporary design practices.

The exhibition will serve as both a physical and intellectual gateway for students, encouraging them to explore the intersections between historical context and modern design solutions. Through interactive displays and detailed explanations, students will gain insights into the significance of each product and its impact on the design field. This hands-on engagement with design history will foster a deeper appreciation for the discipline and inspire students to critically evaluate and contribute to the ongoing dialogue in design.

Moreover, the project emphasizes the importance of integrating historical knowledge into the design curriculum, bridging the gap between past and present. By experiencing the tangible legacy of design, students will be better prepared to address future challenges with a well-rounded perspective.

Current First Approach to Design

Currently, at the beginning of the academic journey at the Faculty of IDE, students are introduced to design in three ways.

The first occurs through encounters with products and projects displayed in various areas within the faculty. These are presented in a static manner, with brief descriptions, and the interaction is primarily visual. For example, until last year, the revolving doors granting access to the building periodically showcased different objects from the HBI, allowing anyone passing through a brief moment to gain some insight into the history of design. This form of contact with the design world, although brief, was well-suited to the location, providing an opportunity for anyone to take a moment, during the time it took for the doors to open, to observe the displayed items.

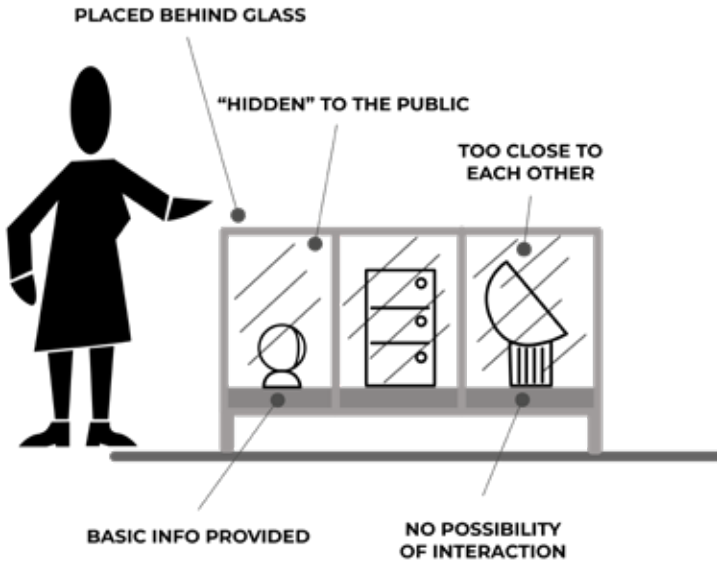
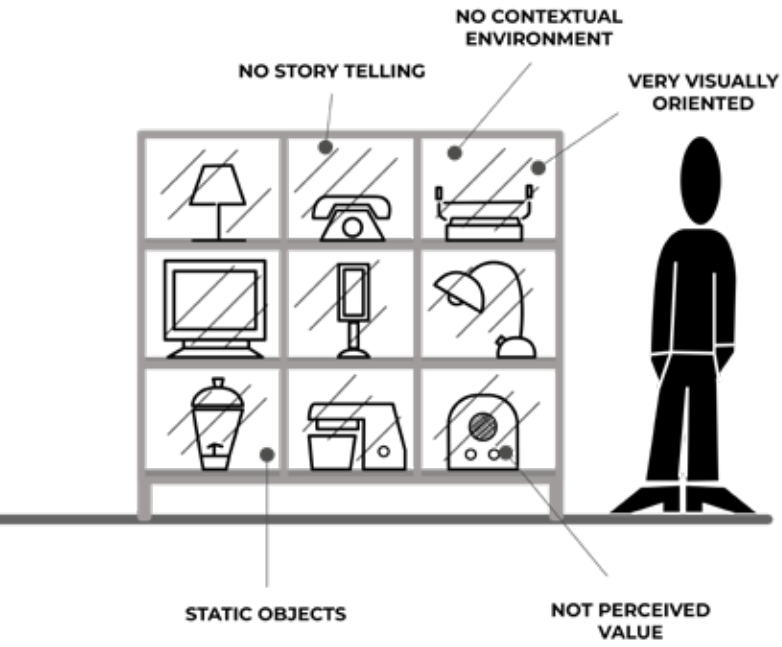


Figure 4: *Current situation of the*

In the second case, the introduction to design takes place in the classroom. During the first semester of the bachelor's program, first year students attend the course "Understanding Design," taught by Ianus Keller and Bregje van Eekelen. This course covers topics related to the birth, evolution, and spread of Industrial Design over a total of nine lessons. In addition to lectures and in-class discussions, the course includes assignments aimed at encouraging students to think critically and reflect on the material covered in class. The primary focus is on the associations these topics and discussions can generate among students and how they can serve as a source of inspiration for design work. Unfortunately, at present, the outcomes of these activities are not documented, and as a result, they are lost for future years. The final goal of this project is to serve as an extension of the course outside the classroom.



arrangement of artefacts within the IDE faculty

Lastly, the introduction to design begins as soon as one enters the faculty. It becomes clear that the environment is dynamic and full of stimuli, with a constant flow of people engaged in discussions, working on projects, and moving between workshops with materials, tools, and prototypes in hand. Navigating the faculty provides a comprehensive perspective on how Industrial Design functions at an academic level.

"*The first time I entered this building, I was struck by the spaciousness and the constant hustle and bustle of people engaged in various activities. Seeing displayed products, drawings, posters on the walls, numerous workshops, and students working in groups alongside professors helped me better understand the scope of design*". (Fabio, my brother).

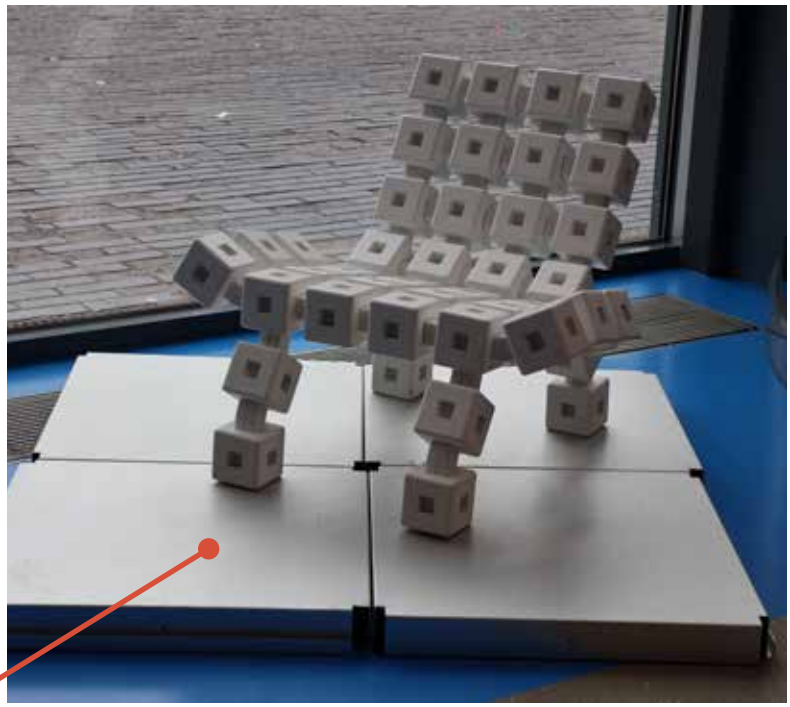
This is the first encounter with design that students experience upon entering IDE. Subsequently, personal growth as a designer within the university context primarily occurs through attending courses, completing projects, and participating in themed events.

The faculty is rich in resources, workshops, and people with expertise in various fields of design and engineering. However, due to time constraints, needs, and interests, it often happens that one cannot fully explore or take advantage of everything the university has to offer.

Current Situation

The objects on display at IDE are numerous, but only a few of them have an explanatory label. The majority, however, have no explanation at all.

Many of these have now become an integral part of the faculty, serving as decorative elements. Even some of the student projects on display lack any descriptive element that could attract the viewer and explain their history or the reason why they are exhibited in the faculty.



Figures 5: *Some of the products exhibit at IDE*

No info provided = No perceived value

Placed behind the glass and hidden to the public

Visually oriented and close to each others

Basic info provided

1.2 **Henri Baudet Institute (HBI)**
An educational resource

In particular, a resource that is not widely known or utilized among IDE students is the Henri Baudet Institute (HBI). Founded in 2003, it is a research and advisory center in the field of Design History, located in the basement of the Faculty of Industrial Design Engineering at TU Delft. The Institute is built around the faculty's unique collection of historical consumer products and is named after Prof. Dr. Henri (Han) Baudet (1919-1998), a pioneer in the field of Design History, who held the chair of "History of Human-Product Relations" at the Faculty of Industrial Design from 1965 to 1987. (Highlight Delft, 2024)

It was during this period that he began collecting these consumer products. The collection now includes approximately 1,200 items and has been expanded and curated over the years by Carlita Kooman, the current director. The role of the Institute is described on the TU Delft website as follows: "The Institute's activities are aimed at promoting the scientific study of design history from an explicitly multidisciplinary perspective, focusing on the integration of socio-economic, cultural, technological, and art historical approaches. In this regard, the Institute aims to contribute not only to the development of design history as a discipline but also, and more importantly, to the theory and practice of design itself". (Voûte et al., 2020)

Figures 7: *Some of the products exhibit inside the HBI*

Figures 6: *Some of the products exhibit inside the HBI*

Current Situation

The Institute's ethos is therefore to educate students about the history of design so they can, in line with the faculty's mantra, design for our future. However, based on my experience and the one of other students in my study program, the Institute currently shows a lack of connection with lectures, workshops, and the students themselves, despite its historical value and great educational and inspirational potential. In fact, this collection is somewhat hidden from the public, and access requires special permission.

Some items from the archive are displayed within the faculty, but they are placed in poorly lit cases, positioned very close to one another in low-traffic areas, with brief descriptions and no surrounding context to evoke their historical period or function.

As a result, these objects, which have been painstakingly collected and preserved over time, appear as mere ornaments, losing much of their historical and design significance, and remaining only as reminders of a bygone society and era.

Figure 9: *Most of the objects within HBI are home and office products.*

Figure 8: *The HBI also offers a professional photography set where products can be filmed and photographed.*

Correlation with The Project

The HBI plays a central role in my project, as it provides the products that will be used for the project narrative and the creation of the prototype exhibition. Thanks to its vast collection of historical design objects, the archive represents an invaluable resource for bringing the exhibition to life. This collaboration with the HBI not only enriches the content of the project but also strengthens the connection between academic education and the historical resources available within the faculty.

1.3 **Project output**

Design Opportunity

This current situation can be seen as a design opportunity to give new value to the products in the archive by rethinking both how they are presented and arranged within the faculty and how a historical perspective on design is provided to students. Having such a rich historical heritage and not utilizing it is a missed opportunity.

In my opinion, this is the most significant contradiction in this course of study: possessing a vast collection of iconic products from different historical periods but not offering a course or a broader approach that highlights the history of design and the products that have shaped it. As mentioned before, the lack of a historical approach to design in this faculty could affect students' engagement with and interest in the discipline. To underscore the importance of this, John Heskett, a renowned design historian, states in his book "Industrial Design" (1980): "By studying the history of design, we can better appreciate how past innovations have shaped present practices and how they might influence future developments".

Understanding this historical context not only enriches students' comprehension of current design principles but also fosters a deeper connection to the discipline. By integrating a historical perspective, the faculty could bridge the gap between past and present, offering students valuable insights into how design has evolved and how historical trends continue to influence contemporary practices. This approach would not only enhance academic rigor but also inspire students to innovate with a more informed and contextually grounded perspective.

How, then, can this collection be utilized to convey the historical significance of design within the Faculty of IDE, with a particular focus on first-year students? This project represents one possible answer to that question.

The title, "Inspiration in Design Heritage: Augmenting Design Heritage Collections through Tracing Its Inspirations," conceived by my supervisors Ianus Keller and Willemijn Elkhuizen, reflects the intention to seek inspiration in Design Heritage by enhancing and elevating the heritage products within the faculty's archive. I have thus combined my desire to bring a bit of design history into the IDE faculty with the goal of showcasing the HBI by presenting to the public some of the products housed in the archive. The combination of these two objectives led me to envision an exhibition within the faculty where the displayed products communicate the historical and technical aspects, values, and curiosities of Industrial Design.

Project Target Group

The project, culminating in a physical exhibition located within the university, is directed not only at first-year students but also at the IDE community and, more broadly, at anyone entering the faculty who can be considered as "visitors." In particular, first-year bachelor's students approach the IDE faculty immediately after finishing high school. While high school equips them with the necessary skills to undertake this university program, their specific and historical knowledge in the field of Industrial Design remains minimal, despite their likely interest in the discipline.

Figure 10: *Project target group*

Figure 11: *Falk five types of visitors (2016)*

According to Falk (2016), there are five types of museum and exhibition visitors, classified based on the purpose of their visit; see Fig. 11. In this case, the project focuses on the "***Explorers***" and "***Professionals***" groups, particularly those who aspire to become professionals. Indirectly, the project also addresses "***Experience Seekers***," individuals with existing knowledge about what they are viewing, who can actively comment on and critique the displayed content. In this context, these individuals may include students and members of the IDE community with knowledge, passion, or interest in design, such as those interested in product history or production processes.

In general, museums and exhibitions attract a diverse audience, making it challenging to make precise distinctions. Visitors attend exhibitions for various reasons and and they do so in different ways. Some visitors spend a lot of time examining everything, while others quickly pass by the exhibits without delving into their content. Therefore, it is not always easy to categorize users into defined clusters. This is why Falk's model is effective for this type of classification, as it captures, within five clusters, most of the potential motivations that drive people to visit museums and exhibitions.

Finally, the project, which culminates in a prototype exhibition as its design output, involves several complexities. It is not only essential to convey a message to the visitors but also to understand their expectations. Enthusiasts and experts in design will be more inclined to spend time examining every detail of the exhibition. On the other hand, others will need to be engaged and intrigued through interactive elements that encourage active participation.

To design and structure an exhibition within a space of this nature, it is essential to consider numerous aspects: first and foremost, the Location and Setting, followed by the Exhibition Space that the exhibition will occupy. The core of any exhibition is the Theme and the Message to be communicated, which is closely linked to the Exhibition Layout and the types of Communication Tools to be employed. Next is the Type of exhibition to be created, which can be "theme or idea-oriented" or "object-led." Finally, but no less important, is the Audience, in order to create a tailored experience. (Moser, 2010)

These variables represent the complexities that form an exhibition and will be outlined later in the report to show how each of them contributed to shaping the exhibition and the designed experience. In addition to displaying iconic design objects from the past, sourced from the HBI, within the IDE faculty, the exhibition aims to be an educational tool that, through a precise narrative, guides the user in understanding various aspects of the design domain. Educational theories, if applied correctly, can be highly beneficial in designing experiences where the ultimate goal is to convey complex knowledge and stimulate critical reflection on the role of design in modern society. This consideration has led to the analysis, in the next chapter, of some of these theories and the inspiration drawn from them to apply the underlying concepts to the design narrative.

1.4 **Discussion**

Chapter 1 examines how the approach to Design is implemented within the Faculty of Industrial Design Engineering and highlights the lack of a historical approach to the discipline and how this might affect learning and understanding of the domain of Design. Although the faculty houses several historically and design-significant products, their poor presentation and display compromise their communicative value. This limits students' ability to fully appreciate their importance and to understand how the past has influenced current trends and practices in the field of design.

Improving the presentation of these products could not only enrich the educational experience but also foster greater awareness and interest in the historical roots of the discipline, thereby strengthening the connection between theory and practice within the academic curriculum.

Finally, the potential of the HBI and the products housed within it becomes evident, highlighting how these can be used to enrich students' educational experience. The HBI, with its vast collection of historical and design objects, represents a valuable resource that, if properly utilized and integrated into the university curriculum, could offer a deeper and more meaningful context for learning about Design.

Integrating these products into educational activities and exhibitions within the faculty could transform the approach to design, providing students with a more comprehensive and nuanced understanding of the historical evolutions and cultural influences that have shaped the discipline. In this way, the HBI would not just be a historical archive, but a true educational tool capable of addressing the current gaps in Design education.

Key Insights from Chapter 1	Relevance for the Project
• Lack of Historical Approach in Design Education • Poor Presentation of Historical Design Products • Need for Improved Display and Presentation • HBI as an Educational Tool	Enhancing the presentation and use of historical products could increase awareness and interest in design history. A project could focus on integrating these products into learning activities to foster a deeper understanding of the discipline's evolution. There's an opportunity to strengthen the academic curriculum by better connecting theoretical design principles with historical examples. This could serve as a foundation for projects that aim to bridge practical and theoretical knowledge in education. The HBI collection is a valuable but underexploited resource. A project that involves utilizing the HBI more effectively, such as creating exhibitions, interactive displays, or curriculum integration, could significantly improve students' learning experiences.

Figure 12: *Overview of key insights from Chapter 1 and their relevance for the project*

CHAPTER 2.

EDUCATIONAL EXPERIENCES & THEORIES

In chapter two, various fundamental aspects of design education are explored, starting with the initial approach to design at IDE and a comparison with the educational path during my undergraduate studies. Following this, educational theories, such as Kolb's, which emphasize the importance of experiential learning, are discussed, and how this approach can be implemented through museums and exhibitions is analyzed.

The importance of exhibitions and museums as educational tools and their noble role in facilitating learning is then highlighted. Finally, the communication tools used in these spaces are analyzed and categorized into two groups: active and passive.

2.1 **Design Education and Learning**

The primary challenge of the project is to create an engaging experience while educating and generating interest through the exhibition and the displayed products. This is particularly crucial as it involves conveying knowledge, values, and fundamental principles to students through a direct interactive experience.

The bachelor's degree program at IDE at TU Delft emphasizes an integrated approach that combines theory, practice, and projects over the course of three years. This program prepares students to initiate and shape future transitions in various sectors, with a strong focus on sustainability, healthcare, and mobility. The key themes and educational approach include active learning, an interdisciplinary approach, and project-based learning.

Active learning encourages students to actively participate in their education through group work and projects, placing great importance on personal reflections and considerations at the end of activities to foster a critical and reflective approach to the discipline. The interdisciplinary approach is due to the wide range of disciplines covered by the program, including Engineering, Ergonomics, Design, Marketing, Consumer Behaviour and Sustainability.

Lastly, learning is project-based. Projects are a central component of the academic journey, allowing students to apply their knowledge and develop new skills in real-world scenarios.

While these themes are essential for developing practical and technical skills in Industrial Design, there is no explicit emphasis on the historical context of Design. Given the structure of the program, as mentioned at the beginning of this report, students could benefit from greater integration of Design History to complement their practical skills and broaden their critical perspectives.

First Approach to Design at IDE

As previously mentioned, the bachelor's course that most closely addresses themes related to the History of Design is "Understanding Design." However, this course cannot be considered a traditional History of Design course, where events, products, and figures are presented in a chronological manner, outlining the foundations of contemporary design. Instead, the course aims to introduce the most important concepts of Design through engaging experiences, exploring the history and evolution of the field, and examining how design production and consumption have changed over time. It seeks to teach the language of Design and develop critical thinking skills to contextualize and understand challenges by discovering how Design, society, and culture influence one another. Significant emphasis is placed on reflection through class discussions and the completion of assignments.

Therefore, even in this course, there is a lack of a strictly historical component that illustrates how Design has evolved through its products, their histories, and characteristics. This project thus sees an opportunity to bring some History of Design into IDE and make this exhibition accessible to everyone.

To effectively integrate the History of Design, it is crucial to adopt educational methodologies and approaches that facilitate learning and are applicable to this type of project.

My Experience with Design Education

But how is the study and approach to Design typically conducted at an academic level?

Me, along with other students, from IDE, I have spoken with who completed their bachelor's degrees at other European universities and beyond, were introduced to Design and its history through a course titled "History of Design."

My course, in particular, was divided into two parts, one in the first year and one in the second year. It introduced students to Design by recounting the History of Design from the first industrial revolution to the present day, highlighting its most significant moments and principles: from Fordism and Taylorism, the Frankfurt Kitchen, the Bauhaus, to the World Expositions, the 1968 movements, and the rise of Pop culture.

The course included the study of theoretical books on the history of Design (such as *Industrial Design* by Jhon Heskett and *The Design of Everyday Things* by Donald Norman) and an assignment requiring the analysis of a product and its development within society (I chose the razor) to then present the findings to the course.

At the end of the course, a written exam on all the material taught in class was required. This course, combined with the university's tendency to invite designers and industry professionals to speak to students and its promotion of visits to museums and design fairs, was how I was introduced to Design.

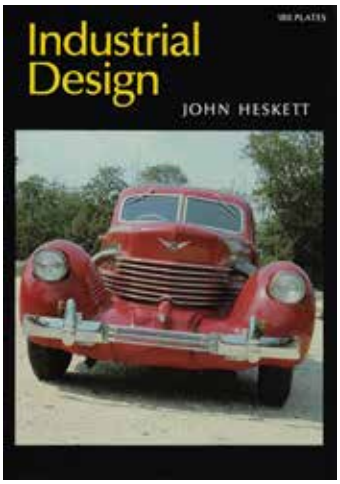


Figure 14: *Industrial Design by Jhon Heskett (1980)*

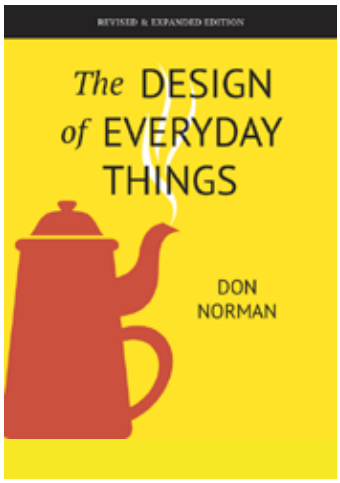


Figure 13: *The Design of Everyday Things by Donald Norman (1988)*

For those who have not had the opportunity to pursue this field of study, the approach to Design in Italy still occurs on a daily basis. This is primarily because Design is deeply rooted in everyday Italian culture, and secondly because my hometown of Milan, in particular, is rich in events culminating in exhibitions and experiences that showcase Design across various domains, from Fashion to Furniture and even Food Design.

Since my task is not to propose a new course at IDE but rather to think of a way to introduce students to Design through a historical dimension, it is therefore reasonable to assert that exhibitions and museums are the best means to achieve this.

As mentioned in the previous chapter, the exhibition's audience is diverse, ranging from "Explorers" to "Professionals," with varying levels of knowledge and expectations. The main challenge, therefore, is to provide an experience with a structure that allows even those with a basic understanding of Design to achieve meaningful and accessible learning. This should facilitate the comprehension of key concepts and the creative and technical processes that characterize the field of Design.

But what is meant by "learning," and why is it necessary to active learning?

One of the earliest theories associated with learning was formulated in 1938 by John Dewey, one of the most influential American philosophers and educators, whose ideas revolutionized the concept of education by promoting a progressive and practical approach. The theory, known as "Inquiry-Based Learning," considers the experience gained during an activity as a key aspect of learning.

A few years later, in 1946, Edgar Dale, an expert in audio-visual education, defined the 'Learning Pyramid' in his book Audio-Visual Methods in Teaching. The Learning Pyramid is a methodology that identifies different ways of learning and measures the effectiveness of each method, as a percentage, in terms of an individual's ability to retain the knowledge they have learned.

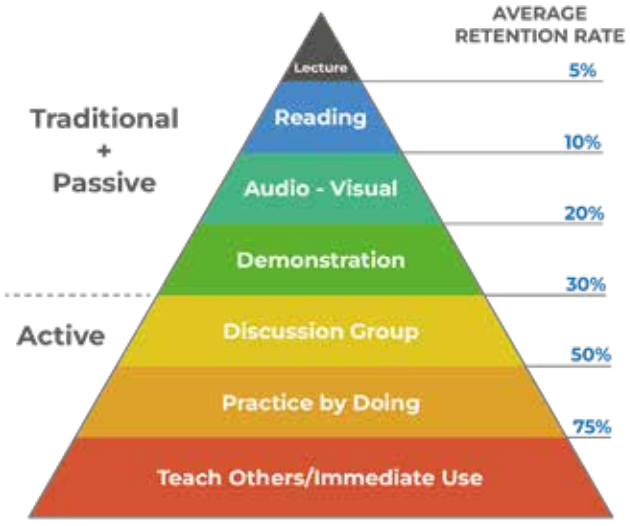


Figure 15: *Learning Theory Pyramid*

In general terms, it assigns lower percentage effectiveness to passive forms of learning (such as lectures and reading) and much higher percentage effectiveness to active forms of learning (such as group discussion and practice by doing). The model is commonly depicted visually as a pyramid, with the active forms of learning that have high percentage learning retention forming the base, and the passive forms of learning with low percentage retention at the top.

Before Edgar Dale already Dewey argued that active learning is more effective. Education, according to Dewey, begins with the learner's curiosity; inquiry in the classroom places the responsibility for learning on the students and encourages them to arrive at an understanding of concepts on their own. In such a context, the curiosity of the users should support this approach. The experience should be constructed based on two distinct phases: providing output (information) and receiving input (reflections, considerations, associations) from the users. (Dewey, J. 1938)

This theory, although somewhat dated, has been revisited and further developed by other scholars in the field. One definition that closely aligns with the project's direction is provided by David E. Kolb (1984), an influential American psychologist and educational theorist, who defines learning as "the process whereby knowledge is created through the transformation of experience." This definition is a key component of his "Experiential Learning Theory," which emphasizes that learning is a continuous process grounded in experience and involves four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation.

“Experiential Learning” by David Kolb (1984)

This theory, in line with the educational model of TU Delft, characterized by a strong emphasis on blending theoretical knowledge with practical applications that foster continuous reflection and a drive for research, has provided the basis for justifying and structuring the interactive approach to the exhibition design.

In particular, the “Experiential Learning Theory” (learn by doing) suggests that learning is most effective when users actively engage in concrete experiences, reflect on those experiences, generalize principles, and apply them to new situations. In this way, learning is viewed as an active process, where active engagement is essential for learning to occur.

This approach is based on the idea that users construct knowledge based on their world views and past experiences. The theory has been refined and updated over time. According to Kolb (2018): “Learning is the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience.”

The model he created was instrumental in designing the exhibition and the phases of user interaction. The cycle is illustrated in Figure 13. Kolb asserts that one can enter the learning process at any of the four stages. However, for learning to occur, especially for long-term learning, all these stages must be completed (Kolb, 1984):

Concrete Experience: Learning in this phase occurs through a tangible task in which individuals are actively engaged, resulting in a real experience.

Reflective Observation: After completing the concrete experience, the learner steps back and reflects on it, either individually or in a group.

Abstract Conceptualization: In this stage, the learner seeks to generalize and draw conclusions from the initial experience and reflection, integrating the experience into their existing knowledge and past experiences.

Active Experimentation: The acquired knowledge can be applied to reality. New ideas are thus applied to new experiences.

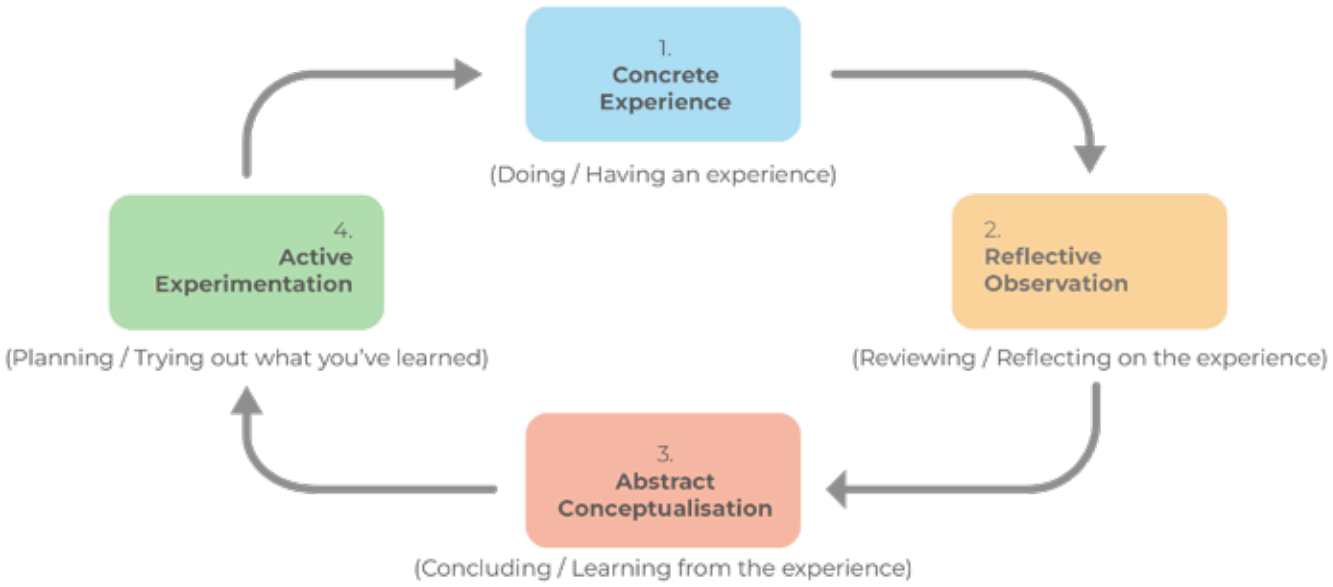


Figure 16: *Kolb’s learning cycle*

This theory is particularly effective for long-term learning, whereas the exhibition, by nature, provides an immersive experience concentrated within a limited time frame. Despite its short duration, exhibitions are typically designed to maximize educational impact through an experiential approach that actively engages visitors, facilitating meaningful learning even in a brief period. Therefore, the model is also applicable in this context: these four phases can be employed to create a meaningful learning experience, even in a short-term setting.

This model, when applied in an educational context like this and adapted to the type of experience being provided, allows for the stimulation of knowledge through a direct interactive experience, transforming a moment of leisure into an opportunity for learning. Ideally, in this context, Design students can apply their learning by working on projects or engaging creatively in their practice after visiting the exhibition.

Over time, Kolb has sparked the interest of many scholars and theorists in the field, leading to the adaptation of his theory for application in various domains. In particular, Lee et al. (2004) defined inquiry-based learning as "a set of classroom practices that promote student learning through guided and increasingly independent inquiry into complex questions and problems, often for which there is no single answer." By doing so, students are encouraged to develop their abilities to reflect, draw conclusions, determine what needs to be learned and what resources are necessary to answer these questions, and share their learning with others.

This approach supports the idea of linking the exhibition to the "Understanding Design" course, where students who have visited the exhibition could be asked questions to spark classroom discussions.

While there are theories that promote learning as a sequence of linear stages, it is important to recognize that learning is a complex and dynamic process. Learning is a personal experience, meaning that even when participating in the same activity, different people may derive different learnings (Mcleod, 2019). Therefore, combining Kolb's experiential learning theory with Lee et al.'s inquiry based approach can provide a robust framework for creating meaningful and engaging educational experiences. These methodologies not only enhance students' theoretical and practical understanding but also prepare them to become critical and creative thinkers, capable of addressing contemporary design challenges in innovative and effective ways.

Comparison

Although the two theories in question share similarities, they also have significant differences:
Kolb's theory focuses on the emphasis on concrete experience and personal reflection as part of a learning cycle, whereas Dewey emphasizes inquiry and problem-solving, with a strong focus on collaborative and social learning.

In terms of structure, Kolb's model presents a formal and cyclical approach, with defined stages through which learning occurs. In contrast, Dewey's model is more flexible and less rigid, based on the process of problem-solving. Regarding application, Kolb's model is well-suited for situations where learning can be clearly divided into discrete experiences. In summary, Kolb's approach is particularly effective in contexts where learning can be broken down into distinct and sequential phases, allowing for a clear distinction between doing, reflecting, conceptualizing, and applying.
Dewey's model, on the other hand, is better suited for educational contexts where learning is seen as a continuous exploration and problem-solving process, often in a collaborative environment, without a precise sequential structure. (Miettinen, 2000)

When applied and adapted to the project, these two models provide a framework for the project narrative, allowing for the delivery of a valuable experience that aims to educate and introduce the user to the discipline of Industrial Design.

The project's conceptualization was particularly guided by the following three theories:

Dewey's experiential structure, which involves two distinct phases in the experience: providing input and receiving feedback from users.

Kolb's cyclical structure, which serves as a foundation for building the experience.

The learning theory of Lee et al.: The integration between the "Understanding Design" course and the exhibition can become an effective educational and reflective tool, generating associations, project ideas, and opportunities for sharing. Visiting the exhibition first and then participating in a class activity, where students reflect on and share their experiences in a group, contributes to experience-based learning.

In conclusion, the understanding of these three models has laid the groundwork for structuring an exhibition that gradually conveys information, educating users through experience and facilitating active interaction and critical reflection.

The next section will discuss the importance of museums and exhibitions as learning spaces and then analyze the tools used to communicate information and educate visitors.

2.2 **The importance of Exhibitions and Museums**

The concept of the museum has evolved over time, transitioning from private collections to public institutions dedicated to the preservation and dissemination of knowledge. It is widely recognized that one of the most important roles of public museums is education (Hooper-Greenhill 1991; Hein 2011). Similar observations can also be found in official resources. The International Council of Museums, ICOM (2022), defines a museum as: "A museum is a permanent, non-profit institution serving society that researches, collects, conserves, interprets, and exhibits tangible and intangible heritage. Open to the public, accessible, and inclusive, museums promote diversity and sustainability."

Orhan Pamuk, a Turkish novelist, screenwriter, academic, and winner of the 2006 Nobel Prize in Literature, states: "Museums are not just places where time is preserved. They are among the most beautiful corners of the world, created by people to help others learn, understand, and grow."

But what is a museum and an exhibition today?

Exhibitions and museums are designed to present collections and tell stories about the significance of the objects they contain. Museum exhibitions are typically seen as opportunities to view "treasures" from distant times or as valuable educational tools to inform the public about science, art, culture, and the natural world. Particularly when the topics covered are complex, exhibitions and museums become the by products of research, translating academic ideas into a format understandable to non-academics (Moser, 2010).

In essence, the design of a good museum experience lies in the ability to display and narrate a series of artefacts in a way that is engaging and comprehensible to a non-expert audience within an exhibition space. It is evident that a museum can house any type of object and tell its story. For this reason, it is essential to keep the theme of the exhibition in mind from the very beginning of the design process.

In this project, the analysis focuses on the field of Design in its various dimensions, with the exhibition context being the Faculty of Industrial Design Engineering at TU Delft. Therefore, during the exploratory phase, the project concentrated on design exhibitions and museums, both to gather inspiration and to understand how they are structured and how products are displayed and messages are communicated.

Types of Museums and Exhibitions

According to Wang and Lei (2016), exhibitions and museums can be classified into two types: Traditional and Interactive-Innovative.

Figure 17: *Piaggio Museum - Pontedera (Above)*
Alfa Romeo Museum - Arese (Below)

Traditional Exhibitions and Museums

Traditional exhibitions, characterized by defined gallery spaces, organized displays, and the use of labels or informational panels, offer significant educational value by providing a wealth of detailed information. However, this abundance of detail can be overwhelming, leading to a monotonous and static experience. The linear narrative often guides visitors along a fixed path, limiting opportunities for personal exploration and engagement. While the focus on extensive text and passive object displays effectively conveys knowledge, it can also make it challenging for some visitors to connect with the material on a deeper level, potentially diminishing the overall educational impact.

Innovative-Interactive Exhibitions and Museums

Interactive innovative museums are defined as places where “the visitor touches something and something happens: for every action, there is a reaction.” These “reactive environments” allow visitors to use their hands and bodies as the primary means of communication. Unlike traditional exhibitions, interactive ones provide less information, as they rely on a limited number of interactive devices and display fewer real objects. The interaction is designed for immediate, intuitive engagement, often at the expense of depth. As a result, the target audience for interactive exhibitions is typically more restricted, focusing mainly on children or laypeople, while traditional exhibitions cater to a broader range of visitors, from researchers to students. (Wang, Q., & Lei, Y. 2016)

Figure 18: *NEMO Museum - Amsterdam (Above)*
Museum of Applied Arts and Sciences - Cleveland Ohio (Below)

2.2.1 **Types of Exhibition Tools**

According to the classification by Wang and Lei (2016), traditional exhibitions and museums are distinguished from interactive-innovative ones not only by the type of interaction, primarily visual in traditional exhibitions, but also by the amount and manner of information presented.

To understand how these two different types of exhibitions are structured, it is essential to analyze the exhibition tools employed.
An exhibition tool is what facilitates communication between the displayed object and the visitor. In traditional exhibitions, exhibition tools are often limited to informational panels, captions, and display cases that provide static and visual information.
In contrast, interactive-innovative exhibitions utilize a range of digital technologies such as touchscreens, augmented reality (AR), interactive videos, and mobile applications, as well as supplementary activities like educational programs and interactive games, which enable dynamic and engaging interactions.

The variety and types of displays within an exhibition offer insights into the represented subject and can significantly contribute to defining the subject and the message intended to be conveyed.
Beyond the original objects or artefacts, a multitude of other exhibition elements can be employed, including reproductions or casts, contemporary material culture (often used as interpretative aids to contextualize ancient artifacts), graphics (including illustrations, photographs, computer-generated 3D reconstructions), models, audiovisuals (such as films and soundtracks), interactive elements (such as computer presentations, educational activities, games), narrative/re-enactment, audio guides, sensory exhibitions focusing on smell and touch, and modern artworks (used as “interventions” or dialogue modes with antiquities, ethnography, and history).

All these elements of an exhibition are integral to the message communicated, both intentionally and unintentionally. (Moser, 2010)

These exhibition tools have been categorized into two distinct types: Active and Passive. This distinction is based on how the message is communicated to the user.

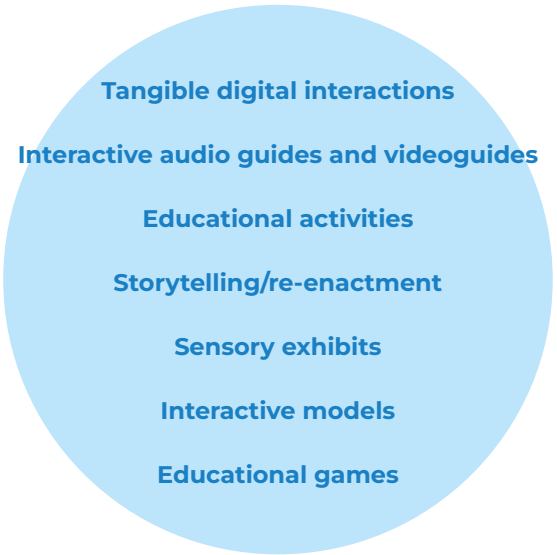
Active

The message is communicated only after interaction with an interactive device. These tools require and encourage direct participation and interaction from the visitor with the exhibit element. They do not merely transmit information in a unidirectional manner but create a dynamic and engaging experience that motivates the user to become an active participant in the learning and discovery process.

Examples of active communication tools include:

- **Digital Tangible Interactions:** Touch screens (UI interfaces), Virtual Reality (VR), and Augmented Reality (AR) that allow visitors to explore content in a personalized and immersive manner.
- **Interactive Audio and Video Guides:** Devices that provide personalized audio and/or video information in response to visitor actions, such as scanning a QR code, interacting with an NFC tag, or selecting a narrative path.
- **Educational Activities:** Workshops, labs, and educational games that engage visitors in hands-on and collaborative experiences.
- **Narrative/Re-enactment:** Actors or guides who interact directly with the audience, providing a lively and engaging narrative.
- **Sensory Exhibitions:** Installations that involve multiple senses, such as touch and smell, allowing visitors to touch replicas of artefacts or smell historical essences..
- **Interactive Models :** Scaled reproductions that visitors can manipulate or explore in detail, often accompanied by audiovisual elements..
- **Educational Games:** Applications or installations that use gaming as a tool for learning, often integrating elements of competition or collaboration

Active exhibition tools provide a wealth of opportunities to enrich the museum experience, making it more interactive, engaging, and educational, thereby promoting “experiential learning” (Kolb, 1980). However, to fully capitalize on these benefits, careful design is essential, taking into account both the potential and the challenges associated with the use of such tools. The objective should be to create a balance between interactivity and content, ensuring that technological innovation supports and enriches the exhibition’s message rather than overwhelming it. This involves making these technologies accessible and comprehensible to a diverse range of users, considering possible variations in age and experience.



Active Comunicational Tools

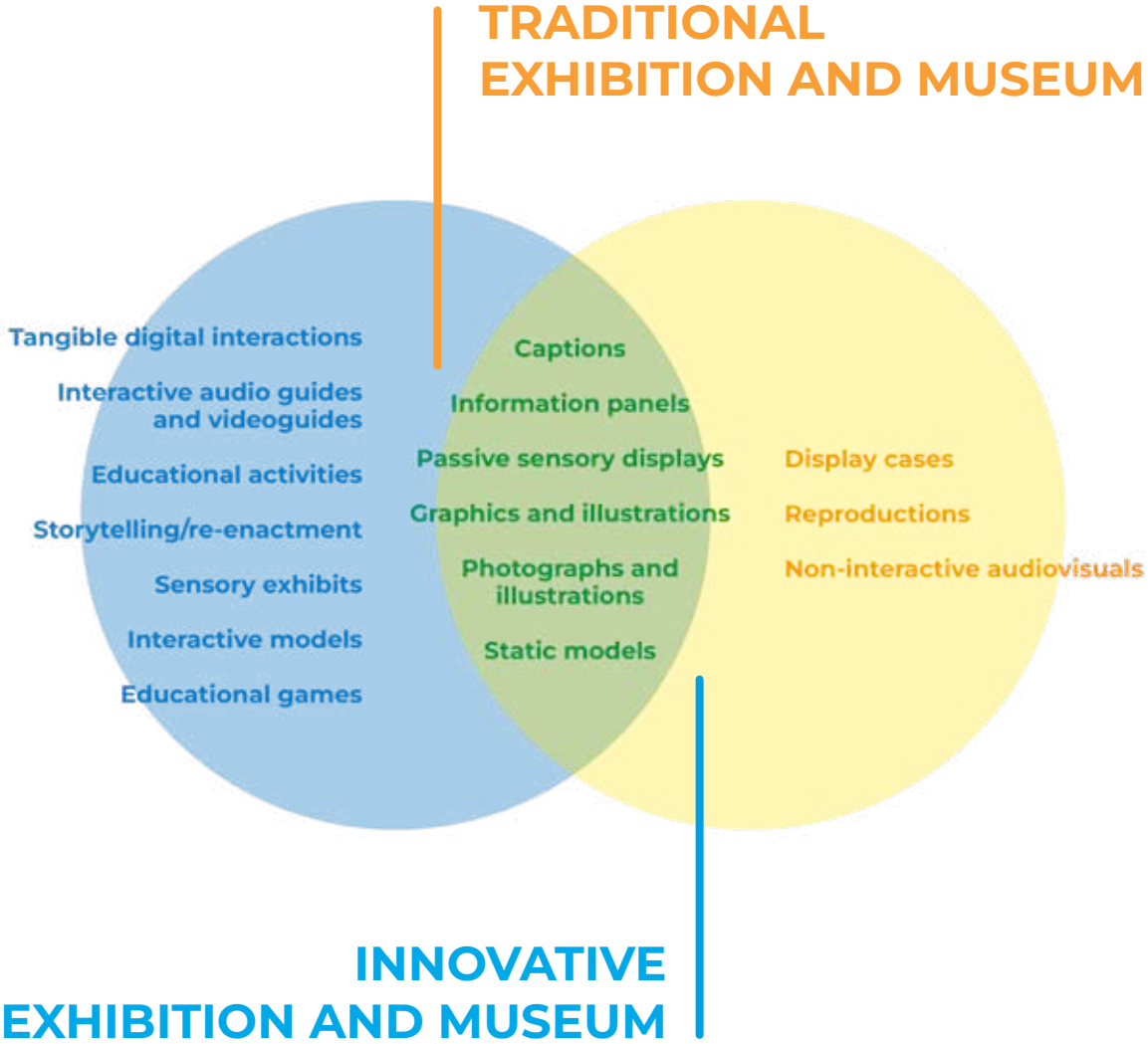
Passive Tools

Passive exhibition tools are those that convey information unidirectionally, without requiring active participation from the visitor. These tools present content in a static and visual manner, offering a more contemplative and observational experience. Examples of passive exhibition tools include:

- **Informational Panels:** Explanatory and descriptive texts that accompany displayed objects, providing context and historical or scientific details.
- **Captions:** Brief descriptions that identify and explain the displayed objects or artworks.
- Display Cases: Transparent containers that protect and showcase objects, allowing visitors to view them up close without physical interaction.
- **Graphics and Illustrations:** Drawings, posters, maps, and diagrams that visually present information in a clear and immediate manner.
- Reproductions: Copies of original objects exhibited to provide detailed viewing without risking damage to the originals.
- **Static Models:** Scale reproductions of buildings, machinery, or historical scenes that offer a three-dimensional visual representation without interaction
- **Photographs and Illustrations:** Images that document or visually interpret the subject matter, providing additional perspectives and details.
- **Non-Interactive Audiovisuals:** Films, documentaries, and soundtracks that provide supplementary information and context without allowing direct visitor interaction.
- **Passive Sensory Exhibits:** Elements that engage the senses in a non-interactive way, such as scent diffusers releasing fragrances to evoke a specific era or location without requiring visitor intervention.

Passive exhibition tools play a crucial role in museum displays, offering a clear and accessible presentation of information. They have traditionally been the primary means of conveying information within exhibits and museums. However, to maximize their effectiveness, it is important to integrate them with other exhibition elements that can more actively engage visitors.
Therefore, based on this analysis, it can be concluded that traditional museums, as previously defined, are characterized by the use of passive communication tools, whereas innovative-interactive museums feature both passive and active tools. Combining passive and active tools can create a balanced exhibition experience that meets the needs of a diverse range of visitors and promotes deeper learning.

Passive Comunicational Tools



On the one hand, passive tools provide historical context and essential informational details crucial for understanding the exhibited content. On the other hand, active tools directly engage visitors, encouraging active participation in the learning process.

The integration of these two approaches creates an inclusive museum environment capable of attracting a diverse audience, ranging from casual visitors to enthusiasts of History and Design. In this context, experiential learning, as outlined by Kolb's theory, finds a perfect application.

Visitors can directly experience the exhibited content (Concrete Experience), reflect on what they have seen and experienced (Reflective Observation), generalize the concepts learned (Abstract Conceptualization), and apply them to new situations, both within the exhibition and in their daily lives (Active Experimentation). In particular, first-year students might apply the concepts learned in one of the workshops of the "Understanding Design" course.

This exhibition model also reflects TU Delft's educational approach, which emphasizes a strong connection between theory and practice. Designing an exhibition that combines passive and active tools not only makes the content accessible and engaging but also prepares visitors to think critically and recognize the connections between the past, present, and future of Design. In this way, the exhibition not only educates but also inspires and stimulates innovation, making the learning process a continuous and engaging experience.

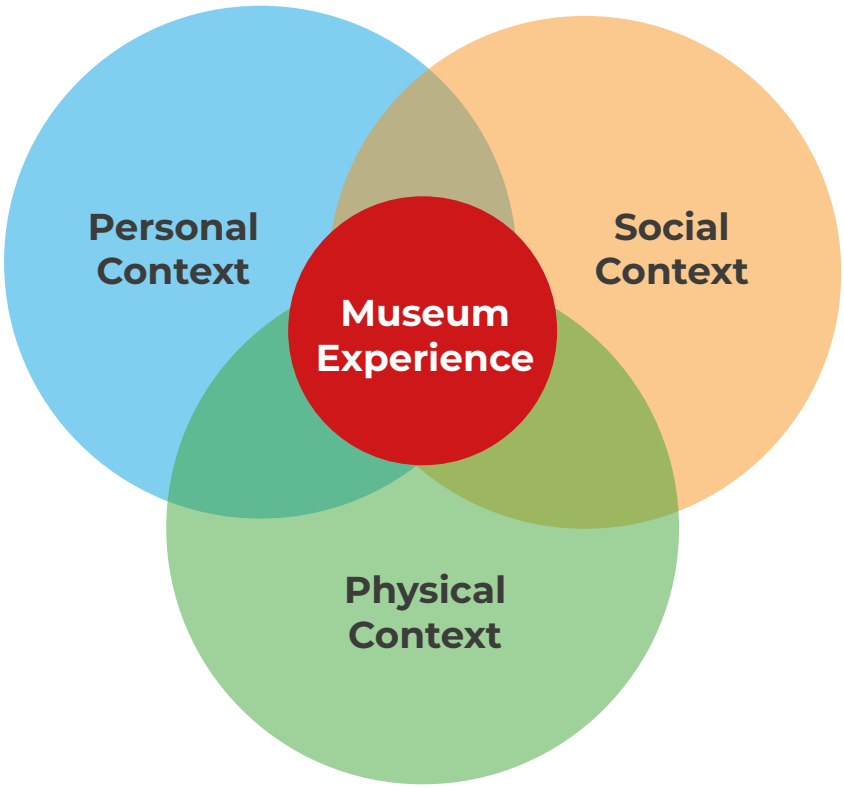
2.3 **Discussion**

The chapter highlights the importance of incorporating a historical approach to Design within the learning process and how this can be achieved by offering an educational method different from traditional ones. By referencing the educational theories formulated by Kolb and Dewey, it explains how, when applied in an educational context, these approaches can enhance and enrich learning, making the process more enjoyable and engaging. When users' attention is captured through both active and passive communication tools, the experience becomes more immersive and meaningful, promoting a deeper understanding of the presented content and encouraging direct, personal participation in the learning process.

Museums and exhibitions have always been ideal spaces for this type of approach, as they offer environments where users can directly interact with the displayed materials and often convey historical and cultural information in engaging and meaningful ways.

These spaces not only allow for direct engagement with content but also encourage exploration and personal reflection through exhibits that can stimulate questions and discoveries. Interaction with exhibitions and immersive experiences facilitate a deeper, contextual understanding of design, providing users with the opportunity to explore both the past and present in ways that enrich their knowledge and appreciation of the field.

Since the museum experience is composed of numerous factors and is therefore complex, the model shown helps to understand its structure. Falk and Dierking have created a graph that helps to understand how the experience related to exhibitions and museums is structured. This framework was taken into consideration during the design phase.



Graph 1: *The Museum Experience Model, Falk and Dierking (2013)*

Key Insights from Chapter 2

- Educational Theories of Kolb and Dewey
- Power of Active and Passive Communication Tools
- Museums and Exhibitions as Models of Educational Spaces
- Importance of Deeper Contextual Understanding
- Museum Experience Model

Relevance for the Project

Using Kolb's experiential learning cycle and Dewey's principles of reflective thought and experience-based education can serve as foundational frameworks for the project. These theories support the idea of interactive, student-centered learning environments, which could be pivotal in reshaping the curriculum or designing educational activities.

The project can explore a combination of active and passive communication tools to create a richer, multi-dimensional learning experience for students.

By facilitating experiences that connect historical and contemporary design practices, the project can enrich students' understanding of design as a discipline rooted in cultural and historical context, rather than as a purely technical or aesthetic subject.

Figure 19: *Overview of key insights from Chapter 2 and their relevance for the project*

CHAPTER 3.

PROJECT APPROACH

The chapter begins by presenting the design approach adopted, illustrating the four phases of the Double Diamond method. The “Define” and “Develop” phases are addressed in the chapter. Subsequently, the focus shifts to the project, starting with an analysis of different types of exhibitions and museums, followed by a review of the visited spaces with related insights. This analysis serves to introduce the second part of the project, which focuses on concept development and embodiment. The insights gained from visits to exhibitions and museums will inform the conceptualization of the design ideas.

Methodology

At a macro level, the project followed the approach described by the Double Diamond method, a design thinking model that divides the creative process into four main phases: Discover, Define, Develop, and Deliver.

At micro level each phase was subject to decisions and reflections based on both personal experience and background, as well as dialogue with interviewed users and results from user tests..

DISCOVERY

The first “discovery” phase involved exploring the current situation about Design education in IDE, educational theories mentioned in the previous chapter, followed by an analysis of exhibitions and museums related to Design, with a particular focus on user interaction and Augmented Reality (AR). Also at this stage, information was gathered through interviews with users to understand their relationship with museum experiences and their expectations.

DEFINE

The next phase was to define the design direction. All the information collected was analyzed to identify the main issues and establish the project requirements, further developing the existing project brief. In this phase, the focus was narrowed, aiming to clarify the approach for the upcoming development stage. The identification of a problem, which emerged during the discovery phase, regarding how products are displayed and knowledge is conveyed to visitors in exhibitions and museums, allowed me to identify a design gap from which to begin the development phase.

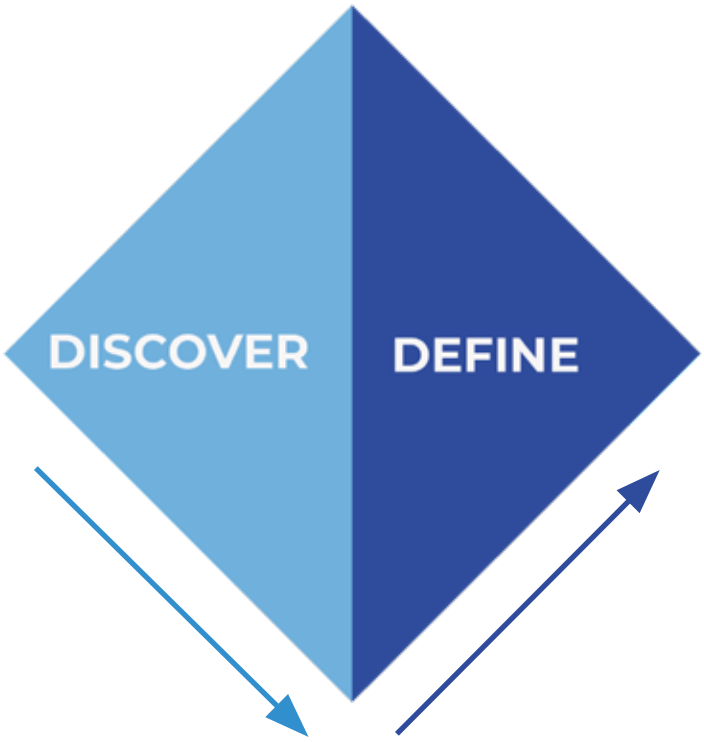
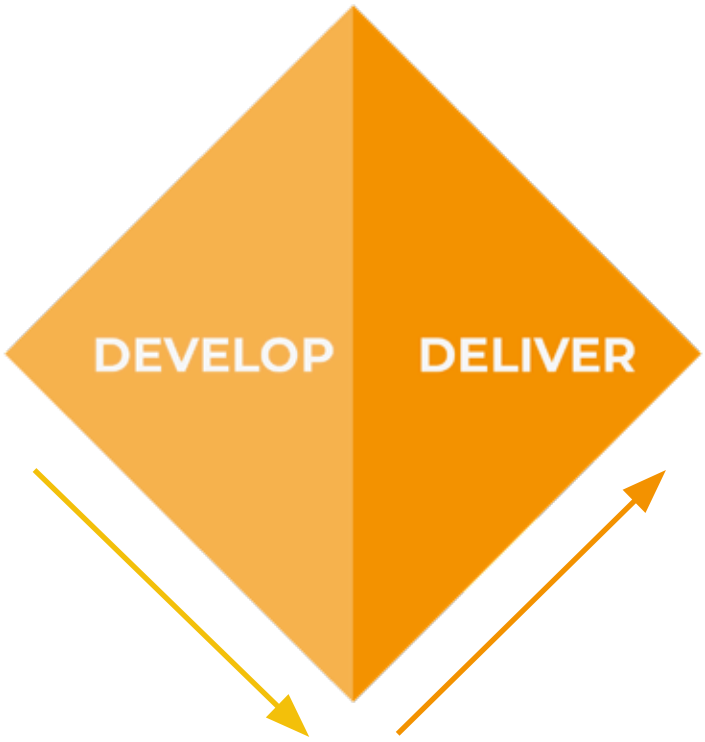


Figure 20: *Double*



Dimond Method

DEVELOP

I developed a low-fidelity prototype that offered an early glimpse into the project's potential direction, serving as a tangible representation of initial ideas. This prototype allowed for an exploration of core concepts and facilitated early feedback. I then embarked on an iterative process of refinement, enhancing the prototype based on insights gained from user interaction testing. This hands-on testing was invaluable in gathering constructive feedback, which guided further improvements and helped in defining a more precise and informed project direction.

DELIVER

Based on this, I established my design requirements and developed a final prototype, adaptable to various products, testing its communicative effectiveness with different users by providing information and subsequently receiving feedback from them. Throughout this process, I carefully selected products that, according to specific criteria I established, are best suited to communicate the values and concepts of Industrial Design.

The prototype created and exhibited within the IDE faculty represents the practical development of the conceived concept, encapsulating months of work and project development. This prototype is not only a tangible manifestation of the developed ideas but also the result of a lengthy process of iteration, reflection, and refinement, leading to a final solution that expresses the vision and objectives of the project.

3.1 **Cataloguing of Exhibitions and Museums**

In the early stages of the project, the approach involved visiting and subsequently cataloging museums and exhibitions related to Design. The museums and exhibitions mentioned were visited during the initial phase of the project. This process provided a general understanding of the structure, the communication methods employed, and how different museums and exhibitions convey their message to visitors, as well as the type of experience they promote. This cataloging, therefore, offers a general framework for reflection, from which inspiration can be drawn and upon which the project can be based.

To achieve this, I created a table consisting of 3 columns and 10 rows. In the first column, I listed the "Dimensions" criteria or aspects used to classify and differentiate the various types of museums and exhibitions. These dimensions help structure the classification table and provide clear and specific points of comparison. In the second and third columns, I differentiated between Traditional and Interactive museums and exhibitions and their characteristics according to the "Dimensions."

In the first column, under "Dimensions," includes:

- Type of Museum
- Type of Exhibition
- Scope - Purpose
- Level of Interaction
- Target Audience
- Use of Technology
- Comunicational Approach
- Communication Tools
- Visitor Experience
- Learning Style Promoted

The table serves both to catalogue the exhibitions visited and to describe them in a more structured way, providing a clearer overview for those who were unable to see them in person. In addition to cataloging, each exhibition is accompanied by a brief description and personal reflections on its positive and negative aspects. In conclusion, based on this classification and on what I consider useful and consistent for my project, I have defined guidelines for the design of my exhibition, ensuring that it reflects the principles and experiences I wish to convey to the visitors.

Dimensions	**Traditional**	**Innovative - Interactive**
Type of Museum	Design, Graphic, Art, History, Science, Automotive	
Type of Exhibition	Permanent, Temporary	
Scope	Conservation, Education, Entertainment, Research	
Interaction Level	Passive (See "Passive comunicational tools")	Active + Passive (See "Passive and Active comunicational tools")
Target Audience	Tourists, Students, Families, Researchers, etc	
Technology Used	Minimal (See "Passive comunicational tools")	High (See "Passive and Active comunicational tools")
Comunicational Approach	Informative, Descriptive	Experiential, Participatory, Hands-on
Visitors Experience	Reflective, Observational	Immersive, Engaging, Participatory
Learning Style Promoted	Reflective Observation, Abstract Conceptualization	Concrete Experience, Active Experementation

Table 1: *Museum and Exhibitions cataloging table*

3.1.1 **Museums and Exhibitions Visited**

Over the past few months, six different museums were visited in the Netherlands and Italy. Despite the large number of museums in these countries, the selection was limited due to constraints related to time, location, and thematic focus. Specifically, the visits were concentrated on exhibitions and museums related to Design or closely related themes.

The cataloguing of each museum mentioned in the next part, based on table 1, can be found in appendix 1.

Design Museum Dedel
Prinsegracht 15 - The Hague (NL)
Traditional Museum

From the website: “From private residence to auction house to museum: this is the Design Museum Dedel. A museum in a beautiful 17th century building on the Prinsegracht in The Hague, where the history of advertising, graphic art, and design comes to life!”

This small museum displays two-dimensional designs, primarily posters and wallpapers from the past two centuries, in a domestic and welcoming environment. It also features commercial advertisements from the 1960s to the early 2000s, providing insight into various periods and products within a historical context. Despite its modest size, the museum engaged visitors for an extended period, offering a sense of exploring a personal space and discovering its historical and cultural significance.

The museum effectively demonstrates the evolution of communicative and graphic styles over time. It highlights the significant amount of information that can be conveyed through a single image. During the visit, it was observed that different individuals often interpret the displayed graphics in various ways, especially when encountering text in Dutch or other unfamiliar languages. This observation underscores the role of interpretation in an exhibition, showing how it can lead to diverse associations and meanings. The exhibited materials often require viewers to interpret and draw their own conclusions rather than presenting a clear and direct message.

Figure 21 *Interiors of the Museum*

Den Bosch Design Museum
5211 JD 's-Hertogenbosch - (NL)
Traditional Museum

The Design Museum Den Bosch features both temporary and permanent exhibitions related to the world of Design. The permanent exhibition, in particular, focuses on household appliances and electronic devices from the past (1950-1990) and aims to recreate the perception of that historical period through the use of colours product arrangements, and advertising posters from the era. The large number of exhibited objects shifts the focus from individual items to the overall collection, conveying more about the expressive and design language of the time rather than their functional aspects. The product descriptions are minimal and cover only those placed along the exhibition path, excluding items on the shelves. The underlying idea of the exhibition seems to be to communicate the context and historical period of the displayed products through the products themselves, without referencing their historical background.

There are no interactive or digital elements present. Interaction is purely visual. My overall impression from the exhibition was the realization of the vast number of products (many of which are unknown to younger generations) that, despite not having made a significant mark on the history of Industrial Design or becoming design icons, have nonetheless played a role in shaping and advancing the field of household appliances.

The museum effectively uses colours lighting, graphics, posters, and a diverse collection of displayed objects to create an immersive experience that evokes a sense of time travel. However, the exhibition lacks detailed information about the exhibited items, and there is no opportunity to obtain additional information from staff, who are unable to address visitor inquiries.

The large number of objects on display appears to be overwhelming. This high density of items may reduce the perceived value of individual pieces and create a scattered presentation, which can lead to visitor confusion. The close proximity of so many objects appears to detract from the detailed appreciation of each item, focusing more on a general overview rather than on the distinctiveness of each piece.

In summary, the exhibition does not effectively highlight the uniqueness of each object, making it challenging for visitors to focus on and understand the significance of individual items.

Figures 22: *Products on display at the museum*

Sonics Acts - Amsterdam Biennale 2024
Piet Heinkade 5 1019 BR - Amsterdam (NL)
Innovative Exhibition

The temporary exhibition explores the perception of sound and its interplay with video to influence mood. It features various installations combining video and audio elements, with a focus on passive engagement rather than direct interaction. Visitors navigate the exhibition freely and are drawn to specific points by sounds and voices. At these points, videos are either displayed on screens or projected.

The exhibition does not follow a specific storyline but aims to evoke a range of emotional responses, transitioning from moments of joy to distress and fear through images and sounds. Visitors are encouraged to move around at their own pace, guided by curiosity. Most installations require at least two minutes of viewing and listening to video montages. The videos are designed to create a strong impact, often juxtaposing pleasant visuals with distressing sounds, and vice versa. Each installation includes explanatory labels describing the intended sensory experience.

The exhibition effectively demonstrates the profound effects that the combination of sound and video can have on perception and emotion. The passive nature of the engagement allows for deeper immersion in the experience, providing an engaging auditory and visual encounter without the need for direct interaction.

Figure 23: *One of the installations at the exhibition, Sonics Acts 2024 Flyer (Credits: Sonics Acts)*

ADI Design Museum
P.za Compasso d'Oro 1, 20154 - Milano (IT)
Traditional Museum

It is one of the most significant museums dedicated to Industrial Design in Italy. It hosts a permanent collection as well as temporary exhibitions, all focused on Industrial Design.

The ADI Museum houses the historical collection of the ADI Compasso d'Oro Foundation, along with temporary exhibitions, public lectures, and various initiatives. It is dedicated to understanding and promoting Design both in Italy and abroad. The collection features Italian design products from 1954, the year the "Compasso d'Oro" award was established, up to 2024. It is updated annually with the winning projects of the award. Additionally, the museum's connection with the Design faculty at the Politecnico di Milano provides talented students with the opportunity to exhibit their projects within the museum.

The numerous objects are displayed in chronological order from 1954 to 2024 and are accompanied by comprehensive descriptions of their history, along with original designs or photographs of production methods. Sometimes, the usage context is simulated, particularly for furniture items.

The historical aspect and societal impact of the products are prominently highlighted; for instance, next to each year, in addition to displaying the products from that year, there is also a photographic collection of events that occurred in that year, accompanied by descriptions. Furthermore, the influence of some of these products on daily life is illustrated through testimonials from interviews and surveys of the time. Alongside the products, there are quotes from designers or influential figures of the era, reflecting the values and ideals of the past in the field of Design. At the end of the visit, in the final room, visitors have the opportunity to take a free poster, measuring 50x70 cm, from a selection of many as a souvenir of the exhibition. All posters feature the main theme of Design and its key figures.

The museum effectively provides information on Italian Design in a simple and comprehensive manner, making the content easily understandable for all types of visitors through the use of historical context descriptions. However, it has been observed that the large number of objects, despite being well-presented, may overwhelm visitors with information, particularly those without a background in Design.

This observation was reinforced through conversations with other visitors, who, despite having different backgrounds and not being experts in Design, shared similar feelings. While the museum succeeds in making the history and evolution of Italian Design accessible, the sheer volume of objects on display may dilute the impact of individual pieces and make it challenging for some visitors to fully absorb the information presented.

Figures 24: *ADI Design Museum (Left)*
(Credits: ADI Museum & Triennale di Milano)

Permanent museum of the Triennale di Milano
Viale Emilio Alemagna, 6, 20121 - Milano (IT)
Traditional Museum

The permanent exhibition at the Triennale di Milano traces the history of Italian Design from the 1930s to the 1990s, showcasing the objects that made it renowned worldwide. The exhibition is organized chronologically and features a range of materials, including advertising posters, newspapers, photographs, and project drawings from the period, which help provide a comprehensive overview of the historical context.

Each object is placed on a pedestal, ensuring ample space around it to allow for observation from multiple angles and a thorough analysis. Additionally, curiosities and anecdotes related to the projects and their designers are presented. While there are no interactive installations, the exhibition, though permanent, features periodically changing products.

The exhibition stands out for its "lightness," offering an experience that is not overwhelming with information, making it enjoyable for visitors. Each object on display is accompanied by a brief description, allowing the items to speak for themselves. The diverse array of exhibited items, many of which were once part of daily life and remain embedded in the collective memory, adds to the exhibition's appeal.

For instance, prominently featured are a handrail segment and a stop sign from the M1 Milan subway, inaugurated in 1964 and designed by Franco Albini with graphics by Bob Noorda. These elements, still present in the M1 subway, exemplify urban design with which thousands of people interact daily. Another notable exhibit is a door handle with an integrated lock for domestic use—an everyday item that might surprise visitors to see in a museum setting, highlighting its design significance.

To enhance the exhibition's communication, it could be beneficial to create areas that recreate furnished environments featuring the displayed products, thereby conveying the style of the historical period. Adjacent to the exhibition is an archive, open to the public, offering an interactive exploration of manuals, photographic materials, and historical records from the museum.

Figures 25: *Treinnale di Milano (Right)*
(Credits: Triennale di Milano)

Rijksmuseum Boerhaave
Lange Sint Agnietenstraat 10, 2312 WC - Leiden (NL)
Traditional and Innovative Interactive Museum

The museum is dedicated to the history of scientific progress in the Netherlands. Its primary function is educational, with a dedicated program in place. Rich in artefacts and information, it features an installation that combines traditional museum elements with interactive and innovative displays. Numerous interactive set-ups allow visitors to learn through engagement with digital interfaces or directly with machinery. Additionally, the visit is accompanied by audiovisual projections along the route that narrate the history and curiosities of the exhibited items.

The sheer volume of information can be overwhelming; it is easy to spend little time on any one thing due to the multitude of other exhibits. There is a profound sense of immersion in the context, thanks to the bespoke spatial design and some highly successful installations, such as those pictured, where minimal interaction produces significant visual and experiential effects. The opportunity to physically handle some of the displayed objects undoubtedly enhances the immersive experience.

This museum reflects meticulous research and design. Despite its small size, it is well-maintained and offers a pleasant experience. While it is not specifically focused on design products, the variety of interactive experiences it offers (ranging from direct interaction with installations to indirect engagement through projections)adds dynamism and appeal. These elements combine to create a multi sensory experience, incorporating sounds, images, and various types of interactions.

Figure 26: *Rijksmuseum Boerhaave Installations (Credits: Rijksmuseum)*

Conclusions

These visits and experiences provided insight into the organization and structure of contemporary Industrial Design museums, as well as other museums, in Italy and the Netherlands. The tools used to communicate information and the messages conveyed to the public were observed, revealing that these museums often focus on collecting and displaying iconic products, while their historical and social contexts are not emphasized. The narratives behind these objects are not extensively covered, leaving visitors to draw their own conclusions without much guidance.

A common observation across these exhibitions is the lack of opportunities to explore the history, curiosities, and characteristics of the displayed items in depth. The focus tends to be on presenting these objects primarily for their aesthetic and functional qualities, rather than highlighting their historical significance. This approach suggests that the intent of these exhibitions is more about showcasing the objects than educating visitors about design. Consequently, while the exhibitions are visually engaging, they may leave visitors, particularly those without a background in design, without a deeper understanding of why these objects are significant. .

This sentiment was shared by others who participated in these visits, noting that while the exhibitions were satisfying, they did not provide new knowledge or insights. For design enthusiasts and experts, these exhibitions offer the chance to see familiar objects and discover new ones, but for non-experts, they present a visual display without sufficient context or explanation. To ensure these visits contribute effectively to the project, observations were compiled on both the strengths and weaknesses of each exhibition and museum visited. These observations were made to deepen understanding of the subject and to gather insights for developing a more innovative concept than what current design exhibitions offer.

A common pattern identified is the high number of objects displayed, often without accompanying historical narratives. The trend appears to focus on showcasing as many archive products as possible, without emphasizing their significance, resulting in a presentation that resembles a simple collection of artifacts rather than a curated, meaningful display.

Museum	Pro	Cons
Design Museum Dadel	*Historical Context and Atmosphere* *Evolution of Graphic Styles* *Interpretative Engagement*	*Lack of Clear Messaging* *Niche Focus* *Overdependence on Viewer Interpretation*
Den Bosch Museum	*Variety of Objects* *Atmosphere*	*Minimal Descriptions* *Lack of Interaction* *Overwhelming Quantity*
Sonics Acts	*Sensory Impact* *Immersive Experience* *Diverse Emotional Range*	*Lack of Narrative* *Limited Interaction* *Extended Viewing Time*
ADI Design Museum	*Educational Value* *Historical Context* *Comprehensive collection*	*Information Overload* *Complexity for Non-Experts* *Limited Interaction*
Triennale di Milano	*Ample Space for Observation* *Non-Overwhelming Presentation* *Everyday Objects Displayed*	*Lack of Detailed Explanations* *Lack of Interactivity*
Rijksmuseum Boerhaave	*Educational Focus* *Interactive Displays & Immersive Experience* *Dynamic and Multisensory*	*Information Overload* *Complex Spatial Design*

These visits and the subsequent evaluation provided an overview of the current setup and structure of design museums and exhibitions. Based on this, for an exhibition with an educational focus that effectively addresses the historical aspects of displayed products while maintaining high visitor engagement, the following considerations are essential:

- The historical identity of the displayed product is clearly perceived.
- More information related to the displayed product is provided.
- A combination of different communication tools (graphic elements, videos, sounds) is used.
- The products can be observed closely and from multiple angles.
- There is an opportunity for both active and passive interaction.

3.1.2 **Interactive Exhibitions and Museums Visited Virtually**

Given that one of the project's themes is Augmented Reality (AR) and its potential application in the exhibition, I supplemented direct experiences with virtual visits to notable exhibitions and museums renowned for their interactive installations and AR use. Due to geographical constraints, in-person visits were not feasible. This virtual approach was chosen to gain a comprehensive understanding of how these spaces are structured and how AR technology is applied to enhance engagement and immersion.

Exhibitions for analysis were selected based on rankings of the best "interactive exhibitions" that prominently feature AR, as well as recommendations from acquaintances.

Web sources used:

- https://www.museumnext.com/article/how-museums-are-using-virtual-reality/
- https://blooloop.com/technology/in-depth/immersive-art-experiences/
- https://experiments.withgoogle.com/the-museum-of-the-world

Exhibitions featuring straightforward experiences and those where active user participation enhances the exhibition were identified as particularly interesting and relevant for the project.

The British Museum, London, UK:
"Museum of the World" project.
Traditional Museum with innovative elements

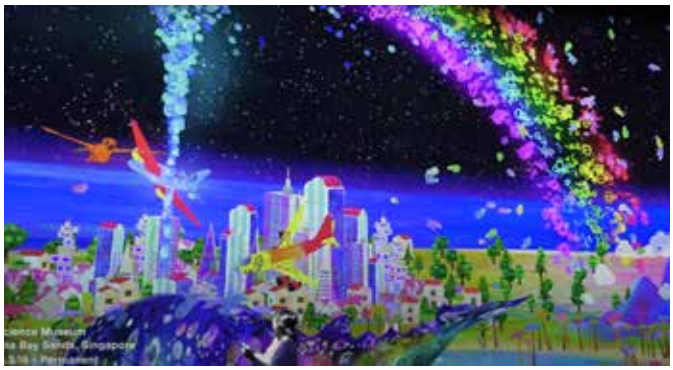
The "Museum of the World" allows visitors to explore museums around the world from their phones or computers, as these have been added to the service. Through a mobile application, visitors can use AR to explore and interact with 3D models of artefacts from the museum's collection, gaining insights into their historical significance and cultural context. It is particularly interesting how Augmented Reality is utilized in this case to create a virtual visit that includes interactive digital elements not present in the physical museum. This also provides more detailed information than what is available in the museum, such as sounds, videos, longer descriptions, and 3D models.

Figures 27: *Screenshots from the Museum of the world experience*

Museum ArtScience, Singapore:
“Future World: Where art meets Science”.
Innovative Interactive Exhibition

The AR installations allow visitors to interact with digital artworks, create virtual landscapes, and immerse themselves in futuristic environments, blurring the boundaries between art and technology. The experience is highly immersive, with visitors being projected into a context specifically designed to provide deep experiences, where they have the opportunity to influence the course of events. I found the theme of this interactive exhibition particularly interesting, as it combines and unites art and science into an immersive experience.

The application of this type of thematic fusion, through a narrative that allows the visitor to feel part of the exhibition, is something that could add significant value to the project. The opportunity to contribute to the exhibition with one’s own creation and then scan it makes it a truly unique experience.



Figures 28: *Screenshots from “Future World” promotional video on Youtube*

Figures 29: “Waving time. Incas, Treasures of Perù”

Pointe-à-Callière Archaeology and History Museum, Montreal, Canada: “Waving time. Incas, Treasures of Perù.
Innovative Interactive Exhibition

The exhibition features an interactive installation called “The Weaving of Time.” This setup includes a table with 10 tiles in a row, a moving shuttle, and a tray with 80 different tiles. Visitors can create patterns in the tapestry that envelops the space, actively contributing to the exhibition’s design. This approach allows for visible, meaningful contributions from participants, enhancing the overall experience.

Audi House of Progress, Milan Design Week 2024
Innovative Interactive Exhibition

This temporary installation created for Milan Design Week 2024 effectively presents four different aspects of the same product within a single exhibition space. Each of the four areas provides a unique experience, incorporating a range of elements that capture visitors' attention. These include static visual elements and interactive features designed to explore the vehicle and its new functionalities.

Figures 30: *"Audi House of Progress"*

Limitations and Conclusions

After cataloguing and evaluating both in-person and virtual experiences, a recurring issue identified was an overwhelming number of items, which led to minimal detailed observation. Exhibitions often presented too many objects, resulting in cognitive overload and a shift from focused contemplation of individual pieces to a general overview. Conversations with other attendees confirmed this trend, noting difficulties in focusing on details due to the high volume of visual stimuli.

This observation aligns with "Selective Attention Theory" which is defined as the process of directing our awareness toward relevant stimuli while ignoring irrelevant stimuli present in the environment (McLeod, 2023). This theory explains how an excess of stimuli can affect the ability to focus on specific elements, promoting an overall view rather than a detailed analysis, leading to cognitive fatigue due to the large number of stimuli to process, ultimately making the experience less satisfying (Bater & Jordan, 2019).

Based on these insights, structuring a design exhibition to feature a limited number of products with detailed storytelling could provide a more engaging experience. This approach would allow for deeper understanding and appreciation of each piece, reducing visual overload and enhancing the overall value and narrative of the design artefacts.

Users' opinions

After cataloguing and evaluating both in person as a designer, it is essential to consider not only personal perspectives but also the needs and interests of users. To gather insights into others' museum experiences, a questionnaire was created and distributed via Google Forms, collecting responses from 14 users aged 18 to 65. The multiple-choice questions aimed to identify the factors that attract visitors to exhibitions, their expectations, and common frustrations. The questionnaire, detailed in Appendix 2, was based on the following criteria:

1. Exhibition Appeal: To determine what elements make an exhibition engaging to the public.

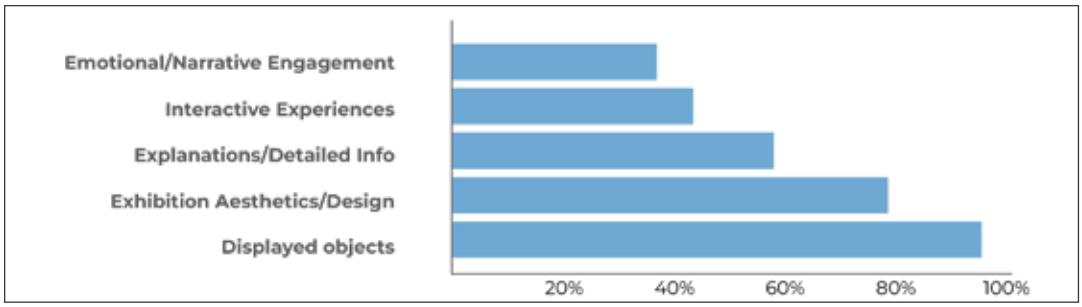
2. Value of the Experience: To understand what visitors prioritize, such as knowledge, emotions, or inspiration gained from the visit.

3. Frustrating Aspects: To identify areas for improvement, such as clarity of displays or interactivity.

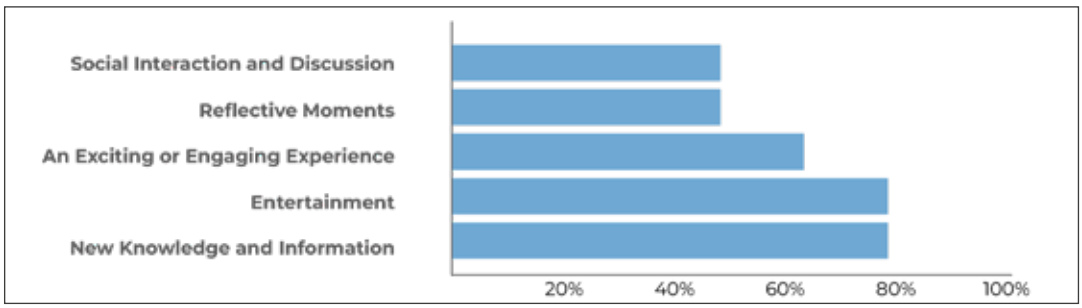
These criteria structured the questionnaire to focus on key aspects that can enhance the museum experience. The main findings, which explore visitor attractions, post visit expectations, and common sources of dissatisfaction, are summarized below.

The analysis of the questionnaire results provided valuable insights into the aspects that make exhibitions attractive to visitors, insights that were instrumental during the *3.2 Concept Ideation* phase. These findings guided the development of the concept.

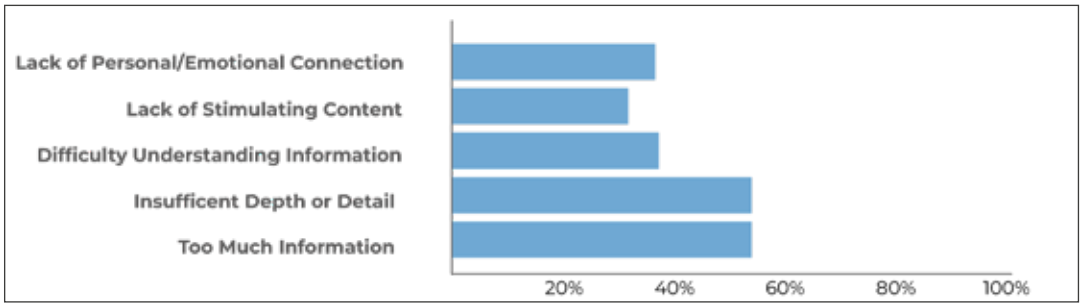
Aspects that Attract Visitors to Museums and Exhibitions



Expectation from a Museum/Exhibition Visit



Frustrating Aspects



PART II.
CONCEPTUALIZATION AND EMBODIMENT

CHAPTER 4.

CONCEPT EXPLORATION

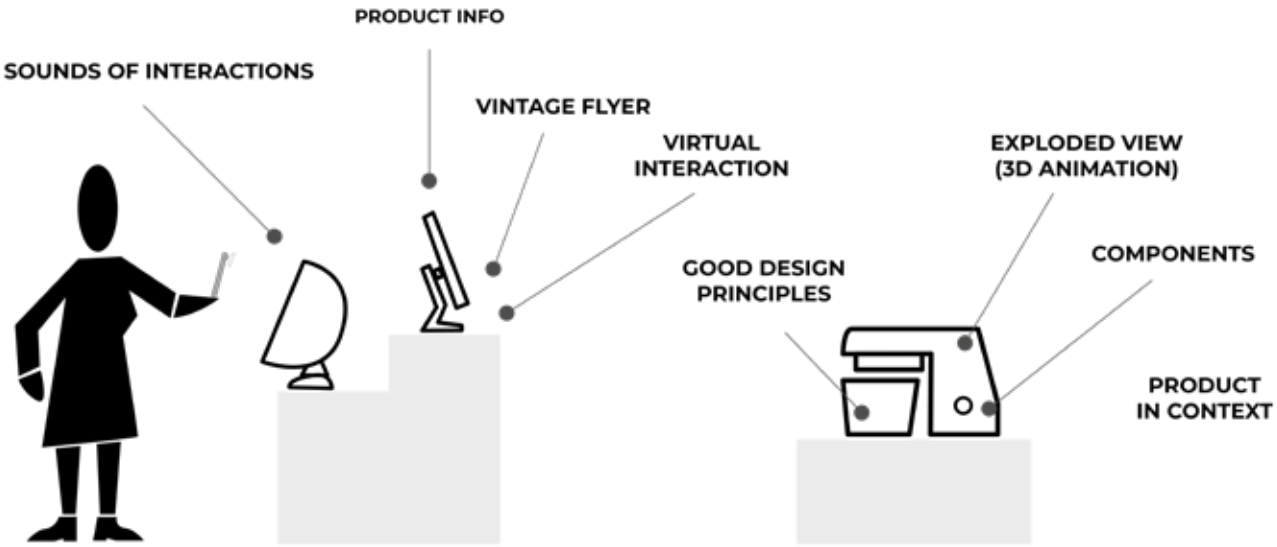
This chapter moves on to the ideation phase, where augmented reality is explored through the creation and evaluation of an initial prototype. The feedback received from this prototype allows for the restructuring of the concept, leading to the creation of a second exhibition prototype, using the Braun Food Processor KM3 as the study object.

4.1 **Concept Ideation**

The visits to the exhibitions and museums served as the foundation for concept development. Based on these reflections, the concept was shaped around the idea of displaying a few objects, spaced apart, with a rich narrative conveyed through diverse communication tools. A historically significant object, the Braun Food Processor KM3, was initially selected from the HBI collection to form the basis for designing a communicative structure that highlights its historical, industrial, and social significance.

Chapter 5 will present the selected products, including the Braun Food Processor KM3, along with the criteria behind their selection.

Given that one of the project's primary focuses is Augmented Reality (AR), an interactive prototype was developed using this technology as the starting point.. The goal was to explore AR's potential and assess its communicative and experiential effectiveness. The prototype was designed for accessibility on portable devices like smartphones and tablets. The initial evaluation was conducted in a field setting, with various users participating in the experience.



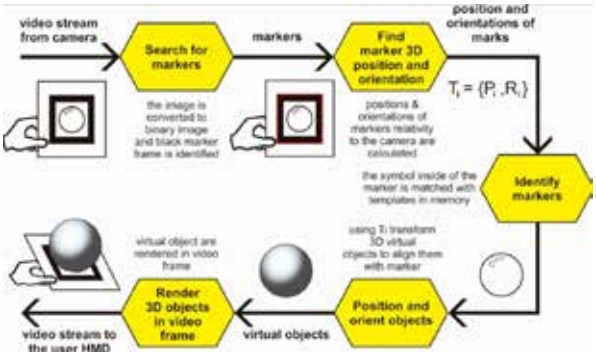
Figures 31: *Envisioned exhibition at the beginning of the project*

4.1.1 **But what is Augmented Reality (AR) and how does it work?**

Augmented Reality (AR) is a tool that allows for the addition of visual and auditory information to a defined context through interaction with a tablet, smartphone or a headset. In recent years, there has been much discussion about this technology and how it can enhance the learning process in education. It is also seen as the future and the next step in how we interact with our environment. (Hayes, 2024)

Augmented Reality has existed for many years, but it is still an immature product. The future goal is to make it accessible to everyone by overcoming the current limitations that restrict its use. It has found interesting applications, particularly in the educational field, both in schools and museums, allowing for the addition of multimedia content to the physical content found in books, paintings, and objects.

Currently, the main limitations include high technological requirements, quality and precision issues, environmental limitations, sensory overload, privacy concerns, costs and development complexity, lack of standardization, dependency on connectivity, user adaptation difficulties, and environmental impacts. (Gillis, 2024)



Figures 32: System diagram of how A*R*

Specifically, for headsets compared to mobile devices, the challenges include high costs, bulkiness, lower comfort, limited portability, adaptability issues, and a greater curve of sensory fatigue. In everyday life, some of the most well-known and successful examples are the smartphone game Pokémon Go, Snapchat and Instagram filters, or apps for virtually decorating homes like the one offered by IKEA. A simplified definition of Augmented Reality is the overlay of digital elements (e.g., images, audio, video, 3D animations) onto the real world. (Gartner, 2022)

Figures 33: *Some AR Applications in Everydaylife (From Left: Snapchat, Pokémon GO, IKEA Place)*

The use of this technology was found to be more effective for educational purposes rather than recreational ones. In recent years, AR systems have been integrated into primary school education and some museum experiences, enhancing learning by making it an integral part of the visitor's experience. Some examples include CleverBooks and ARloopa (AR Books), which are dedicated to STEM subjects, where 3D information appears on textbooks once scanned. Meanwhile, in certain museums, such as the British Museum, the use of augmented reality through a downloadable mobile application provides a more immersive experience by adding visual and auditory elements that would otherwise be imperceptible.

It is therefore clear how many possibilities this technology offers and in how many different contexts it can be used. To better understand how it works and to demonstrate the prototype created for this project, it is important to distinguish between the two ways to experience Augmented Reality: through a headset and through a smartphone or tablet.

The headset allows for a more immersive and engaging experience, as it offers a 360° view and deeper interaction with virtual elements, creating a virtual environment integrated with the real one. On the other hand, the experience with a smartphone is more accessible and versatile, allowing users to interact with AR content simply by pointing the device at markers or objects in their environment. Although the experience may be less immersive compared to a headset, using a smartphone or tablet offers greater convenience and flexibility, allowing for immediate use in various contexts without the need for specialized equipment, making AR more accessible.

Figure 34: *AR Application by British Museum*

Figure 35: *ARLoopa*

This project focus was on designing an experience using a mobile device primarily for practical reasons. The primary goal was to create an experience accessible to all through smartphones. After testing AR headsets, it became evident that they can be difficult for some users to operate and may cause discomfort, including nausea. Additionally, hygiene concerns and short battery life could lead to service interruptions and limited usage time. Therefore, smartphones were chosen for their ease of use and broader accessibility. Another important consideration is that, to ensure access to the experience for a larger number of visitors, it would be necessary to provide multiple headsets simultaneously. Without this availability, there is a risk of creating long waits and limiting access to the immersive experience, thereby reducing the effectiveness and impact of the interaction. Therefore, although headsets offer a more immersive experience, using mobile devices allows for greater practicality and inclusivity, ensuring that more users can enjoy the AR experience simultaneously without significant logistical issues.

4.1.2 **AR Concept**

To develop an augmented reality (AR) experience, it's necessary to design the interaction using a dedicated platform or software. For this concept design, has been utilized Zappworks, a user-friendly Web AR application for prototyping and creating AR experiences on mobile devices.

Mobile-based AR experiences can vary, with particular attention to those accessible via web browsers (web AR). The classification of AR types is typically based on how the experience is triggered and tracked. Based on these factors, AR can be categorized into various types.
(Martínez, 2024)

- Marker-based augmented reality
- **Image tracking augmented reality**
- Location-based augmented reality
- Surface-based augmented reality (also known as World tracking or SLAM)
- Spatial tracking augmented reality
- Object tracking augmented reality
- Facial tracking or augmented reality with face filters
- Body tracking or augmented reality on body parts
- Augmented reality in open spaces (World mapping)

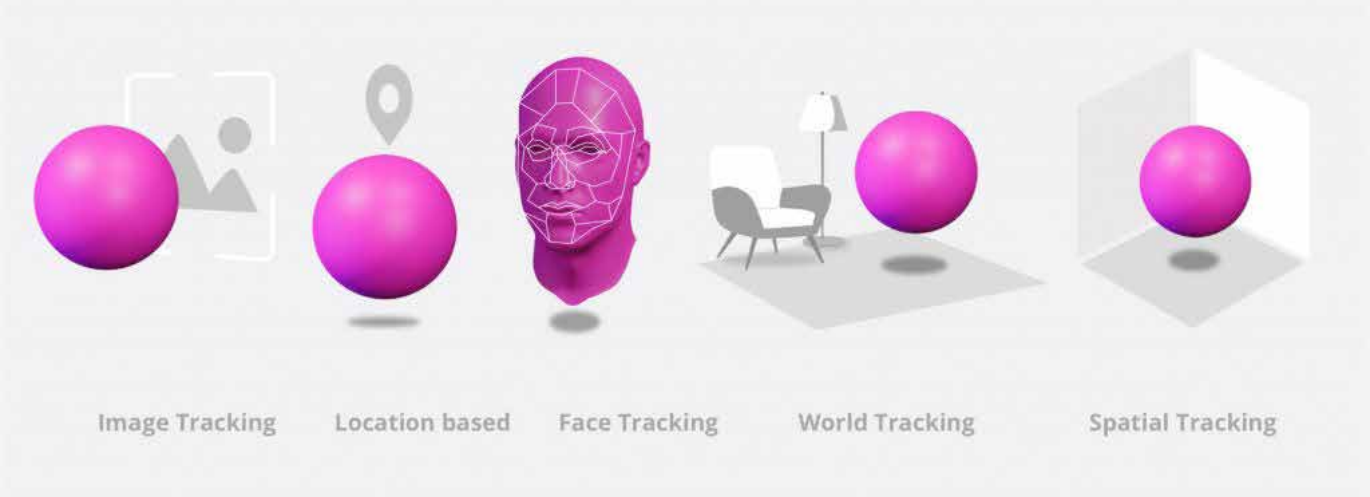


Figure 36: *Types of Augmented Reality by Onirix*

The concept utilizes Image Tracking Augmented Reality. An initial prototype was developed where users scan a QR code to access the software that launches the AR experience. When the camera is directed at a trigger image, the image is augmented, revealing interactive elements on the device's screen. These elements can be explored, along with features of the displayed product (see figure 37).

The concept structure is simple: the physical object, the Braun Food Processor KM3, is displayed on a pedestal, with a trigger image printed on an A2 poster and placed on a sticky board to enable an Augmented Reality (AR) experience.

Initially, the concept was designed without additional communicative elements to evaluate how effectively the technology could function as the sole communication tool.

The goal was to display the artifact and reveal its history and features through a mobile device, creating a comprehensive AR experience.

Figure 37: *Prototype working principle*

By scanning the trigger image, digital buttons overlay the image, each offering a different type of interaction. Users can access information about the product's history, view an animation, hear the sound it produces during operation, and interact with a 3D model of the product in space.

This early-stage prototype aimed to assess the communicative potential of the technology and its mode of interaction; however, no user interest survey was conducted at this stage. The focus was on delivering basic information about the product.

After prototyping the initial concept and testing it with others, it became clear that the experience did not align with the original vision. Accessing information solely through a mobile device limited the immersion, as users were forced to focus on the screen, diverting attention from the physical surroundings. Instead of enhancing interaction with the real-world context, this approach risked isolating users, diminishing the engagement and emotional impact intended.

Figure 38: *AR trigger picture*

Reflecting on museum visits and the value of physical interaction, it became evident that relying exclusively on mobile devices to access information was an ineffective choice. To create a truly engaging and meaningful experience, a balance between technology and tangible, physical elements was needed.

This realization prompted a redesign of the concept, incorporating more direct interaction with the environment and displayed objects, avoiding an over-reliance on mobile devices. The goal shifted towards fostering natural, less mediated interactions that engage users cognitively, emotionally, and sensorially, while preserving the authenticity of the museum experience.

After extensive experience with platforms such as Zappworks and MetaSpark Studio for web-based AR development, it became clear that these applications remain underdeveloped and unreliable for managing complex, multi-element experiences.

The main limitations I encountered are:

- Unstable world tracking (the overlay of digital elements onto the real world does not remain fixed as it should but is lost and regenerated once the phone is moved, making the experience frustrating)
- Inability to add multiple animations of the same object in the same scene (only one .glb file can be read)
- Low resolution of the 3D models added to the scene
- High computational power requirements (making the experience inaccessible to all devices)

4.2 **From concept to first exhibition prototype**

The issues that emerged from the AR concept and the reflections that followed led the project to take a different direction from the one initially conceived. The original idea of designing an exhibition entirely based on augmented reality was reconsidered, opting instead for the integration of augmented reality within an exhibition with a more traditional approach.

The first step was to identify the topics of greatest interest to users regarding the displayed products in order to gain insight into their preferences and, consequently, determine what information to present in the exhibition and how to do so. This was accomplished through an anonymous questionnaire on Google Forms, completed by 14 users aged between 21 and 63 (Appendix 3). Several topics were proposed, along with the option to add others to the list. There were no limits on the number of topics that could be selected.

- Product history
- Company history
- Design principles
- Product experience
- Social context
- Production methods, materials and technological innovations
- How it was advertised, what message was communicated to the user
- How it has inspired today's products
- Similar products.

The selection was based on the topics chosen by 50% or more of the questionnaire participants. I considered this percentage sufficient to deem these topics of interest.

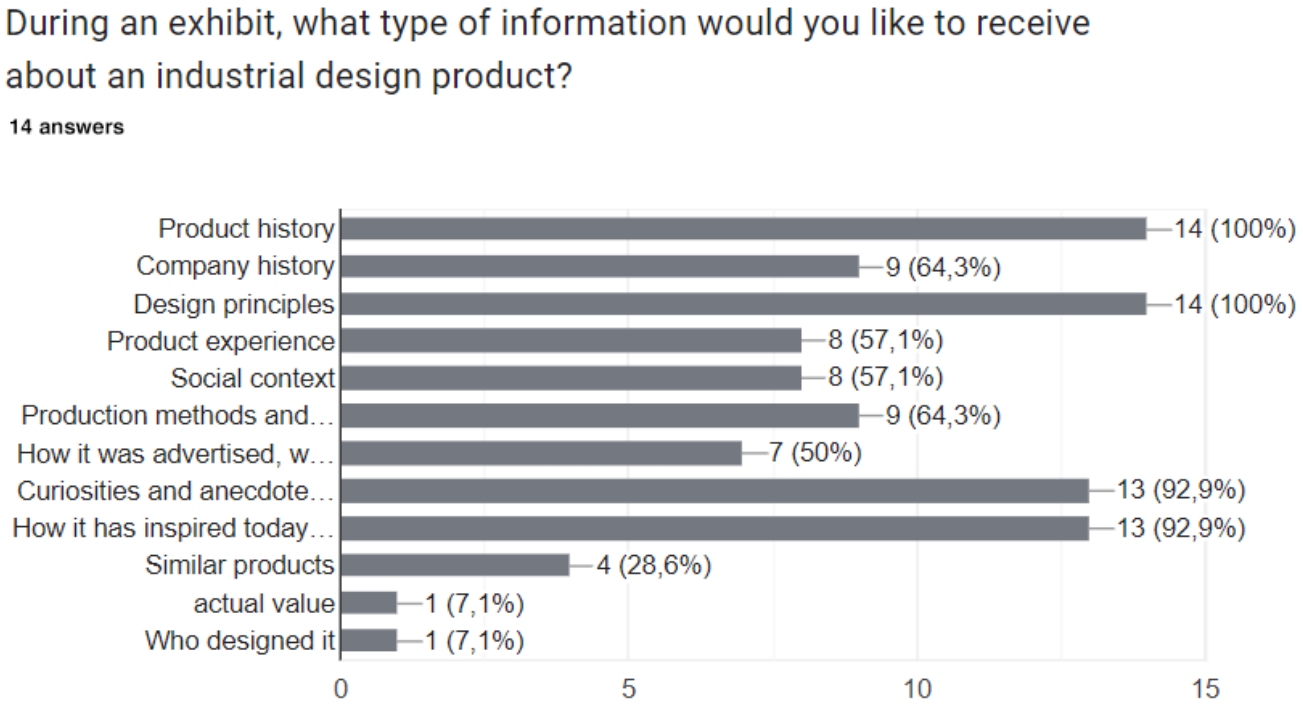


Figure 38: *Form's results (Appendix 2)*

But something is missing in this technical-scientific categorization. Discussing this project with friends and colleagues brought to light something I initially didn't know how to interpret or define in "technical" terms something deeper, not so much related to the object itself but to the meaning attributed to it. I realized that it concerns the emotional aspect connected to a product. Delving further into this aspect, I learned, thanks to my supervisor, about the book "Emotional Design" (Donald Norman, 2004).

The book explores how emotions play a crucial role in our ability to understand the world and learn new things. In Design, Norman identifies three different dimensions: Visceral, Behavioral, and Reflective. The latter deals with the meaning of the product for consumers the emotional connections formed over time through using the product, influenced by cultural, social, and personal factors.

This connection goes beyond appearance or function; it depends on a personal, often a deep reason. This led me to reflect: What values and emotions can a product convey?
Can we become attached to an object, and why does this happen?

Based on these reflections, I focused my research for each product presented on building a story, giving particular importance to this emotional aspect.

Prototype exhibition location

The first consideration in the concept phase was the exhibition space for the prototype.
The exhibition space planned for the final exhibition is the area in the IDE faculty immediately after the entrance, in front of the service desk. This space is the entry point to the faculty. These factors make this location perfect for setting up a temporary exhibition.

Therefore, one of the first considerations was to design an exhibition prototype that is compact yet attractive and adaptable to this space. It is a high-traffic area but also a waiting zone, as it is a common meeting point for people within the faculty, and the presence of the Service Desk ensures a constant flow of people.

However, for the creation of the first prototype to be evaluated, I chose a different location within the faculty. I identified the space on the ground floor, in front of the elevators, as the ideal location for designing and creating the prototype for my exhibition.

This environment offers similar characteristics to those previously considered but with the advantage of being quieter and less frequented, making it perfect for my preparation and evaluation activities. I then researched which exhibition and communication tools the IDE faculty provides, and with the list in hand, I began to plan how to create my prototype.

Figure 39: *IDE entrance (Envision exhibition space)*

Figure 40: *IDE Ground floor map*

4.2.1 **Prototype Exhibition Set-up**

The product to be presented and used for the first prototype exhibition is the Braun Food Processor KM3 from HBI. Chapter 5 explains the reasons behind the choice made for this project.
Thorough research on the product was conducted using various sources, as referenced in Chapter 6. The narrative was structured based on user interests identified through the questionnaire, determining what information to include or exclude.

Textbooks on design history (including Industrial Design by John Heskett, Style in Product Design by Graham Vickers, and Industrial Design A–Z by Charlotte and Peter Fiell), along with industry journal articles, websites, and YouTube videos, were utilized to access information related to the selected products..

Figure 41: *Braun Food Processor KM3 (1957 - 1991)*

Communication

After collecting the required information to "Augment" the product, the next step involved designing and creating communication tools for its effective presentation. In addition to displaying the product with its accessories, plans included the development of explanatory panels and multimedia elements to enrich the visitor experience by providing context and deeper understanding. Efforts were made to strike a balance between active and passive communication tools (*see paragraph 2.2.1*).

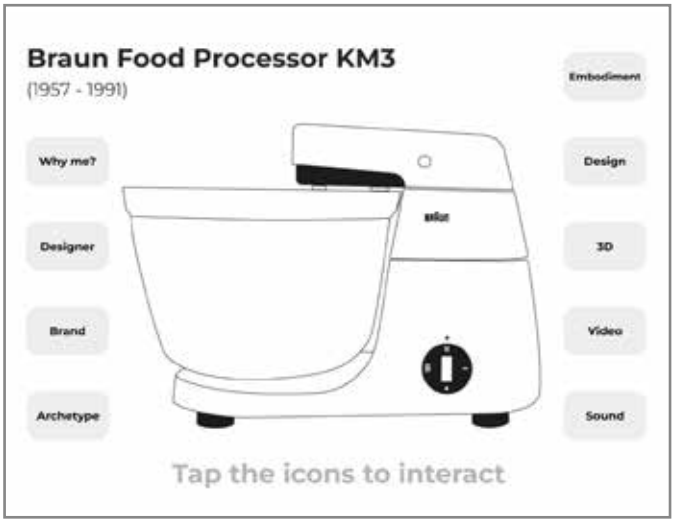
What "Augment" does it mean?

"Augment" likely refers to enhancing or enriching the product's presentation by adding additional layers of information, interactivity, or context, possibly through multimedia elements or augmented reality (AR). The goal is to go beyond simply displaying the product and instead offer a more immersive, informative, or engaging experience for the audience.

COMUNICATIVE TOOLS USED TO AUGMENT THE PRODUCT DISPLAYED

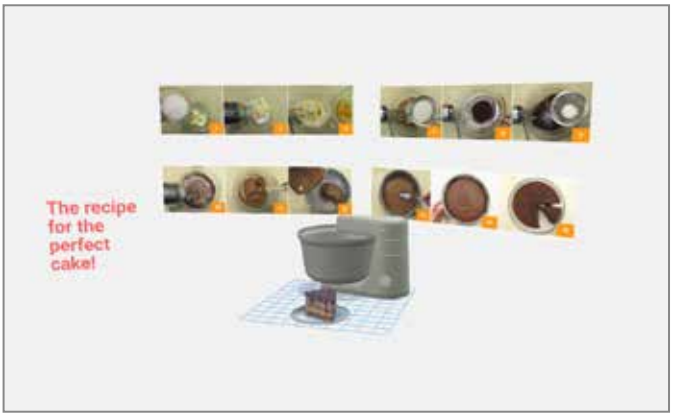
UI Ipad Interface

For the historical context and explanatory information about the product, an interactive station was developed by designing a user interface (UI) for an iPad. The digital interface was created using the software “Intuiface,” allowing users to explore various aspects such as the product’s history, the company, the designer, and design principles. Additionally, the interface provides the capability to interact with 3D virtual models of the product’s components and access to audio and video material. The various sections of the interface can be found in Appendix 4.



AR Experience

The augmented reality experience was modified and improved compared to the previous concept. The potential of adding 3D elements to the scene was enhanced by reducing the amount of textual information and prioritizing access to videos, photos, and 3D models that can be positioned in space. For example, one option allows users to digitally visualize the ingredients and steps for preparing a cake or to add elements around the product.



Posters

Thematic posters were designed and printed using Illustrator and Photoshop. Two posters replicate the product’s presentation style from the 1960s, reflecting the graphic design of the era and the main features of the product.

Video

In the “Emotional Design” section, has been produced a video that reflects the personal significance of the product and its use. The video captures the process of baking a cake with the product, featuring both myself and my mother, emphasizing the shared experience.

The goal is to illustrate how an object can transcend its practical purpose, becoming a vehicle for creating and revisiting meaningful moments and treasured memories.

EXHIBITION SET-UP
FIRST LAYOUT

The initial version was designed to occupy a compact space, with a layout made by two sections: a front and a rear. The front section features posters that convey the purpose and theme of the exhibition to capture visitors’ interest.

The rear section is intended to encourage visitors to explore further, where they can view the displayed product and access additional information through the iPad and AR.

Visitors did not notice the additional content displayed on the opposite side. While guidance improved their experience, the exhibition should be designed to be self-explanatory, eliminating the need for external assistance. Observations of visitor interactions, along with discussions with other students, indicated that the exhibition’s concept was not fully effective in conveying its content and layout.

Figures 42: *Front side (Left), Back Side (Right)*

SECOND LAYOUT

The second version aimed to address this problem. The arrangement of the components was rethought to make them more visible, and a layout was designed to welcome the user to the exhibition. The elements were organized in a semicircle, creating a sort of “embrace” that invites the visitor to come closer.

Figures 43: *First Prototype Exhibition Layout*

Feedback and Evaluation

The evaluation of the prototype was conducted in two ways: one in the field, by observing users' reactions in person, and the other by providing them with a digital questionnaire to complete afterward. The purpose of this evaluation was to assess the strengths and weaknesses of the prototype and, through user feedback, understand how to implement and improve the project to make the experience more engaging, intuitive, and satisfying.

A total of 8 users aged between 23 and 26 years were involved in the evaluation.

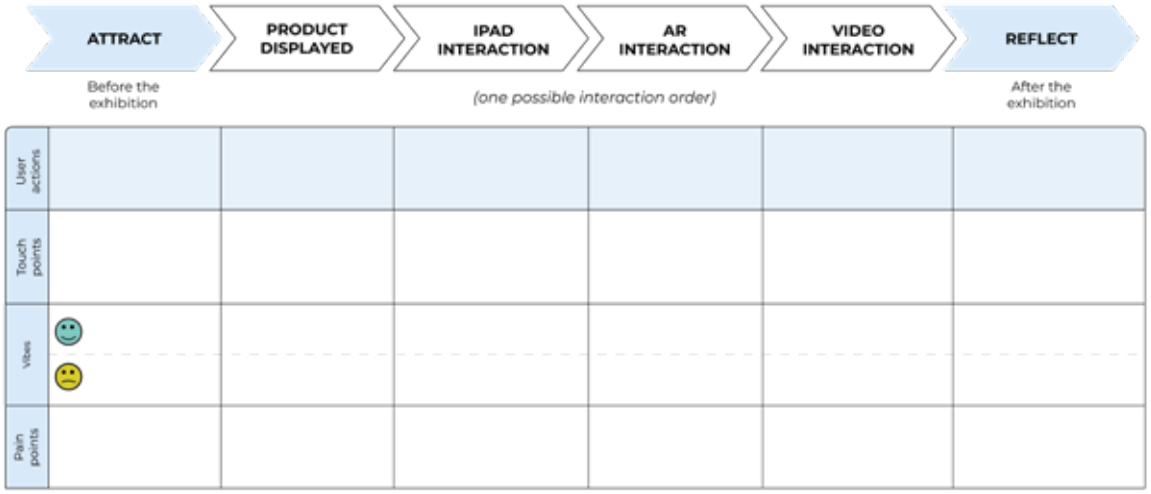
Of these, 6 are students from the Master's program in Industrial Design Engineering: 4 from Integrated Product Design (IPD), 1 from Strategic Product Design (SPD), and 1 from Design for Interaction (DfI). The other two users are not part of IDE.

Despite the target users being first-year bachelor students, this evaluation was given significant weight due to its being conducted with more experienced individuals in the field of Design. Their feedback was considered more valid and mature for this type of assessment.

On Field Evaluation

A customer journey map (CJM) was designed to analyze the different phases and key moments of user interest throughout the experience.
Appendix 5 includes the eight CJMs created for each user.

This map details the customer's experiences, emotions, thoughts, and actions at each stage as they engage with various prototype touch points.



Figures 44: *CJM Used for Users' Experience Evaluation*

Highlights of the Different Experiences:

- The total duration of the experience is approximately 3/4 minutes, with users spending the most time interacting with the iPad and watching the video.
- 5 out of 8 users encountered difficulties with AR interaction (web application not functioning in 2 cases, difficulties in framing and "augmenting" the trigger image and interacting in 3 cases).
- 6 out of 8 users asked where to start.
- 3 out of 8 users moved from one element to another multiple times.
- 6 out of 8 users expressed enthusiasm about interacting with the various elements and the variety of information provided.

Form's Evaluation

The questionnaire included questions about the overall experience, its evaluation, what was liked and disliked, what could be integrated, and what could be removed. Additionally, as a final question, it asked how one could actively contribute to the exhibition.

I formulated the questions using the "Museum Standards for Ireland, Evaluation of an Exhibition" model as a reference (Appendix 6).
Form with questions and answers can be found in Appendix 7.

Pro	Comment
Knowledge Acquired	Overall the exhibition has been powerful to transmit new knowledge and make people reflect about some Design topic.
Typology of Information Provided	Users liked the quntity and quality of the info provided.
Exhibition Time	The interaction time with the exhibition was deemed sufficient to maintain interest and convey all the information provided.
Storytelling	Users liked the way the product has been explained by touching different areas.
Graphics	Eye catching from distance and powerful in terms of conveying a message.
Emotional Value	Has been appreciated the emotional value given to exhibition. It made people to think about a personal object in the same way I did. Two users never thought to consider this aspect of product before.

Cons	Comment
Exhibition Layout	Not clear where to begin, there is an order to interact with the exhibition? 6 users at the beginning felt lost without being guided.
Augmented Reality (AR)	Most of the users (5) didn't find it appealing and had difficult to interact with it due to technical problem with internet connection, computational power of their phone and while framing the trigger image (the image tracking was not stable). Also according to 4 of them it did not add any particular value to the storytelling provided. The small screen of the their smart phone made difficult to read the text and interact with the buttons. For 1 the need the phone during an exhibition to get info is annoying.
Lack in a Direct Contact with the Product	There is an interest to make the experience more direct with the product by interact with it (touch it/ feel it) feel the material, the finiture and details.
Lack in communicating the purpose of the exhibition	Has been mentioned twice that without guide the deep meaning of my project is difficult to perceive. Should be more explicit.

Suggestions	Comment
“Structure the storytelling thinking about how to present the information by redesign the exhibition area”	To make the storytelling more effective has been suggested to structure the exhibition with an order. This should help the user to understand where to begin and to provide the info with some order to prevent to overwhelm him/her.
“Remove something from the exhibition.”	The info provided are a lot so something should be removed that is not necessary at all .
“Add some videos to show how the product works” (not written in the questionnaire, but told by voice)	Adding some video about its working principles could add more value to the plot .
“Contribute to the exhibition. Let the visitors leave a reflection/thought”	Could be public or private. Public thoughts and reflection will make visitors to spend more time reading and make reflections about other’s people thoughts and generating associations.
“Give something back at the end (not written in the questionnaire, but told by voice)”	By giving a memory of the exhibition could be a nice way to teach/share some industrial design history/ principles

Tables 2: *Form’s evaluations*

Conclusions

Although this prototype uses “physicality” and spatial presence as its strengths, it is still immature. The feedback received and the subsequent evaluation provided insights on how to improve the experience, as well as confirmations on what to keep and what to discard.

The mostly negative feedback regarding augmented reality made me realize that the way I designed the experience was incorrect and that it is not the right tool for communicating technical and theoretical aspects related to the displayed object. Instead, augmented reality could be used to capture the visitor’s attention with a brief but engaging interaction.

Positive feedback reinforced the project concept, confirming the methodology and types of information conveyed, and focused on how to present them in the final prototype.

The final prototype, unlike this one, has a structure that follows a precise logic, which will be explained in the next chapter. Additionally, an important component has been introduced to make the experience complete: the part where the user actively contributes to the exhibition. As Dewey (1938) argued, the experience should be based on two distinct phases: providing output (information) and receiving input (reflections, considerations, associations) from users.

Requirements

The work completed to date, including the test and subsequent evaluation, has helped define the design requirements for the final design.

The requirements are:

- Develop an adaptable exhibition template that can be applied to any product.
- Maintain a balance between active and passive user interactions with the exhibition.
- Encourage user engagement with the exhibition material through interactive elements.
- Incorporate opportunities for users to contribute to the exhibition content or experience.
- Ensure the design is feasible and suited to the intended exhibition space (entrance of IDE).
- Address key Industrial Design topics such as history, materials, sustainability, production methods, and user interaction.
- Ensure the exhibition is scalable and flexible for future expansions or adjustments.

4.3 **Discussion**

On site visits to exhibitions and museums, along with reflections from interviewed users who have had similar experiences, revealed a common issue: often, too many objects are displayed with insufficient narrative. This not only creates an overload of information and visual stimuli but also prevents a full appreciation of the value of the exhibited items.

Given that this project has an educational purpose and uses the products themselves as central elements, it is essential to address these issues. The excessive number of displayed objects and the lack of narrative not only burden the experience but also limit the understanding of the historical and cultural significance of what is shown.
Additionally, the reflections gathered have highlighted a strong public interest in wanting to delve deeper into the information about the exhibited objects, beyond just technical details like the product name and production year. This underscores the need for a more targeted and engaging exhibition approach, providing a richer and more detailed context that fosters a deeper connection between users and objects.

This led to the creation of a concept aimed at both offering and receiving information from users. Initial efforts focused on determining which information to provide and which to gather, using both active and passive communication tools to maintain an effective balance.

The first prototype was used to assess the effectiveness of the experience and communication, identifying which elements and implementation methods worked best. This phase provided valuable insights on how to optimize interaction and information flow to enhance the overall user experience.

In particular, Augmented Reality (AR), initially considered a promising technology on which to base the entire experience, proved inadequate for the type of experience designed. Despite its potential, AR did not meet the specific needs of the project and did not provide the expected added value.

Key Insights from Chapter 4

- Overload of Information and Insufficient Narrative in Museums and Exhibitions
- Public Interest in Deeper Information
- Importance of a Targeted Exhibition Approach
- Importance of exhibition layout and setting
- Challenges with Augmented Reality (AR)

Relevance for the Project

The project aims to address these issues with an educational focus, using the exhibited products as central elements. This highlights the necessity of a more effective and engaging narrative to enhance the learning experience.
The project can explore a combination of active and passive communication tools to create a richer, multi-dimensional learning experience for students.

There is a need for a more engaging and informative exhibition strategy that provides a detailed and meaningful context. This approach should foster a deeper connection between visitors and the exhibits.

The first prototype was critical in assessing the effectiveness of the experience and communication methods. It helped identify which elements worked well and provided valuable insights for improvement. Although AR was initially seen as a promising technology, it proved inadequate for the project's needs.

CHAPTER 5.

FINAL DESIGN

This chapter details the progression from the initial to the final prototype. It introduces an adaptable exhibition template and concludes with an evaluative test to measure its effectiveness and compare it to the previous prototype.

The initial step involved establishing a clear order for presenting information to users. The first prototype lacked a defined hierarchy, causing user confusion and difficulty in navigating the content. To address this, a logical structure was developed to guide users through the product information without overwhelming them. This model organizes and thematically divides the material related to the product displayed in the previous prototype exhibition.

5.1 **Information Hierarchy**

The final structure of the prototype is based on a theory from "Designing with Precedents" by Gerd Pasman, a member of the IDE community. The theory, titled "Relations for the Development of a Product's Visual-Spatial and Material Appearance," asserts that to fully understand an object during the ideation phase, especially when designing a new product based on an existing one, it is essential to analyze it across three categories: Typologies of Function, Form, and Meaning (Muller, 2001).

- **Typology of function**
  It's based on a product's functional features, which indicate it's ability for use.
- **Typology of form**
  It's based on perceptual features, which constitute the product's external shape.
- **Typology of meaning**
  It's based on abstract features, which have to be deduced from the product's external shape.

This model facilitates a deeper understanding of the analyzed product during the design phase. To achieve this, the exhibition has been structured based on the types of information provided to the user, following a logic similar to that proposed by Pasman.

Pasman's classification was used to organize the information related to the exhibited product into different areas and present it progressively.

The model was adapted to include a fourth category, dividing the product into historical, contextual, technical, and material aspects. This adaptation was essential for structuring the exhibition and presenting incremental, topic based information.

The four areas of the exhibition are: Product Experience, Product History and Identity, Product Technology and Design, and Product Meaning.

Drawing a parallel with some differences to Muller's Typologies, the 'Typology of Form' corresponds to the "Product Experience" area, the 'Typology of Function' aligns with the "Product Technique and Design" area, and the 'Typology of Meaning' matches the "Product Meaning" area.

Additionally, a fourth area, "Product History and Identity," was introduced, which is not part of Muller's typologies. This area provides essential historical and identity-related information, offering insight into the product's origins, cultural influences, and evolution over time. It enables visitors to understand not only the product's technical and functional aspects but also its historical and cultural context.

The information is organized and presented in increasing complexity, following this sequence: Product Experience, Product History and Identity, Product Technique and Design, and Product Meaning, to offer visitors a progressively comprehensible journey.

This order can be associated with levels of complexity in the information provided:

Level 1: Product Experience

Level 2: History and Identity of the product

Level 3: Product Technology and Design

Level 4: Meaning of the Product

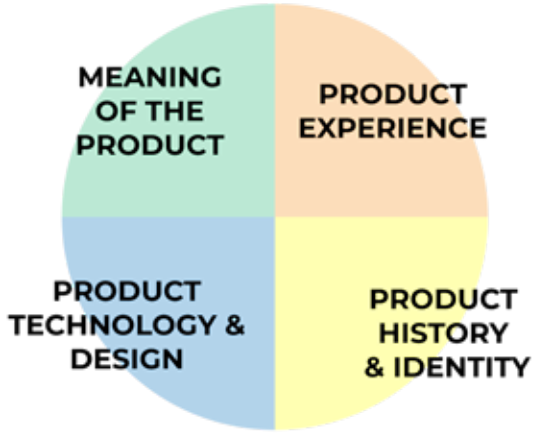
Levels

Level 1: Product Experience

This is the first level of the exhibition and serves as the initial point of access to the product's discovery. The visitor is presented with the product, giving them the opportunity to view it from multiple angles. The focus is on its form, colour the sensation it evokes, and its overall visual impact.
In this initial phase, attention is directed towards the product's aesthetic and perceptual aspects, allowing the visitor to form a first emotional and intuitive connection with the object. It is a moment of free observation, where the object can be explored without any interpretative interference, guided solely by personal sensations and impressions. This approach establishes a sensory and visual foundation upon which a deeper understanding will be built as the visitor progresses through the subsequent areas of the exhibition.

Level 2: Product History and Identity

The second level, corresponding to the second area of the exhibition, provides relevant historical information to help understand the evolution and identity of the product. In this phase, the visitor is guided through a narrative that highlights the product's origins, the cultural context in which it was created, and the influences that have shaped its development over time. Historical details and anecdotes are presented, offering a storyline that enriches the initial perception of the product. This level allows for a deeper understanding of why and how the product has evolved, linking its form and function to its historical and cultural roots.



Figures 45: *Exhibition's Levels*

Level 3: Product Technology and Design

The third level addresses more complex themes related to Industrial Design. This stage illustrates the material choices, highlighting their properties and their impact on the product's functionality and aesthetics. The design principles that guided the product's development are explained, showing how form and function were harmonized to meet specific practical and visual needs. This level provides an in-depth understanding of the technical and design factors that contribute to defining the product as a whole.

Level 4: Meaning of the Product

The final level stands out for the type of message it conveys compared to the previous ones. While the first three levels provide objective information closely related to the analyzed object, this stage shifts to a more personal and interpretative level. Here, the focus is on the value and meaning that each visitor can attribute to a product. The goal is to help visitors understand that the exhibited product is not just an object but can hold different meanings depending on individual experiences, emotions, and interpretations.

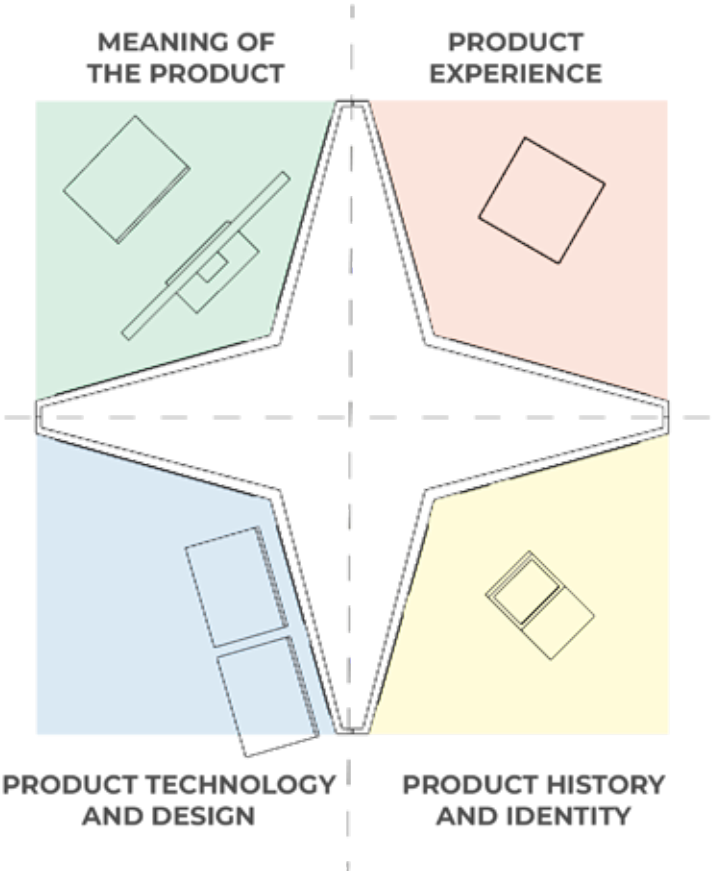
This level invites visitors to reflect and identify a product within their own imagination with which they have a personal connection, imagining it as part of the exhibit instead of the one presented. Finally, as a concluding part of the experience, visitors are encouraged to scan a QR code that leads them to a questionnaire. Here, they can actively contribute to the exhibit by sharing a personal object they believe represents a special value or meaning, and explaining why it holds that significance. This final step not only enriches the visitor's experience but also allows the integration of new perspectives and meanings, further expanding the narrative of the exhibit and creating a dynamic interaction between the product, the visitor, and their personal story.

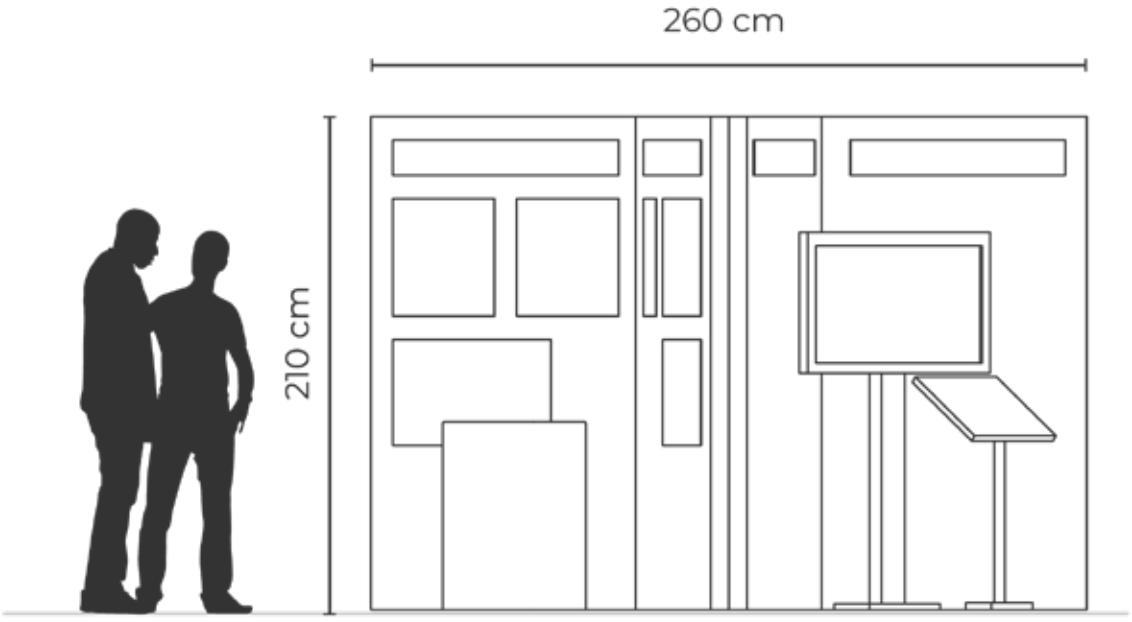
5.2 **Final Concept**

The distinction of information into thematic areas and their subsequent arrangement into levels based on the complexity of the topics provided a logical, coherent, and carefully considered structure for conveying information. Each level is designed to engage the audience at varying depths of understanding, creating an educational path that is particularly useful for those approaching design for the first time.

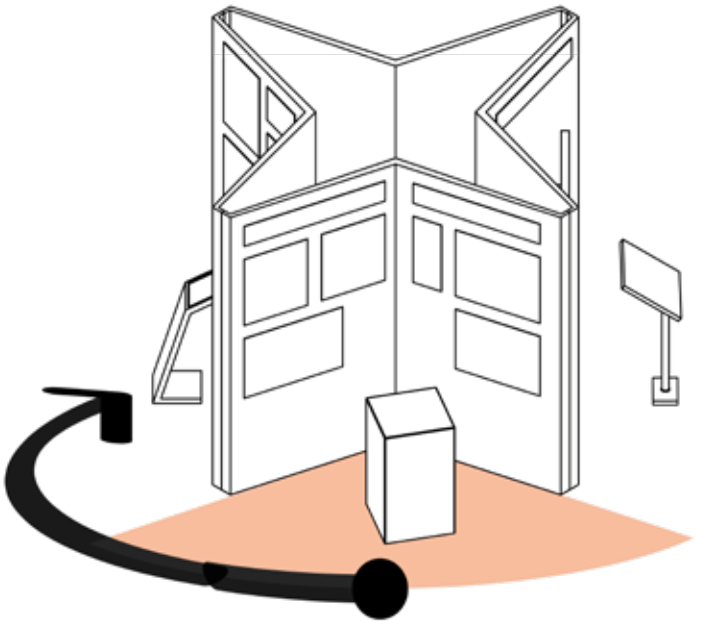
Based on this distinction, the final concept has been designed. It is characterized by four physical areas representing the sections discussed in the previous paragraph. The best way to represent them was by creating a circular layout divided into four equal sections. This design makes it clear that the content focuses on a single product while encouraging the user to explore each section and discover new information along the way.

In each area, information is conveyed to the visitor using different communication tools, both active and passive, also allowing them to contribute to the experience. This enriches the overall experience and introduces new narrative perspectives.





Figures 46: *Exhibition Layout*



START FROM PRODUCT EXPERIENCE

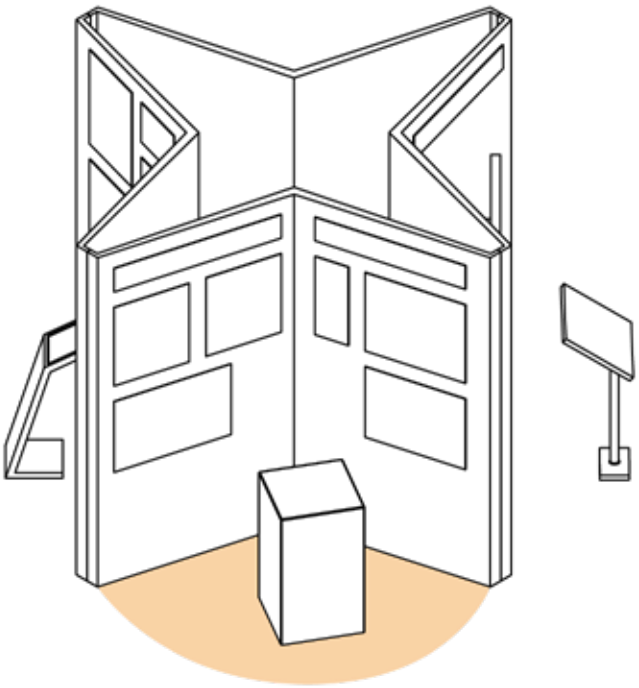
Exhibition

The exhibition is designed to be placed at the entrance of the Industrial Design Engineering faculty, welcoming those who enter. The first area of the exhibition, called Product Experience, is oriented toward the entrance and is intended to be the first thing visitors see. Here, the product is displayed in a way that immediately captures attention, inviting people to explore the rest of the exhibition and deepen their understanding of the product through the other sections.

The exhibition is designed to host three different objects, with a monthly rotation. This is meant to give visitors an idea of how three distinct products can tell three completely different stories, even though they all belong to the same design field. While all the products come from the world of industrial design, each one reflects a unique perspective, a different approach to functionality, form, or technology, offering a variety of insights and enriching the audience's experience.

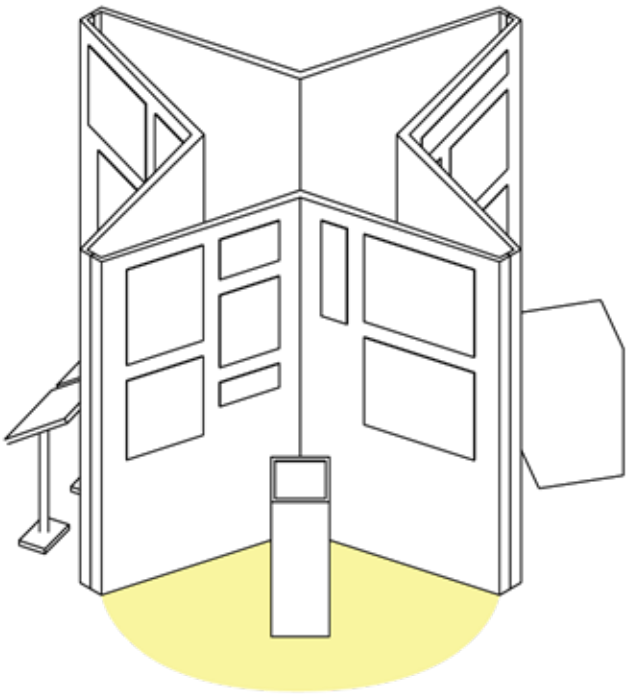
STORY

Product Experience



1st STEP

Product History and Identity



2nd STEP

Look at the product displayed
The visitor approaches the product at the centre of the exhibition, carefully examining it from various angles. appreciating the craftsmanship and design elements from different perspective.

Look at the posters placed on the boards
After viewing the product, the visitor shifts his focus to the nearby boards displaying posters. These posters highlight and explain the product's key features, offering additional context and insights into its design and functionality.

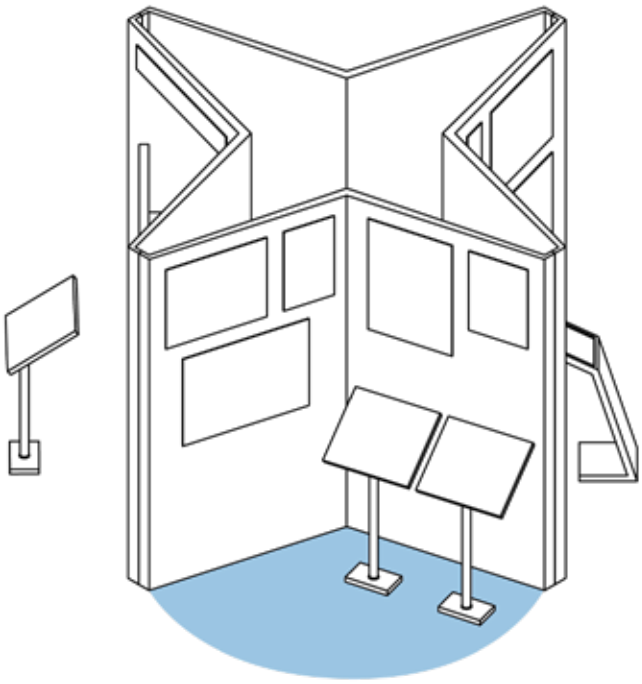
Scan the QR code and watch the video"
He/She takes out his smartphone, scans the QR code placed on the pillar and a video begins to play on his device. The video provides a more dynamic explanation of the product, showing how it works. The video adds another layer to their understanding of the product, complementing the physical display and posters.

Look at info and posters placed on the boards
The visitor explores the information and posters displayed on the boards, which highlight the designer, the brand, and the product's context.

Interact with the table to discover more
He/She then interacts with the iPad to uncover more details about why the product was selected for the exhibition, its popularity, and its history. The tablet also offers a 3D model of the product, complete with sound and animations, allowing for a more immersive and interactive experience.

BOARD

Product Technology and Design

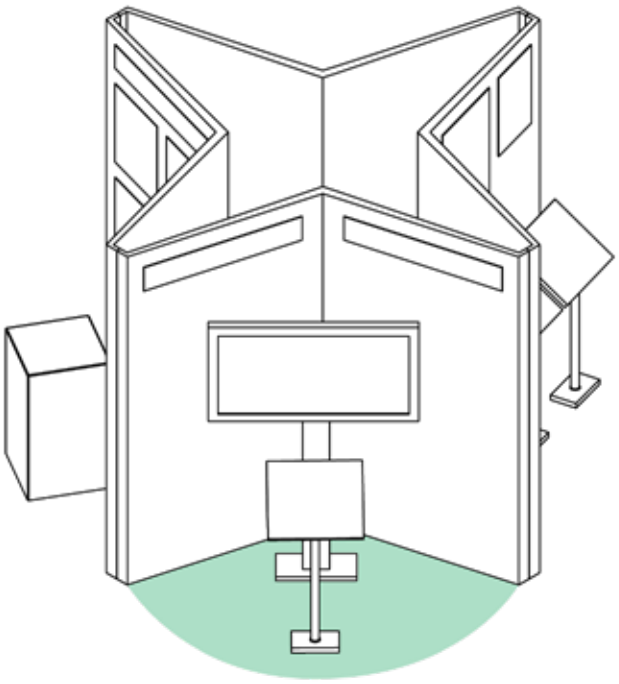


3rd STEP

Look at info and posters placed on the boards
The visitor explores the information and posters displayed on the boards, which highlight the key design principles, the components, the production methods and the main materials.

Interact with the materials' samples
The visitor closely examines the material samples on display that make up the product. They can pick them up and inspect them. If they want to learn more, they lift the corresponding material's photo, revealing a detailed technical description underneath.

Meaning of the Product



4th STEP

Watch the short movie
The visitor takes a few minutes to watch the video about the meaning the curator has attributed to the product. The video encourages the visitor to reflect on the significance an object can have beyond its material value.

Contribute to the exhibition
The visitor scans the QR code and contributes to the exhibition by filling out a short questionnaire, asking if they also have an object to which they associate the same meaning presented in the video. The collected data is used to provide an overview of the types of associations people make and to contribute to the exhibition by anonymously displaying the form responses at the end of the video.

5.3 **Final Prototype**

The final prototype consists of a structure divided into four areas, designed to be easily transportable and set up at the entrance of the Industrial Design faculty. The prototype created is the practical translation of the final design concept presented in the previous paragraph. The prototype structure was conceived using existing exhibition materials available at the faculty, allowing others to potentially use this model in the future.

To create it, 4 Velcro panels, 1 pedestal, an iPad holder, a television, and four A3 panels were used. The Velcro panels serve both to form the structure of the exhibition by outlining the four respective areas and to support the graphic materials. All graphic and physical materials related to the exhibited product were specifically made for this prototype.

Each area of the exhibition is designed to attract and engage visitors by incorporating interactive elements that stimulate curiosity and interest in discovering the displayed product. For example, visitors can scan QR codes to access visual materials, interact with iPads, and touch the materials used in the displayed products. These elements not only enhance the experience but also make the exhibition more accessible and engaging for those with limited interest or knowledge of design. Through these interactive features, even less experienced visitors can discover and appreciate aspects of design that might otherwise seem distant or uninteresting.

The prototype shown in the figure displays the Braun Food Processor KM3 as the communicative element. It was exhibited at the entrance of the faculty for ten days, during which its communicative value and the interest it generated among users were evaluated.

Figures 47: *Prototype of the exhibition displayed at the entrance of IDE*

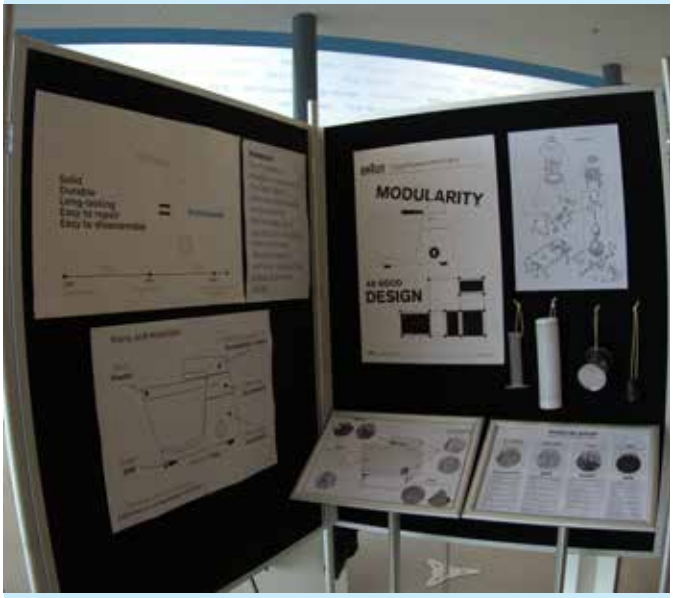
Level 1: Product Experience

The product displayed with the various components with posters showing its essence and main features. The QR Code when scanned shows a video on how the product works.

Level 2: Product History and Identity

Posters show historical and contextual aspects of the product. Interaction with the tablet allows for in-depth exploration of its history and features.

Level 3: Product Technology and Design



Through the posters, the design principles of the displayed product, its components and some technical peculiarities are shown.
The main materials that characterize it are hung and it is possible to handle them and then read about their properties and characteristics.

Level 4: Meaning of the Product

A video is presented, conveying the personal meaning and value attributed to the exhibited object. The video also showcases objects and their significance as shared by users who contributed by scanning the QR code and completing the form.

Figures 48: *Exhibition's Areas*

5.4 **Prototype Evaluation**

It is difficult to provide an objective evaluation of the final result because a museum experience is inherently subjective and influenced by many personal factors. Therefore, the evaluation of the prototype is based on the various impressions and reflections generated by users who have had the opportunity to test it.

The exhibition was highly appreciated. In particular, the core idea of telling a product's story from all its dimensions, while addressing the key themes of Industrial Design in a pleasant and engaging way, was well received. The evaluation was conducted by providing visitors with a form to fill out both before and after visiting the exhibition. The visitors were first introduced to the project's theme and its ultimate goal, after which they were free to explore and interact with the various components.

The evaluation was conducted with 9 participants aged between 23 and 26. Additionally, during the week the prototype was on display at IDE, user interactions and how the exhibition was approached has been observed from distance.

Although the final prototype consists of only one display element, instead of the three initially planned in the concept, it still provided valuable insights that confirm the validity of the core idea and allow for improvements in the exhibition's communication aspect.

Figures 49: *Visitors Interacting with the Exhibition*

Personal Product's Meaning

In addition to evaluating whether the overall experience was enjoyable and educational, attention focused on analyzing the fourth and final section of the exhibition, dedicated to the Meaning of the Product. The questions in the form aim to understand if, and how, the perception of the displayed product changed after visiting this section. It also seeks to explore whether this more "intimate" way of observing a product can influence the design process, sparking new creative and innovative ideas, and encouraging a deeper reflection on the symbolic and cultural value of objects.

Additionally, the form collects feedback on visitors' personal contributions, particularly regarding those products they consider significant for personal reasons. Analyzing these choices helps to understand why certain objects are perceived as more than just material goods, identifying the factors that give them emotional, cultural, or symbolic value.

"*Looking at the last part makes me think about the modern product design. It does not last so much anymore. And also that people had much more respect for their objects, instead now everything is taken for granted and people change objects as panties*"

"I think it really adds to the experience and lets you connect deeper with the product. Makes you think what products also weight on your life"

The evaluation of this part focused on collecting stories and associations that visitors shared about the products. This process allowed for an exploration of how each object can evoke personal memories and unique meanings, contributing to a deeper understanding of the emotional and cultural value people assign to these items.
(Appendix 9 shows comments of the form)

Pro	Comment
Concept	All visitors gave positive feedback on the final concept. Using the exhibited product as the focal point of the exhibition and presenting it in its various dimensions helped to understand the reasons that made it iconic and to have a greater connection with it.
Storytelling	The way the product was communicated through this type of storytelling was highly appreciated, both for its deep connection to design and for the personal emotional component that turns it into a compelling narrative rather than just a series of facts.
Exhibition Layout	According to visitors the exhibition layout looks very elegant and the information are well organized. This made the experience educational and enjoyable. Visually speaking not overwhelming.
Educational Value	All visitors stated that they were unfamiliar with the exhibited product before the visit. After visiting the exhibition, they expressed that they had pleasantly learned new information, both about the product itself and the field of industrial design. Additionally, they noted that they had gained a more structured perspective for viewing a product, thanks to the guided layout of the exhibition.

Suggestions	Comment
Make it more “catchy” for eyes	To capture visitors’ attention from a distance through large text, lights, or illuminated panels.
Make touch more involved	To have a sensory taste of what the product feel
Improve Ipad UI	Modify the navigation panel to encourage users to return to the homepage each time and to click on a new icon. Additionally, reduce some of the text.
More context involved	Enhance the perception of the product’s function by placing it in context, such as by including food and showing what can be cooked with the product. Consider using a list of images to illustrate this.
Rethink the way info about the materials are provided	Currently, too much information is presented at once. One solution could be to cover the information with an image representing the material, which, when lifted, reveals the details. This would make the experience more interactive and geared toward those who want to learn more.

From this experiment, it emerged that most people had never looked at an object in this way before. The process of choosing a product with a deep meaning was not immediate. This challenged them, and after careful reflection, everyone eventually shared a personal story. Each narrative was unique and revealed something intimate about the participants, showing how everyday objects can take on profound meanings tied to memories, emotions, and life moments. This process allowed everyone to rediscover the hidden value in the things around them, creating an emotional connection with something that, until then, seemed ordinary or insignificant.

These are some of the words associated with the products chosen by visitors to contribute to the exhibition. It becomes clear how a product can acquire a meaning beyond its mere function, a personal significance that can create a lasting and profound connection with the user.

This personal connection not only enhances the user's experience but also helps the product become an element of emotional and cultural value in everyday life.

It is difficult to evaluate these results because they are subjective and stem from personal experiences. Each participant's response was influenced by their unique perspective, emotions, and memories, making it challenging to apply any standardized measure or objective criteria. However, this very subjectivity is also what makes the results valuable, as it highlights the diversity of human experiences and the different ways people assign meaning to objects. The richness of these individual stories provides insight into how personal narratives shape our relationship with the material world, revealing layers of meaning that often go unnoticed in everyday life.

Some of the Stories from visitors

"A Zippo lighter with Joker on it. I love the design and the way you interact with it. Also the process to refill it. It's part of my life. It reminds me also the time I spent in Ohio and my American relatives".

"My headphones: Jabra Elite 45h, I use it everyday, It just very quickly became a part of my everyday life. I associate Peace and Calmness. Easy access to music has helped me throughout my life with just going through difficult moments of time."

"A wooden sculpture of a monkey praying. I still have it. And it's being put to work daily, My sister gave it to me as present. During her visit to a mountainous rural area in China. My Chinese zodiac sign is also the monkey. So I see it fit well with me. And since the statue is also praying. It's act as a lucky charm to me."

"My bike, I got it second hand from a garage box in Haarlem. It represents a 21 day solo trip cycling from Rome to Home in 2019."

"Pair of gardening gloves. I have always done gardening with my parents and my grandma. It bring me very fond memories of them and everything they have taught me. I associate with this object quality time with my loved ones"

"Nintendo DS, nostalgia to childhood. I got it for my birthday and I spent so many hours playing with it. Life was easier and my DS was such important to me that time."

"A juicer! I was used to prepare lots of orange juice with my mom as a sign to take care of our health. I still have it, We've never replaced it, and for me, the juices made with this juicer taste the best in the world."

5.5 **Conclusions**

The final design, developed from the insights in the previous chapter and refined through the prototyping phase, allowed for testing its communicative effectiveness, interactivity, and evaluating the overall user experience. The prototype remained closely aligned with the original concept, although only one pavilion was set up instead of three. This choice made the experience more focused and engaging, enabling participants to fully explore a single space and understand its dynamics. This confirmed the validity of the concept, which aimed to present a product through the principles of industrial design. According to user feedback, the experience was positive: the communication worked effectively, as the information about the product, conveyed through various tools, did not overwhelm the visitors. The experience was educational and immersive, transforming the users' perception of the product and, more generally, of industrial design before visiting the exhibition.

The duality of the exhibition in both giving and receiving information was particularly appreciated. The opportunity, at the end of the journey, to contribute with a personal story made the experience more interactive and engaging. This exchange allowed visitors not to be mere passive spectators but to feel actively involved in the process, sharing their own experiences and reflecting on how design and objects influence their daily lives.

Overall, the exhibition aims to highlight and "augment" the products from the TU Delft Design Heritage Collection by dividing them into four thematic areas. Each area is designed to explore a specific aspect of industrial design. This structure has allowed for the creation of a coherent narrative path, where visitors can not only admire the objects on display but also reflect on their significance and the role industrial design plays in shaping the contemporary world. The goal is to showcase the history and relevance of these products, encouraging new perspectives on their use and the contribution they have made to society.

What's next?

The next step would be to create an exhibition featuring three products, each of which tells a unique and distinctive story. In this context, visitors would have the opportunity to explore a different narrative for each product, assessing how the various stories influence their perception and appreciation of the objects. This setup would allow for an examination of whether the variety of stories and contexts in which the products have been used enhances the visitor's experience and deepens their understanding of design and its evolution. Additionally, it would be possible to investigate whether a more diverse narrative contributes to a greater emotional connection and a broader reflection on the role of industrial design in everyday life. Subsequently, to assess the effectiveness of this approach, a quantitative analysis should be conducted, as is typically done in exhibitions and museums, to gather further insights.

Subsequently, to assess the effectiveness of this approach, a quantitative analysis should be conducted, as is typically done in exhibitions and museums, to gather additional data and insights. This analysis might include measuring various indicators such as the number of visitors, the time spent in front of the different products, and responses to surveys or questionnaires regarding their levels of engagement and satisfaction. Additionally, it would be useful to collect, again, qualitative feedback through interviews or focus groups to better understand visitor perceptions and reactions to the different narratives. The results of this analysis will allow for an evaluation of the exhibition's effectiveness in communicating the value of design and inform any potential improvements for future displays.

What happened to AR?

After completing the final prototype based on the conceived concept the idea of introducing a small augmented reality experience emerged. The goal was to offer visitors, at the end of the exhibition, an interactive souvenir, such as a postcard or a sticker, which could be scanned with a mobile device to display the 3D object accompanied by a short animation. Although the idea was technically feasible, after consulting with some people and the participants of the test, it became clear that this addition was unnecessary and would have been a superfluous element without a real purpose.

Once the lack of necessity for this feature was confirmed, has been decided not to proceed with the implementation of augmented reality. Even though it could have been an interesting addition, the decision was made to keep the exhibition experience more focused and coherent. Including an extra element, such as an interactive postcard or sticker, would have seemed redundant, without adding any significant value to the visitor's journey.

The main goal was to ensure that the prototype and exhibition conveyed the core message in a clear and distraction-free way. Adding an augmented reality feature, without a direct connection to the core concept, risked diverting the audience's attention. For this reason, we chose to focus on the key components of the project, preserving the simplicity and coherence of the overall experience.

Augmented reality, given the type of project and its structure, does not provide any significant contribution from an educational or experiential perspective.

Exhibition Prototype Classifaction

Dimensions	Guido's Exhibition
Type of Museum	Product and Industrial Design
Type of Exhibition	Temporary
Scope of Exhibition	Entertainment, Educational
Interaction Level	Active + Passive
Target Audience	Students, IDE Community, Visitors
Technology Used	Medium
Educational Approach	Informative & Contributory
Example Tools	Product Display, Descriptive Panels, Interactive Interface, Tactile Experience, Videos
Visitors Experience	Perceptual, Reflective, Interactive, Contributory
Learning style supported	Perceptual and Reflective Observation

CHAPTER 6

DESIGN NARRATIVES

STORIES TOLD THROUGH PRODUCTS

This chapter introduces the main characters of the exhibition: the products selected by the Henri Baudet Institute. It begins by presenting criteria that can be useful for identifying which products, within an archive, have a story to tell and can be used to educate and introduce people to Industrial Design. For each product, its history and the distinctive features that make it interesting from both a historical and design perspective are described.

Introduction

Everything that has been created by human beings is in some way the result of a design activity. Industrial Design was born at the beginning of the 20th century as a response to growing mass production, but it has experienced widespread diffusion since the 1950s, thanks to the economic boom and technological evolution. This discipline focused on the design of functional, aesthetically pleasing and accessible objects, allowing less wealthy families to purchase products that improved the quality of daily life, such as appliances and furniture.

Design and therefore objects have played a fundamental role in giving shape and representing the expressive way of a creator or a people. In this the role of the designer was crucial, not only taking care of the aesthetic aspect, functionality and production aspect but also of grasping and knowing how to represent, through the design of individual products, the culture, values and knowledge of craftsmanship and techniques of a people.

“Design is the human capacity to shape and make our environments in ways that satisfy our needs and give meaning to our life”. (John Heskett, 2002)

Design has evolved from an initial conception, in which function was the primary element, to a conception where “form follows function”. Over time, aesthetics and visual appeal have become equally important in meeting consumer expectations. This shift has led designers to integrate beauty, ergonomics and functionality, making products not only useful but also desirable and culturally significant, thus improving the overall user experience.

So the real protagonists of this project are the Products. Objects which, for different reasons, have made the History of Design and are present in the common imagination.

They are the ones who primarily communicate something to their users. They have a very high communicative power but despite this many informative characteristics are not perceivable only through sight. Touch, hearing and smell can also play a fundamental role in understanding their function, materials and context. Just as it is necessary to delve deeper into its history and aesthetics.

The project aims to convey a message to visitors by showcasing products that represent Industrial Design. It focuses on creating a communication process to attract, engage, and educate visitors about the world of Industrial Design through iconic products that have shaped the discipline globally.

5.1 **Selection Criteria**

Many of the objects in the archive already hold inherent significance. Since the exhibition aims to showcase various aspects of Industrial Design through these products, selecting those that best represent its core values is essential. While it is challenging to avoid personal biases in choosing design products, establishing clear criteria can help make the selection process more objective. Additionally, prior knowledge of the field significantly influences this choice. An experienced designer, familiar with products, brands, and their histories, will make different selections than a novice. Though every product has a story to tell, applying these criteria can help identify the most iconic ones. The primary selection criteria are appearance, followed by interest in the object's function.

In selecting potential products for an exhibition, the primary focus was on their type and function. Products commonly used in daily life, with a clear functional connection to modern counterparts, were prioritized. These past products offer valuable insights, highlighting the passage of time and the evolution of technology from a design perspective. They are often recognizable even if never seen before, as their function relates to contemporary products, making it easier to draw a narrative between past and present and compare their differences. These products are referred to as "archetypes."

An "archetype" is a standard or classic example that comes to mind when thinking of a particular product type. It is not based on one specific object but is formed through the cumulative experience of seeing many similar products (Parsons, 2009).

The focus is particularly on products that have retained their basic form over time, while other aspects such as interface, aesthetics, materials, mechanics, size, ergonomics, and user experience have evolved, leaving the core function unchanged. Examples include the Braun Food Processor KM3 and the Olivetti M15.

One criterion involves identifying the 'key principles of Design' within these products. This requires a solid understanding of the design field and involves recognizing features like modularity, form following function, durability, repairability, iconic brands and designers, usability, aesthetics, and sustainability.

Another criterion is the "What is it?" factor. Unlike the previous one, where the selection is based on an object whose function I can already perceive, this is the opposite. An object that piques my curiosity because its function isn't clear from its form (if it has one) makes it a perfect subject for study and analysis, where aesthetics make it both attractive and mysterious. Often, these products were revolutionary because, in addition to being functional, they were beautiful, and their aesthetics allowed them to also serve as pleasing decorative objects. (See "*Brionvega ts502*" and "*Grillo Phone*")

A somewhat subjective criterion, but often objective in design, is the "Wow effect." Some objects generate this effect in users because of their extreme aesthetics. Often, the designer's goal was precisely to create a consumer object, ingrained in people's imagination, but with a completely different aesthetic achieved through unusual shapes and materials, making it unique. (See Olivetti Divisumma18 and Ericsson Ericofon)

Personal attachment to a product or a type of product can be a criterion for selection. Identifying products that have played a role in our lives automatically makes them more interesting. Even if the product itself may not have much to tell, personal attachment can justify the choice, creating a different kind of narrative, more tied to the emotional aspect. (See "*Braun Food Processor KM3*")

Another and final criterion is notoriety those products that are part of the collective imagination (even for people not familiar with design), those we've all heard of at least once. Products that revolutionized their sector and changed user habits, whose very name reminds us of the product's function. (Like "*Walkman FM*", "*Polaroid*" and "*Swatch*")

Following these criteria can be useful in providing a guideline for selecting, among the many objects in the archive, those that are most engaging and usable as educational examples. Once selected, the next phase is to gather information to understand their history and characteristics, in order to build a narrative.

These are the criteria that helped to find out the products for the project:

Key Design Principles

Notoriety

What is this?

Archetypes

Wow Effect

Personal Attachement

5.3 **Products Featured in the Exhibition**

Braun Food Processor KM3 (1957)

Brionvega ts502 (1964)

Olivetti Divisumma18 (1973)

Itera Plastic Bike (1982)

Olivetti M15 (1987)

Sony Walkman TPS-L2” (1978)

Ericsson Ericofon (1954)

Italtel Grillo (1965)

Braun
Food Processor KM 3
(1957 - 1991)

Considered as the archetype of modern food processors, this product was on the market for almost forty years (1957 - 1991) and 2.5 million units were produced. An exceptional example of good design, functionality and durability which has characterized its commercial success.

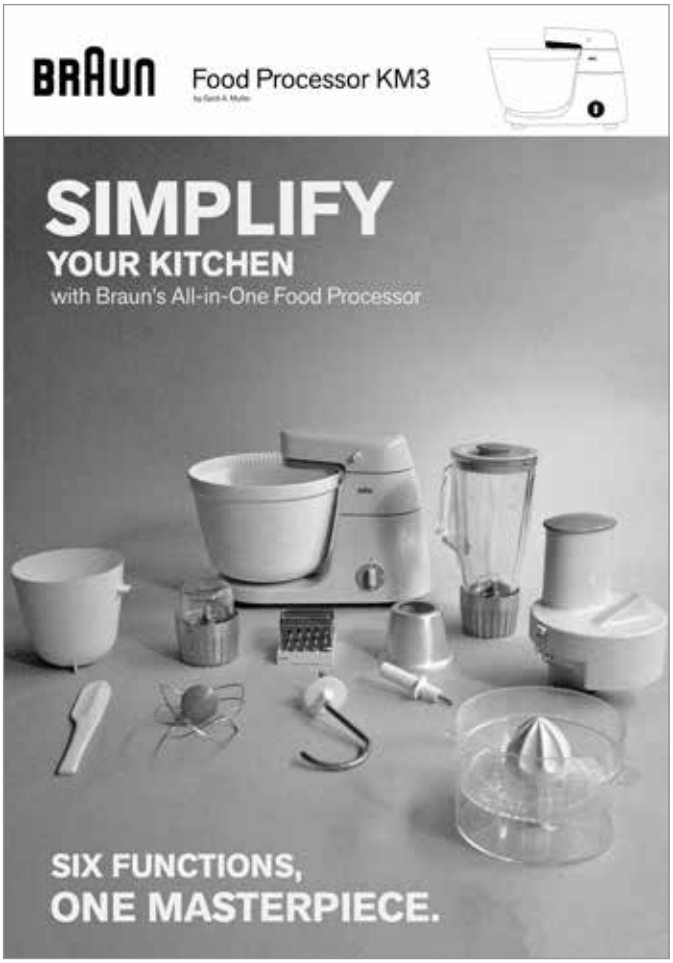
The success of this product is also given by the simplicity that distinguishes it and the possibility of carrying out numerous operations through a modular setting that allows the interchangeability of the parts with a simple click.

Braun, a well known German industrial design brand, has made the simplicity of its lines and use one of its strong points through respect for the 10 principles of good design formulated by one of the greatest and most important industrial designers who ever existed: Dieter Rams. This product still appears modern today, nothing has been left to chance, from the ease of cleaning the parts to the ease of repairing and replacing the parts. Ease of interaction and use is also a strength.

The Braun KM3 is the archetype of the kitchen mixer. It established the formal and functional language for this type of product. Most of the mixers on the market today closely resemble the Braun, both in aesthetics and functionality. An example is the KENWOOD Cooking Chef KCL95, which looks exactly like, as if it were a modern reinterpretation, the Braun But why, despite being on the market for so long, was it eventually replaced by more modern and complex products, even though it was solid, efficient, and simple to use? Didn't these qualities make it an immortal product?

Figures 50: *KENWOOD Cooking Chef KCL95 - 2021*

Can modern kitchen mixers also be considered like the Braun KM3? Are they easy to use, repair, and allow for quick interchange of parts? Are they truly 'better' than the Braun? These questions are left to the users to answer.



Why Has Been Chosen?

Several factors contributed to the selection of this product as a tool to introduce and educate visitors about design in the exhibition. It exemplifies key design principles, positioning it as an icon of industrial design. Notably, its emphasis on user-friendly functionality, such as ease of disassembly and repair, and its use of durable materials (duroplasts and stainless steel) designed for long-lasting performance ("up to 30 minutes," according to Braun) make it a model of thoughtful design. Its modular setup allows multiple functions to be integrated into a compact form, further reflecting efficient design.

This product is still present in my kitchen at home and is used by my mother to prepare my favourite smoothies and unique cake and pizza doughs. Before my mother, my grandmother used the same product! It has become synonymous with sustainability, having been in use for over 60 years without needing replacement. Its enduring presence in households exemplifies long-term functionality and emotional connection, as it evokes memories and associations with home life. This personal attachment highlights how design can transcend mere functionality, creating emotional resonance through its continued presence in everyday life. It is an example of how an object can evoke memories, transmit emotions through being presented ("augmented") in a completeness of aspects that is engaging and exciting as well as exhaustive in information.

The Braun Food Processor KM3 offers a wealth of design-related insights, making it a versatile subject for exhibition. The curator's role is to determine which aspects of its story to emphasize and the most effective methods of communication. The product serves as a reflection on design evolution and its impact on modern products. In this exhibit, the focus is on its history, brand, and designer, with particular attention given to how its success is tied to the design principles it embodies.

The exhibit also encourages reflection on design's continuous evolution, showcasing how it adapts to people's needs and desires while maintaining connections to the past. The Braun KM3 stands as an example of balance between tradition and innovation, demonstrating that good design can endure, remaining both relevant and cherished over time.

Beyond aesthetics and function, the value of such objects lies in their ability to connect us with our history, memories, and the people who shared in those experiences. This emotional dimension of design enhances the significance of objects, making them more meaningful in our daily lives.

Selection Criteria
Archetype (Link to modern products)
Key Design Principles: • Functionality • Modularity • Durability • Repairability
Personal Attachement

Product's information sources:

Books:
Industrial Design - Jhon Heskett (1980)
Style in Design - Graham Vickers (1991)

Links:
https://www.braunhousehold.com/en/about-braun

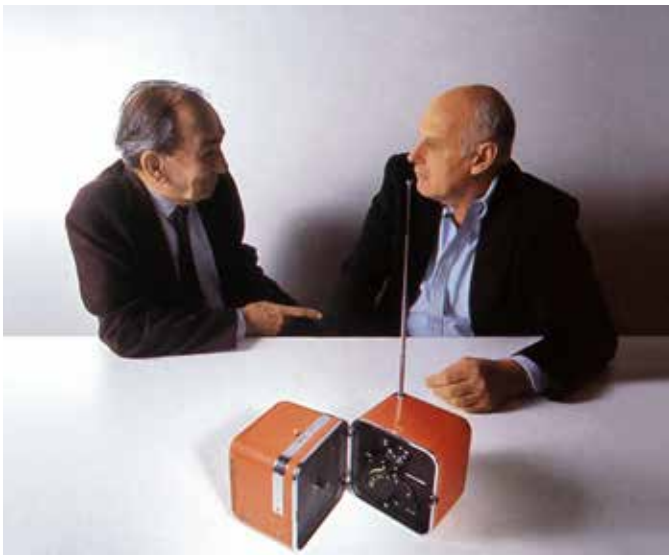
https://www.core77.com/posts/24950/A-History-of-Braun-Design-Part-4-Kitchen-Appliances

https://de.wikipedia.org/wiki/Braun_KM_3

Brionvega ts502
(1964 - 2024)

The Brionvega company has made its portfolio of colourful Pop products its strong point. Specializing in the design of electronic equipment, it stood out in the market of the time for the creation of products considered true cult objects. What has always distinguished Brionvega's products is their aesthetics and quality allowing them to be noticed and appreciated by a very large number of users.
In a world characterized by visually standardised radios and televisions, Brionvega was able to impose a new design language by masterfully interpreting the need freedom of the generation of young people of the 60s. The result of this interpretation was the design of colorful and portable objects that, in addition to being beautiful to look at, could be used outside the home.

Marco Zanuso and Richard Sapper, designers of the TS502/512 portable radio, were influenced by a visit to NASA laboratories in the USA in the early 1960s. This experience greatly influenced their design language, so much so that they brought the "space age" style to Italy and subsequently to Europe through their products.



Figures 51: *Marco Zanuso and Richard Sapper with the Brionvega ts502*

This radio is considered to be one of the first non-military portable radios in the world. With clean shapes and high quality materials, such as ABS and ZAMAK, its strong point is the "wow" effect when opened, revealing its radio function. While when the handle is removed, perfectly integrated into the body, it transforms into a practical object made to be transported.

It is interesting to mention how this product increased radio listenership in Italy by almost 30% at the end of the 1960s, bringing the radio outside of homes.

Movement in space, after Futurism, is another characteristic feature of the radio in question and of Brionvega products. As is portability. An object that follows you in the space of your life, such as a "Radiocube", or "Algol", the television with a handle, are objects that must have great personality and move themselves, internally, to capture the needs of use that the user does it at that precise moment. It is an object that follows you, that keeps you company, a real-life companion.

BRIONVEGA

Why Has Been Chosen?

The way it reveals its function when opened and the bright variety of colours in which it is produced makes it attractive. The portability, compact size and batteries allow you to carry it around anywhere to listen to music wherever and whenever you want, creating moments of carefree and indelible memories.

Added to this strong potential personal, private iconicity is the so-called public one. It is considered an iconic object, so much that it is permanently exhibited at the MoMa in New York and has been cited several times by great artists such as David Bowie.

The ts502 radio, renamed radio cube for its 50th anniversary, is still on sale, just like the one from the 60s, but only updated with current technology. It is not just an object, but it is the representation of an era and a lifestyle that has made it appreciated throughout the world. And loving it is already a bit like loving Design. It could be considered the mother of today's bluethooth speakers.

This product is one of the most iconic of 1960s Italian Design. So iconic that it is still in production and available for purchase today. The narrative focuses on key design elements that contributed to the product's success. These include the innovative use of materials, the careful consideration of dimensions to ensure compactness and functionality, and the addition of portability through the integration of a handle and battery power. Ownership of the product became associated with style and sophistication.

The video in the final section of the exhibition presents a personal perspective, illustrating how such an object can bring people together and serve as a catalyst for creating new memories and experiences.

Selection Criteria
What is this? The product reveals its function when opened
Key Design Principles: • Aesthetic • Portability • Durability
Iconic Brand and Designer
Still in Production

Product's information sources:

Books:
100 object of Italian Design – Silvana Annicchiarico (Gangemi Editore – 2007)

Style in Design - Graham Vickers (1991)

Links:
https://www.brionvega.com/

https://www.ad-italia.it/gallery/la-radio-cubo-di-brionvega-icona-intramontabile-storia/

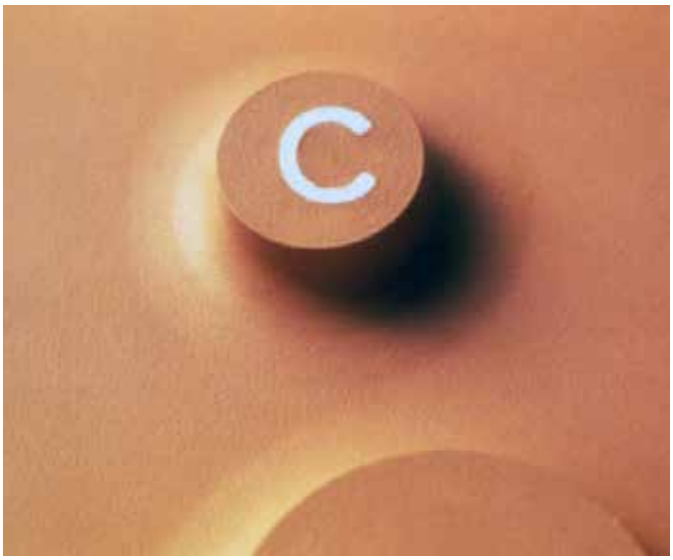
https://www.lombardiabeniculturali.it/scienza-tecnologia

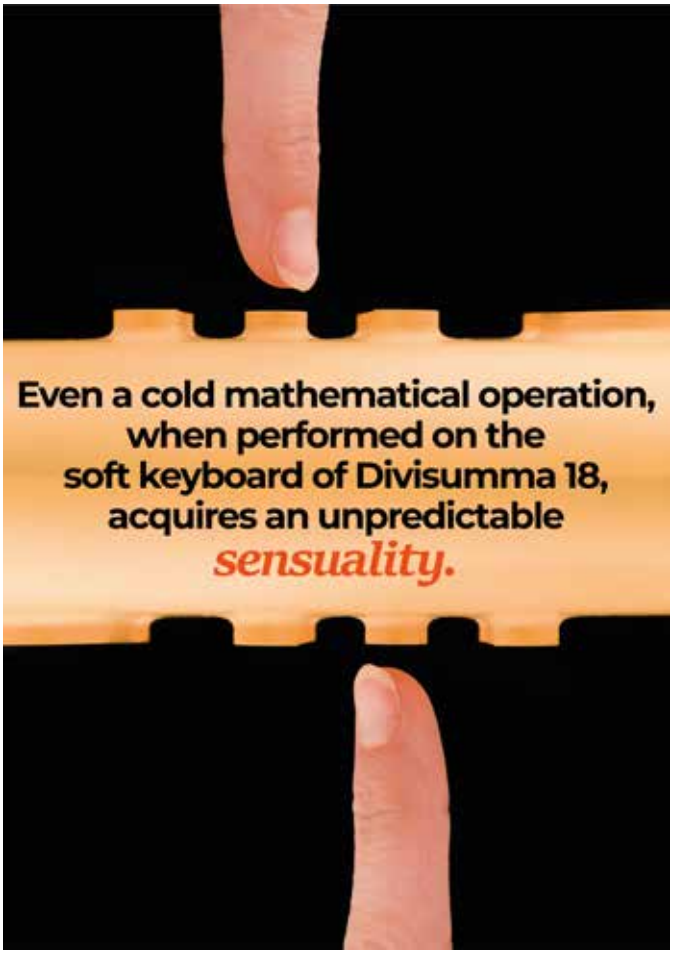
https://www.domusweb.it/en/from-the-archive/2013/01/19/brionvega-maker-of-icons.html

Olivetti Divisumma18
(1973 - 1977)

Olivetti was one of the most important companies in the world for innovation and research in the field of electronics. The approach of Adriano Olivetti, its founder, has always been holistic and has for several decades proven to be a pioneer as an industrialist. The holistic approach, also known as the systems approach or holistic view, aims to understand a system through a global and integrated view rather than focusing only on specific (technical) elements.
One notable product from Olivetti that stands out is the Divisumma 18 portable calculator.

The Divisumma 18 exemplifies Olivetti's commitment to combining design, technology, and functionality. Designed by Mario Bellini in 1972, the calculator was a breakthrough in both aesthetic and technical innovation. It featured soft, flexible materials and a compact form that made it not only highly functional but also visually appealing. This design philosophy reflected Olivetti's broader vision of integrating form and function, making technology more accessible and user-friendly. The Divisumma 18's success can be attributed to its balance of advanced technology with a user-centered design approach, aligning with Adriano Olivetti's holistic vision for the company.





***Figures 52**: Olivetti Divisumma 18 calculator posters (1973)*

olivetti

Why Has Been Chosen?

The selection of this product was driven by its striking design, unlike any calculator seen before. Its colour, shape, and materials suggested a unique story, which became evident upon examining its history. Designed by Mario Bellini in 1972, the Divisumma 18 reflected a significant design trend of the time: humanizing the machine and making the interaction between user and device more intimate. While technological advancements were rapidly evolving, few products addressed the emotional and sensory aspects of the user experience, especially in mechanical devices like calculators, which were widely used in accounting and other fields.

Bellini's design aimed to enhance the tactile relationship between the user and the machine. He created the first user interface that used soft materials and organic shapes to make the contact between human fingers and the calculator's keys feel more natural and human. As Bellini noted, even a mathematical operation performed on the Divisumma 18's soft rubber keyboard could evoke an unexpected sensuality. Its compact, portable design, with a warm-toned rubber keyboard resembling skin, was a bold departure from traditional mechanical aesthetics.

In the exhibition the historical and cultural context of this product is presented, focusing on Mario Bellini, the designer, and his efforts to innovate an established product like the mechanical calculator by making it more human-centered. The analysis highlights how innovation often stems from the combination of a need in this case, humanizing a machine and the use of new technologies and materials.

This product exemplifies the evolution of design towards a human-centered approach, which has become a key aspect of modern product development. It emphasizes the importance of user experience and interaction in fostering a meaningful connection with a product. However, the example also underscores the importance of considering costs and technical complexities, which are critical for achieving commercial success.

Selection Criteria
Wow Effect
Key Design Principles: • User-Centered Design • Aestethics • Material Innovation
Iconic Brand and Designer

Product's information sources:

Books:
Mario Bellini - Furniture, Machines & Objects (Phaidon - 2015)
100 object of Italian Design - Silvana Annicchiarico (Gangemi Editore – 2007)

Links:
https://www.storiaolivetti.it/immagine/1296/

https://www.lombardiabeniculturali.it/scienza-tecnologia/schede/ST140-00006/

https://it.wikipedia.org/wiki/Olivetti_Divisumma_18

5.4 **Other Design Icons**

The following products, selected by the Henri Baudet Institute, are briefly presented and intended to be featured in a future exhibition.

Itera Plastic Bike
(1982 - 1985)

The product is notable for its aesthetic design, which initially piques interest. Upon investigating its background, it was found to have significant historical relevance.

This bicycle was the first to be made entirely of plastic. Manufactured by the Swedish brand Itera between 1982 and 1985, it is remembered as a commercial failure. The choice of materials, which had not been adequately tested for durability, along with the delivery method where the bike arrived disassembled, sometimes with missing parts contributed to its lack of success. Additionally, the high price further limited its market appeal.

Although it was a failure, it represents an attempt to think outside the box and try to innovate through materials, production technologies and sales methods. Made of plastic to avoid the problem of rust, it has innovated the way of making bicycles, through a faster process that requires the moulding of the components and their assembly without the need to create pipes and then weld them. ITERA wanted to create a more direct relationship between product and user, through a user-friendly component design, following the concept of having to assemble the product yourself (completely) in order to use it. Concept used by IKEA. Only 30,000 were made, becoming a true rarity among collectors.

A reflection could be made on: why it was a failure and how it could have been avoidable? What, from a design perspective was underestimated? The materials, the business model?

Selection Criteria
Wow Effect
Key Design Principles: • Technical Innovation
Business Model: • DIY (Do It Yourself) • Differentiation from Competitors

***Figure 53**: Itera Bike Advertisment*

Olivetti M15
(1987)

The Olivetti M15 is one of the first portable computers in history.
It represents the archetype of all modern laptops: keyboard, screen, various inputs, compact dimensions and book-like closure. Advertised as a way to be able to work from anywhere and therefore stop being a “slave at your desk”. The use of modern technologies such as the flat liquid crystal display, “small” size printed circuit boards, removable integrated keyboard, and a design made to optimize space as much as possible enabled the creation of this masterpiece of design. The PC market is booming, but for notebooks, demand is only in its infancy: high prices and still limited performance justify the purchase in only a few cases.

It gave the shape and user interface to every laptop that followed and continues to do so. Every modern laptop is inspired by this. It revolutionized the way of understanding modern calculators by emphasizing the importance of portability, compactness and ease of use with a careful study of the interface through a user-centered design approach (User Centric Design).

Selection Criteria
Archetype
Key Design Principles: • User-Centered Design • Portability
Technological Innovation

This approach was evident in all aspects of the M15’s design. Every element, from the keyboard to the screen, was designed with users’ needs and expectations in mind. This principle has helped create an intuitive and easy-to-use product. Furthermore, the internal components were designed to be easily accessible and the battery designed to be removed and replaced directly by the user in case of damage.
Another aspect is brand identity. The design of the M15 reflected Olivetti’s brand identity, known for combining advanced technology with sophisticated design. Attention to aesthetic and functional details helped create a product that embodied Olivetti’s values and philosophy. In the 80s, owning an M15 was a bit like owning the latest model of a Ferrari, one of the most technologically advanced products of the time and which symbolized your social status.
A reflection could be made on: why modern laptops layout and configuration over time has not changed?

***Figures 54**: Olivetti M15*

Sony Walkman
(1979)

The audio cassette was created in 1962 by Lou Ottens, an engineer at Philips. Passionate about technology since he was a boy, Ottens had designed a prototype portable tape recorder-the idea was to make music accessible to everyone. Sixteen years later Sony has created a product that gave an indelible change to the world of music reproduction, thanks to Luo Ottens idea.
Present in the common imagination, it made music portable and intimate. Copied and updated over the years, it was the forerunner of all portable music playing tools.

The first version, which was called TPS-L2, was launched by Sony founder Akio Morita with two headphone jacks: the Japanese entrepreneur wanted to give two people the possibility of listening to music together. In fact, he feared that this device would make people more "asocial". And he was right: Most consumers ended up listening to music alone. A problem that would recur for all the new tech devices launched over the following decades. Until the advent of the first portable player, music had been a group phenomenon.

Principles behind the product:

It made the music "intimate" and "compact". It was the forerunner of all portable music playback products. It has made aesthetic simplicity of use through ergonomics its strong point. It contains numerous design principles that have made it successful, such as: portability, usability, sound quality, durability and personalization of the listening experience (by choosing and bringing your own music with you, it has increased the product's attractiveness), the aesthetics which for the time were captivating and modern, making an impact on consumer tastes.

This object has had a very strong emotional impact on anyone who has owned it. For many it has been a travel companion providing entertainment and comfort at the most diverse times or alleviating the boredom and loneliness of travel. Listening to favourite music on headphones has helped many people manage stress and anxiety, creating a deep emotional connection with the product.

Furthermore, the diffusion of the Walkman contributed to creating, beyond its negative implications, a social phenomenon which in a very short time spread widely: "piracy".

Creating personalized mix tapes on cassettes tell stories, music made by friends, partners or family to express feelings and build relationships. These mix tapes became tangible reminders of personal connections and special moments. A film that tells the story of the birth of this phenomenon is called "Mixed by Erry."

***Figure 55**: Sony Walkman TPS-L2*

Selection Criteria
Meaning *(Music experience has become personal and portable; Creation of a social phenomenon through creation and sharing of tapes*)
Key Design Principles: • Aesthetic • Portability
Technological Innovation *(Implementation of an existing technology)*

Ericsson Ericofon (1954)

The Ericofon marks a paradigm shift in telephone design.
The obvious and spectacular design, combined with the easy handling, bright colours and high surface finish, represents a total break with heavy black Bakelite appliances. It is also the first Swedish telephone, presented on the market, to have a proper name, rather than just a number and an identifying letter; the first sign that it was seen more as a customized consumer product than a simple extension of telephony as a system.

Principles behind the product:

Integration of form and function, ergonomics, use of a modern aesthetic that has made it highly recognisable. The Ericofon was one of the first phones to combine the handset and microphone in one piece. This one-piece design eliminated the need for a cable between the handset and the phone body, simplifying use and improving aesthetics. It is designed to fit comfortably in the user's hand. Its curved, slim shape makes it easy to grip and use with one hand, a significant improvement over traditional phones of the time. It is a perfect example of modernist design. Its sleek, streamlined shape, along with its availability in various bright colours has made it a desirable design object and a symbol of modernity. Its unique silhouette and distinctive features have helped establish a strong brand identity for Ericsson.

Material innovation, simplicity and durability

The phone was one of the first consumer products to use plastic as its main material. This not only reduced the weight of the device, making it more manageable, but also allowed for a greater variety of colours and finishes. The design of the Ericofon is characterized by remarkable simplicity. With a single compact unit and a user interface reduced to the essentials, making it intuitive and easy to use. The dial wheel is positioned on the bottom of the phone, hidden from view to maintain clean aesthetic lines. The evocative and emotional value of the artefact is very high, starting from the nickname, 'Cobra' phone, which suggests exotic and adventurous worlds. This could perhaps indicate, that in the design stage the designers were inspired by the animal world, with a reference not only in name but especially in form to the Cobra snake.

Can nature still be a source of inspiration for a designer?

***Figure 56**: The World Of Henry Orient (1964)*

Selection Criteria
Innovation: • User Experience • Material • Marketing
Key Design Principles: • Aesthetic • Usability • Ergonomics

Simens Italtel Grillo (1965)

The “Grillo” telephone designed by Richard Sapper and Marco Zanuso for Siemens Italtel, with its spring-loaded mouthpiece, is considered the first telephone that marked the evolution of mobile phones. The phone shrunk to almost half of (its) usual size, sat on the table upside down, and combined the dial and earpiece into a single unit. Its mechanism has been defined as “clamshell closure”.

This telephone changed sixty years of practice in the design, construction and use of the traditional telephone, generating the physiognomy of a new kind of telephone. Although designed in the late 1960s, it is possible to see a formal and functional tracing back to modern folding telephones, which take up their concept of closing in on themselves to minimize their length.

Principles behind the product:

Although not explicitly stated by the designers, the design and locking mechanism of this object may evoke comparisons to oysters or seashells. This subtle association with nature adds an organic elegance to the object, blending modernity with a timeless quality. The precise yet fluid way it opens and closes mirrors the protective nature of a seashell, potentially conveying a sense of safeguarding valuable contents.

The product’s key characteristics include functionality, versatility, a distinctive visual identity, and the use of cost-effective materials like ABS. Notably, the design fosters emotional engagement. The “Grillo” (Cricket), with its playful name and compact form, goes beyond functionality, creating a sense of wonder and delight in daily use, enhancing the user experience with emotional resonance.

Selection Criteria
Innovation
Notoriety
Key Design Principles: • Ergonomics • Usability
Archetype

***Figure 57**: Grillo Phone by Simens Italtel*

5.5 **Conclusions**

The eight products discussed in this chapter were selected by HBI based on both the established criteria outlined earlier and a specific focus on identifying items with strong communicative value. Initially, 16 products were considered. To ensure a balanced selection and reduce personal bias, four additional individuals participated in the process, helping to narrow the list to the most significant items. Their choices highlighted products that are visually striking, resemble modern designs, or are widely recognized, as these tend to generate the most curiosity and interest. The full list of the 16 initial products can be found in Appendix 8.

The objective is to develop an exhibition method applicable to any artefact of historical and industrial significance, focusing on human-centered design. The exhibition aims to communicate key design principles by showcasing products that reflect important design considerations. The challenge lies not only in selecting items with different communicative meanings but also in effectively conveying these meanings to the audience.

Rather than delivering a theoretical lesson on Industrial Design, the exhibition seeks to inspire curiosity, interest, and engagement through artefacts that have shaped the history of the field. Human interaction plays a crucial role in this process. A guide or expert can enrich the experience by sharing stories, answering questions, and helping visitors connect with the displayed objects on a personal level. This interaction fosters deeper understanding and sustained interest, allowing visitors to form connections beyond passive observation.

5.6 **Discussion**

Selecting a few objects from an extensive archive of thousands for an exhibition is a time consuming process that requires careful planning. It is essential to define the exhibition's theme and the intended message before choosing objects. Once selected, thorough research is needed to gather relevant information, highlight key details, and organize them effectively. The most complex phase is designing the communication materials, which may involve creating graphics, videos, 3D models, and other tools to convey the message clearly.

In applying this planning, clear criteria were necessary to ensure coherence and relevance in the selection of objects. Each item was evaluated for its historical significance, design innovation, cultural impact, and its ability to reflect the exhibition's core message. These criteria helped narrow down the choices from the archive, ensuring the final selection aligned with the overall theme and narrative.

Beyond these objective factors, other elements, such as visual appeal, preservation state, and the potential to engage visitors, were also considered. Balancing these aspects ensured the exhibition not only educated but also captivated the audience. This curation process shaped how effectively the exhibition communicated its message and left a lasting impression on visitors, highlighting the role of design in everyday life.

Despite the time intensive nature of this phase, it was also the most engaging. It provided an opportunity to develop new skills and expand knowledge of Industrial Design. Interpreting these objects involved focusing on their most relevant and intriguing aspects. Sharing these insights with others consistently sparked interest and curiosity, reinforcing the value of the objects and their stories. This experience has strengthened the motivation to continue exploring and sharing the rich narratives embedded in design history.

Key Insights from Chapter 5

- Products Selection Criteria
- Products as Key Communicators
- Role of Design in Culture

Relevance for the Project

Every product has much to tell and can convey knowledge if the narration is done in a proper way. In this project, products are the main protagonists, those who convey information and introduce users to Industrial Design

Design shapes and represents the culture, values, and craftsmanship of a society. Designers not only focus on aesthetics, functionality, and production but also on embodying cultural expressions in their products.

CHAPTER 7.

UNDERSTANDING A PRODUCT

PROJECT AS A GUIDE

In line with the educational goals of the project and the aim to illustrate various aspects of Design through the designed exhibition, this chapter introduces a group assignment based on the exhibition's structure, necessary to "fully"understand a product. The assignment challenges students in the "Understanding Design" course to explore and understand a product in all its dimensions. The chapter outlines the reasons for this assignment, its potential benefits for both students and the IDE faculty, and the detailed structure of the group exercise.

Premise

A pivotal moment shifted the direction of the project. After struggling to connect various elements, a review of results from an earlier creative session during the concept ideation phase initially considered unhelpful revealed valuable insights. The session had produced varied and diverse representations of a possible exhibition concept. Some participants explained their approach, while others relied on intuition, presenting what they considered the most logical structure.

This diversity highlighted the absence of a standardized model for understanding, investigating, and presenting a product, especially at an educational level, revealing a potential framework for interpreting the project.

The months spent conceptualizing and designing the exhibition provided an opportunity to develop and refine a method for presenting a product across its various dimensions. This approach could be effectively applied in an educational context.

For example, incorporating a group assignment into the "Understanding Design" course, where students select a product from a list provided by the Henri Baudet Institute and prepare a class presentation, would serve to:

- Challenge them in researching and selecting information
- Test their ability to present the selected product to the class
- Gather students' reasoning, reflections, and opinions
- Create an educational moment that fosters the exchange of information
- Collect data from students
- Collect information on the products from the HBI

To support this, a structured guide has been developed to assist students in understanding a product and identifying key information to communicate. The guide offers research questions to focus their analysis and facilitate the presentation process.

Drawing on Dewey's "learn by doing" model, students deepen their understanding of the concepts through this assignment after attending theoretical lessons and observing the exhibit. By actively exploring the four areas, they not only enhance their analytical skills but also learn how to apply their knowledge to real situations, creating a meaningful connection between theory and practice.

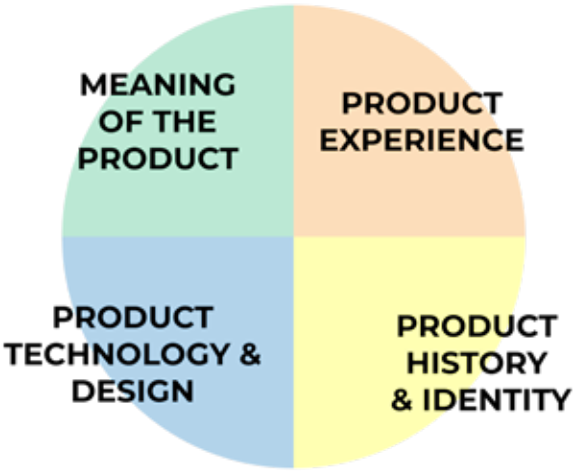


***Figure 58**: Understanding a product is based on four levels described in Chapter 4*

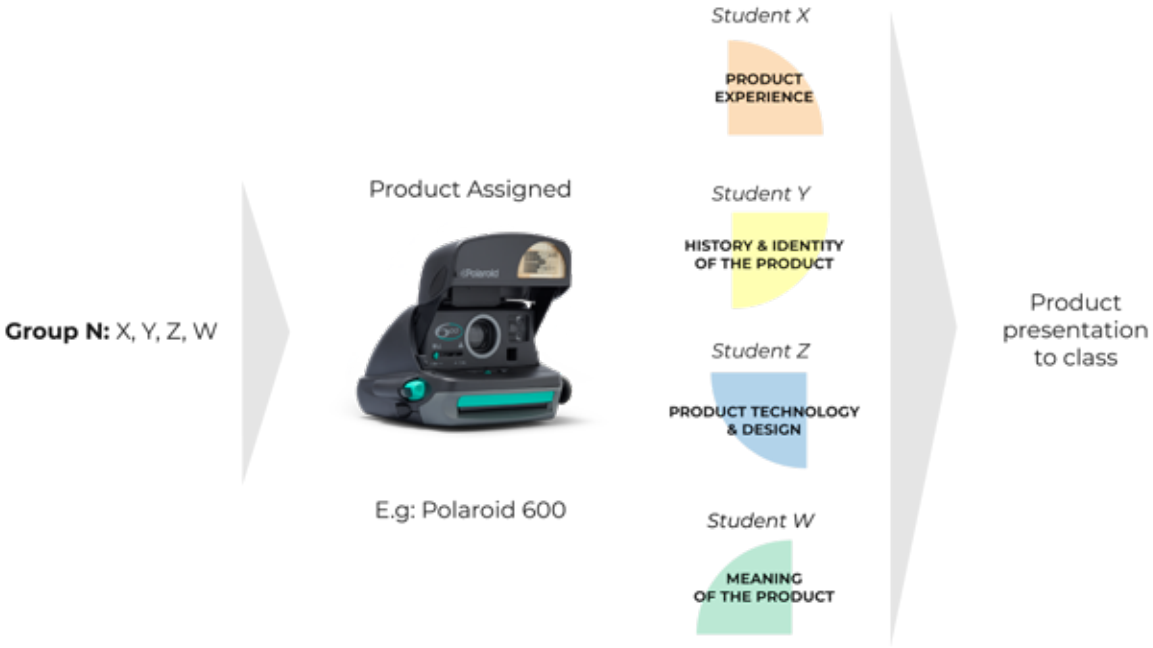
6.1 **The Assignment**

An assignment was envisioned for the final stages of the "Understanding Design" course, where groups of four students are formed and either randomly assigned or allowed to choose one of the objects selected from the Henri Baudet Institute.

Once individual research is completed, the group combines their findings and prepares a brief presentation to share the insights they have gathered about the anlyzed product with the class.

The presentation aims to demonstrate the product's importance in design history, prompting students to communicate their findings and connect them to the wider field of Industrial Design.

This assignment not only strengthens students' research and presentation skills but also deepens their understanding of how products are designed, produced, and perceived. It reinforces the importance of interdisciplinary analysis in the study of design.presenting what they considered the most logical structure.



- ***Step 1:*** Assignment explanation.
- ***Step 2:*** Group formation and choice/assignment of study product from the provided list. (*On Miro*)
- ***Step 3:*** Random assignment to each student of his/her research area.
- ***Step 4:*** Let the students perform the activity giving them the opportunity to visit the HBI and physically watch and interact with the product. *(give them enough time, one week at least)*
- ***Step 5:*** Classroom presentations *(with Canva or Power Point)* and peer evaluation on Form.
- ***Step 6:*** Collect the presentation's PDF and the insight from the Form.

6.1.1 **Areas of Analysis**

Each of the four students in the group is assigned a distinct area of analysis and research to prepare a presentation for the class. Each of these areas directs the student on what information to seek.

Product Experience: Analysis and Study of the physical product.

Observation

Examine the product superficially.
What are the first impressions? What are the predominant colours, shapes and materials?
From what do you perceive its function?
The product refers its function from its own form? (Yes/No, why?)
How does the product balance between functionality and aesthetics?
Is it more oriented towards one of the two aspects?

Ergonomics: Evaluate how comfortable and easy the product is to use.
Does it seem easy for you to use, to hold, if possible, why?

Materials and Finishes: Touch and observe the materials used.
Are they high quality? How do they affect the aesthetics and functionality of the product?
Is it solid and well built in your opinion, why?

Dimensions and Proportions: Measure and analyze product dimensions.
Are they proportionate? How do they relate to their intended use?

Context of use: Consider how which is its function and intended use context.
Where and how is it used? Is it a product for the home, office, outdoors?

History and Identity of the product: History, Designer and Company or Brand

Historical research

Product history and origins: Look for product's information

When was the product created? What is its development history?
Who designed the product? What is his/her/their design philosophy?
Have they created any other well-known products?
Do they have a particular design language?

Company and brand: Look for company history and mission

What is the history of the company that produced the product?
What are its values and mission?

Product evolution: Look for similar product from the same or other brands

Has the product undergone changes or updates over time?
How has it changed and why?

Product Technology and Design: Technical Aspects

Technical analysis

Materials used: Look for information about the materials (or try to guess them).

What materials do you think were used to make this product, and why?
Do you think the chosen material are suitable for this product, why?

Interpretation of the materiality
Do they influence the perception of the product?
Do they give any specific perception of the product?

Technology used: Look for information about the possible technologies/manufacturing process. Suggestion: Deduce them from the materials.

What technologies were used to create the product?
How do you think the product was made?

User-Centered Design: Consider the usability and functionality of the product from the perspective of the user. How well does the design align with the user's goals and tasks?

Does it look like it was designed with the needs and preferences of the end-user in mind?
Does the product seem intuitive to use, or does it require a steep learning curve? Are there any features that appear to enhance the user experience, or are there design choices that seem to hinder it?
How well do you think the product meets the needs of its intended audience?

Sustainability: what is sustainable for you.

What is sustainable about this product?
What about is a contemporary equivalent (if there are any)?
Why this contemporary equivalent is or should be more sustainable?

Meaning of the product

Product narrative: Imagine deducing what the product might convey based on its appearance and functionality.

What does this product remind you of? Would you describe this product as something more than just a functional object? If so, in what way? Does the product's design or branding tell a story? If so, what story does it tell you?

Symbolism and Culture: Consider how the product represents or reflects cultural values, symbols, or social meanings. Reflect on how its design, use, and context might signify or resonate with particular cultural themes or traditions.

What values or ideas do you think this product represents? What symbols or cultural references emerge from the product design? Does this product reflect your identity or the identity of a group you belong to?

Memories and emotions: Explore how the product evokes personal memories or emotional responses.

Does this product remind you of any personal experiences or memories, which ones and why? If not, do you have an object or a product that you are attached to that does this?

Reflection: Reflect on how the product resonates with you personally.

Do you like it? Why? How does this product resonate with your personal values and tastes, and in what ways do you see it reflecting who you are?In what ways do you feel a deep connection with this product, and how does that connection influence your experience with it?

Criticism: Analyse the criticism the product has received.

Do you think you can criticize this product? If yes why and which aspect you criticize?
What are the strengths and weaknesses according to you?

6.2 **Conclusions**

The proposed assignment involves the in depth analysis of iconic design products, followed by the sharing of findings with the class. While it may be challenging due to students' limited experience in the design field, the available resources are sufficient for producing quality work. The scope is not to achieve correct or incorrect answers, but to:

- Develop analytical and critical thinking skills
- Understand the multiple domains that define a product
- Learn how to select and analyze relevant information
- Encourage thoughtful reflection and reasoning
- Foster communication and presentation abilities

Understanding a design product, and the discipline as a whole, requires a multidimensional approach that moves from basic physical observation to exploring its history, the way it's done and key design principles. A structured, detailed analysis enables a fuller appreciation of a product's value, not just as a functional object but as part of a broader cultural and emotional narrative. This holistic understanding of design also offers inspiration for future product creation, promoting innovation, sustainability, and the development of products that enhance people's lives.

Additionally, the opportunity to collect data from students' work, peer evaluations, and class discussions would provide valuable insights for course professors. These findings could be used to inform lessons, generate class debates, and create graphic materials to accompany products in future exhibitions within the university.

In conclusion, this assignment would help first year students become more aware of the many aspects that define a product. Although this approach has not yet been tested, it would be valuable to incorporate it into the "Understanding Design" course and assess the presentations and reflections generated by students.

The implementation of this task could provide students with a practical and in depth experience in understanding and analyzing design products. The assignment may also encourage greater engagement and interest among students, enhancing their ability to communicate and present complex concepts. In the future, it will be important to evaluate the effectiveness of this approach through a testing phase and the collection of feedback.

Key Insights from Chapter 6

- Correlation with “Understanding Design”
- The designed assignment is based on the structure of the exhibit. The four levels of the exhibit correspond to the four areas to explore in order to understand a product.
- Completion of Dewey’s proposed model: first, theoretical learning in class and visiting the exhibit, followed by practical application through the assignment.

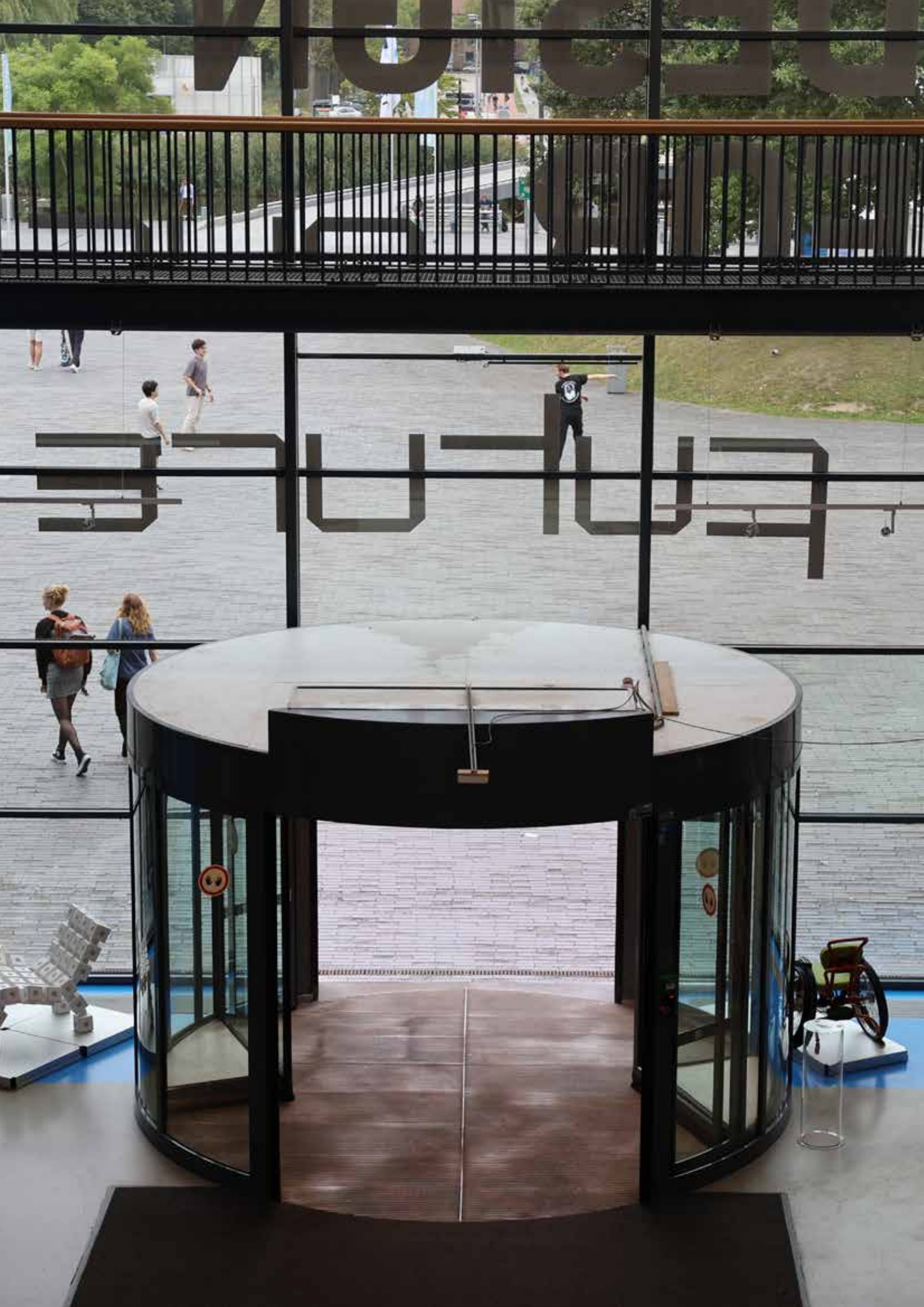
Relevance for the Project

Theoretical Foundation: The assignment is rooted in Dewey’s “learn by doing” model, emphasizing experiential learning after a foundation of classroom theory. The assignment demonstrates how theory directly informs practical application, encouraging deeper, meaningful learning. Each student tackles one of four specific areas, ensuring in-depth analysis that mirrors the exhibit’s structure.

Practical Application: Students apply theoretical knowledge through hands-on assignments, bridging concepts with real-world scenarios.

Skill Development: The project enhances analytical, research, and presentation skills, preparing students to communicate complex ideas clearly.

PART III.
CONCLUSIONS



Contributions

This project has highlighted how a product can be a source of information and how it can be used to educate and introduce people to Industrial Design, while also contributing to giving visibility and a new interpretation to the products housed within the Henri Baudet Institute (HBI). The central idea is that each product is not just a functional object but an opportunity to tell a story, convey knowledge, and provoke reflection on typical Industrial Design themes.

The design of an adaptable exhibition module for each product is how this idea was brought to life. Conceived to be versatile and flexible, it allows each HBI product to be showcased in a unique way. This exhibition system, which encourages the discovery of information through interaction, enables visitors not only to appreciate the displayed products but also to reflect on fundamental Industrial Design topics through direct engagement. By utilizing materials, for the realization of the demonstration prototype, already available at Industrial Design Engineering (IDE), the project optimizes resources and embraces a sustainable approach, a crucial aspect of contemporary design. This exhibition model may be considered for future exhibitions within the faculty in the coming years.

Lastly, the educational value of the project and its connection to the first-year course “Understanding Design” provided the foundation for developing an assignment based on the project’s outcomes. The purpose of this assignment is to help students understand a product by using a structured guide, based on the exhibition logic layout, for product analysis and discovery. It teaches them a methodology for observing products, identifying key information, and determining which details to communicate effectively. This process culminates in a classroom setting, where students, together with professors and peers, engage in reflection and information exchange.

In conclusion, the new approach developed for exhibiting and presenting products departs from traditional design exhibitions and museums. Instead of focusing on collections, this method creates a comprehensive narrative around each individual product, offering deeper insights and highlighting unique features.

In the educational context, a guide has been designed around four thematic areas to aid students in understanding various dimensions of Industrial Design through the study of a specific product. This guide supports the classroom assignment by providing a methodology for analysis that students can apply in the future.

The objective is to move beyond mere aesthetic presentation and promote a profound understanding of design through a guided discovery process. The educational value of this project lies in its ability to encourage an analytical and reflective approach, enabling students to develop technical skills and interpret and communicate the value of design, thereby contributing to the growth of a new generation of well prepared designers.

Limitations

The limitations of this project include challenges in assessing its effectiveness in conveying design knowledge and its impact on students' design practices and professional habits. Although the project offers tools and methodologies for a deeper understanding of design, it is difficult to measure how these tools influence design habits or creative approaches. Continuous feedback and long-term evaluation would be necessary to gauge the project's effect on participants' skills, interest in design, and mindset. Without concrete data and direct observations, fully assessing the project's impact and educational effectiveness is challenging. To do this, as recommended by the guide for evaluating the museum experience in Appendix 6, you would need to do the evaluation with at least 100 users

To address these limitations, integrating evaluation mechanisms, feedback collection, and data monitoring would be beneficial for assessing the project's impact and making necessary improvements. This approach would provide clearer insights into how the project influences design practices and student learning.

A minor limitation is the lack of involvement of the target users, the bachelor's students, during the concept development and evaluation phases due to their unavailability. Despite attempts to contact two students without success, the project remains valid, as their needs and requirements were consistently considered.

The evaluation and validation of design choices were based on feedback, which guided improvements to the initial concept. Various aspects of the project were considered, and the final design was developed based on this feedback. Comparisons between the initial concept and the final design helped assess and validate the project's outcome.

Another limitation of the project concerns the availability of communication materials. Each product exhibited requires the creation of extensive new materials, including photos, graphics, 3D models, UI interfaces, tactile boards, videos, and sounds. This process demands considerable time and skilled personnel. Additionally, some necessary software requires expensive licenses (e.g., Intuiface at around 800 euros/year, Adobe, Zappworks at around 300 euros/year). Consequently, it is not feasible to simply select a product from the HBI and display it; extensive study, narrative development, and creation of exhibition materials are required.

One final limitation is the level of prior knowledge and skills. With more expertise in designing Augmented Reality (AR) experiences, it might have been possible to create an AR experience for a headset, potentially altering the project's outcome. The time spent on developing a webAR experience and understanding its limitations influenced the project. Although the project management did not necessitate programming, it was an area of interest. Despite this, the project provided significant theoretical and practical learning, including skills in Augmented Reality software, User Interface design (Intuiface), 3D modeling and animation (Blender), and 3D scanning.

Reccomendations

The first recommendation is to enhance the usability and accessibility of HBI. Leveraging its potential for educational and didactic purposes could be beneficial. For example, designating one day a week for public access, with a guide available to explain the history and products, would improve engagement.

Additionally, it is recommended that the university consider organizing temporary exhibitions rich in information. These exhibitions could serve as spaces for discussion and exchange on design topics. An empty exhibition module could be maintained for students, professors, and staff to display a product of personal significance and share its story, thereby promoting a deeper understanding of design.

Another suggestion is to encourage visitors to experience the exhibition in pairs, fostering natural conversation and emotional engagement. Sharing perspectives during visits can enrich the experience, as many find discussing exhibitions with others to be particularly rewarding.

Finally, integrating these exhibitions into the broader curriculum could provide students with a more immersive, hands on understanding of design principles. This approach would facilitate interactive and collaborative learning, potentially featuring guest speakers from the design industry to bridge theoretical knowledge with practical application.

In summary, the recommendations focus on enhancing HBI's accessibility and educational value, revitalizing the university's approach to exhibitions, and fostering open dialogue and shared learning within the academic community.

For the future, it is recommended that the Industrial Design Engineering faculty emphasize the study of the History of Design and the products that have influenced its evolution. A strong historical foundation helps students understand the context of their work, recognize the impact of past projects, and draw inspiration for innovation. A deeper exploration of Design History would enrich students' education, fostering critical sensitivity and greater awareness in their design choices.

Implementing these suggestions aims to create a more dynamic, engaging, and inclusive environment that truly reflects the spirit of design.

Self-Reflection

All in all, I am quite satisfied with the project. It challenged me a lot, and I did my best to create something I could be proud of. It wasn't easy. The project proved to be complex right from the start. What initially seemed like a project where I would easily identify the design direction turned out to be more intricate and demanding than expected. I had to face various challenges, both in the research phase and during development, which forced me to repeatedly reassess my ideas and convictions.

At times, it felt like I was working on a philosophy of Design project rather than an Industrial Design Engineering one, where I often ended up engaging in too many conceptual reflections that left me confused. Meetings with supervisors were often like that too; most of the time, I would return home with many examples, doubts, and confused ideas.

I struggled to justify many of the decisions I made in an objective and academic manner. I've never been accustomed to doing so, and no one ever taught me; it was a new experience for me. Although this is a master's degree project that requires following a method, I believe that the beauty of design, unlike other scientific disciplines, is sometimes being able to say: 'I chose this because it feels right, or because I believe it's the best choice, or simply because I like it.' Without needing to justify everything, but rather letting my personality, experience, and ideas prevail in the project.

I once again realized how the approach to Design varies from one culture to another and how difficult it can be to convey the importance of certain values and personal insights. This contrast highlights the richness and complexity of Design, which often eludes a uniform and universal understanding.

In particular, regarding this project, I believe that another person would have done something completely different from mine, both due to the various ways the brief can be interpreted and its lack of restrictions, as well as the different sensitivity and background that each person brings with them.
I would be very curious to see the design output of another student with the same project brief.

Despite this, I am satisfied with having taken on such an important and challenging test. My learning ambitions were respected, and the opinions of users and friends confirmed the strength of the project. I learned a lot, both in terms of acquiring new skills and consolidating others, but above all in managing a project of this complexity and presenting it academically through a report. My background as an Industrial Product Designer strongly influenced me in the choices I made and my approach to design. I gave a lot of importance to the product as a physical object and its history through a 'product-centric' design approach from which I built my narrative, often taking certain choices for granted, only to revisit them later to gather user feedback."

This project, the last of my student career, gave me the opportunity to test my level of maturity, not only as a designer but also as a person. Having only two deadlines in five months is something I had never experienced before, having always been driven. Learning to manage time is not a trivial thing, especially at the beginning, when you have months ahead of you and everything seems so far away. They have been intense months, made up of ups and downs, moments of joy and moments of stress.

I was fortunate to always have positive people by my side, with whom I shared this journey and who were able to comfort me in the dark moments. I have had two supervisors who have never imposed themselves on me but have always advised a possible direction by providing useful examples and advice.

Now it's time to look for a job!

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Once Lévi Strauss said:
“Objects are what matter. Only they carry the evidence that throughout the centuries something really happened among human beings”