

Secret challenge THE MUSEUM



Secret challenge
THE MUSEUM

Michelle van Lieshout
Final master project
December 2018

21.12.2018

Secret Challenge THE MUSEUM is about young adults in art museums. The concept, which is developed in cooperation with the museum, changes visitors into a social, unique and active experience.

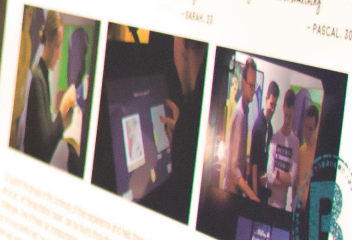
The museum has to be visited with a group or friends. In the museum they carry out challenges individually or in duos, which are supported by gamification. These secret challenges are challenging the youth to look at the art and the museum in a different way. Each task presents challenges, be it solo challenges and group challenges add sociability and dynamics to the visit.



"I was never bored of the museum it was really fun and the challenges were really good"
- MARCO, 19

"What the together and but that you always only found in and also that has been the fun something that is normally considered as boring and boring"
- BARBARA, 21

"It really was something new I think I like this one better than in museum. Because you also have something"
- PASCAL, 20



The museum has to be visited with a group or friends. In the museum they carry out challenges individually or in duos, which are supported by gamification. These secret challenges are challenging the youth to look at the art and the museum in a different way. Each task presents challenges, be it solo challenges and group challenges add sociability and dynamics to the visit.



CONCEPT PRESENTATION AT THE DEMODAY
21 DECEMBER 2018 (OWN PHOTOGRAPH)



MICHELLE VAN LIESHOUT FINAL MASTER PROJECT

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JANUARY 2019

EINDHOVEN UNIVERSITY OF TECHNOLOGY

Figure 1. Secret challenge card, competition challenge (own photograph)



Figure 2. Interaction at the art transport case system during the demoday at the tu/e.
(Twycer / fotografie voor bedrijven, 2018)

ABSTRACT

The goal of Secret Challenge | THE MUSEUM is to attract young adults to (art) museums. Where an art museum visit now offers an individual and passive experience, the concept changes a museum visit to a social, unique and active experience. This kind of experience fits better to the demand of the target group.

Young adults bring a visit to the museum with a group of friends. In the museum they carry out challenges individually or in duo's, while trying not to get caught while performing the challenge. These 'secret challenges' are challenging the youth to look at the art and the museum from a different perspective and discuss their own perspective. Next to these provoking challenges the playful challenges and group challenges add sociability and dynamics to the group in a fun way.

To support the groups in the continuity of their experience and help them start in-depth discussions about art, 'art transportation cases' are found throughout the museum where visitors can perform extra challenges using the system that is hidden inside the transport case (figure 2).

The concept is developed by Michelle van Lieshout in cooperation with Bruns bv and B.engineering.





Figure 3. Information letters about the experience which participants received (Twycer / fotografie voor bedrijven, 2018)

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CHAPTER ONE

CONCEPT PRESENTATION AT THE DEMODAY DETAIL SHOT
21 DECEMBER 2018 (TWYCKER / FOTOGRAFIE VOOR BEDRIJVEN.2018)

PROFESSIONAL IDENTITY



Figure 4. Michelle at demoday stand at the TU/e of Secret challenge | THE MUSEUM (own photograph)

I am Michelle van Lieshout, a full stack experience and product designer with a focus on enjoyment through play, games and learning. I am an optimistic, ambitious and very pro-active person with a strong empathy towards people. Paired with dedication it makes me a good mediator and pragmatic designer. A pragmatic designer uses what is needed for the context, combining methods and approaches. This can also be seen throughout my approach to this project.

VISION

In this digital age everything is, and is expected to be, at our disposal almost directly. Everything we engage with is customized to our personal likings without putting in effort (such as the NEST or our Facebook wall posts). With everything happening more efficiently; it would be expected that people have more free time. Nevertheless people do not have more time: we are and feel busier than ever! [1] And since we are this busy, I reckon we should not always design for more efficiency - as it is not necessarily working - but instead for increased enjoyment of the activities that we need or feel we need to do. This myriad of activities varies from activities aiming to change our behaviour to regular everyday activities.

Learning while being challenged adequately, especially in an environment without real life consequences, is experienced as fun. [2]

People have a natural hunger to acquire knowledge and skills [2, 3]. In my opinion, one of the best ways to acquire knowledge and skills is through experience and afterwards reflecting on these experiences. [4] Play can serve as experiential learning tool [3, 5, 6]. And games, which are play with rules, can serve as a safe learning environment [2, 6].

With my designs I aim to inspire people to learn while enjoying themselves by means of immersive learning experiences: learning in fully engaging and non-threatening environments. Environments such as games, the theatre, theme parks or sometimes: museums. My designs aspire to improve the quality of life by offering escapism and enabling experimenting, which leads to new associations and ideas. Often my designed products, systems or experiences include social and active elements.

IN THE FOLLOWING PARTS OF THE REPORT I DESCRIBE MY FINAL MASTER PROJECT AND THE DESIGN PROCESS TOWARD IT. BOTH MY IDENTITY AND VISION BREATHE THROUGH IN MY APPROACH. ENJOY THE READ!



Figure 5. User study participant having fun performing the challenges at Van Abbe Museum. (Own photograph)

FINAL MASTER PROJECT

In her Final Master project, designer and design researcher, Michelle van Lieshout partnered up with Bruns and B.engineering; and collaborated with Van Abbe museum. Collaborating with multiple stakeholders enabled her to lift the design project to a higher level. The complexity resulting from balancing all stakeholders: the target group of 20-30 year old's, the museums and the corporate company – and working together towards something all stakeholders could benefit from, allowed her to create both an in-depth concept and a high quality prototype. This led to an experience design that could be almost tested fully in its' real context.

Furthermore the project allowed her to build a network in- and explore the field she envisions herself working in; while sharpening and showcasing both her vision and identity in the approach of the project. Working together with many different people also helped her in the practicing of gaining greater focus within her communication and ideas.

During the first semester, Michelle got acquainted to museum exhibitions and what they had to offer already. She defined a design opportunity which she pitched to the various stakeholders, whom acknowledged the significance and began to share here enthusiasm. This pre-research can be found

in chapter 2 where the related knowledge is laid out. Based on the reaction to the pitches, the previously found theories and exploratory interviews with her targetgroup: heuristics were set and 4 concepts to tackle the design opportunity, were imagined.

"DESIGNING AN INTERACTIVE SOCIAL EXPERIENCE FOR ART MUSEUMS. FOCUSED ON YOUNG ADULTS AGED 20-30 VISITING THE MUSEUM IN ADULT ONLY GROUPS: WHICH CAN BE INTEGRATED IN THE EXISTING EXHIBITION SPACES."

In the second semester the 4 envisioned concepts were evaluated by means of interviews with Rijksmuseum, van Abbe museum, employees of Bruns bv and target group members. The insights gained from these interviews were used as input for a value proposition and a new concept, converging the assets of the previous four concepts into one while minimizing the negative points.

This derived concept was refined through a 'Disney loop' and focus group sessions. Afterwards the concept was elaborated upon by means of creating a house style, designing the physical 'quiz pillars' of which one was then produced by Bruns bv employees, working out the actual challenges



Figure 6. User study participant re-reading the information, checking her challenges, in the museum. (own photograph)

and discussing these challenges with Van Abbemuseum and colleagues. Finally she created the digital system of the 'quiz pillars', later referred to as the 'art transport cases'. The whole design process, until the final concept and the various steps and iterations Michelle went through are elaborated upon in chapter 4.

The latest concept was evaluated by means of an in-context research set up in Van Abbemuseum. The 'art transport case' developed as part of the concept was employed in Van Abbe museum from 24 November till 12 December 2018 in its' own hall where several replica's were showcased, regular museum visitors could make use of the case. From the 28th of November till the 2nd of December several groups formed with target group members visited the museum for the full 'secret challenge' experience. The concept that served as a base for this test, the test set-up and the test results are discussed in chapter 3 of this report. In this chapter also some changes to the concept are proposed for improvement purposes.

During the project a reflective transformative design process was followed. [7] This resulted in several iterations driven by stakeholder input and (in) context research.



de gebruiker voert nu een challenge uit!

ANTWOORD OP DE CHALLENGE WORDT GEFORMULEERD. WACHT EVEN TOT JE MEDESPELER KLAAR IS



CHAPTER TWO

CONCEPT PRESENTATION AT THE DEMODAY DETAIL SHOT ART TRANSPORT CASE
21 DECEMBER 2018 (TWYCKER / FOTOGRAFIE VOOR BEDRIJVEN, 2018)

INTRODUCTION

MUSEUM EXPERIENCES: A FOCUS ON INTERACTION

Nowadays many experiences are available in museums (Picture examples can be found on the next two pages, figure 7):

- Live demonstrations
- Tours
- Workshops - which are often available next to the museum exhibit with an additional fee
- Treasure hunts
- Activity stands - Activities a visitor can try-out (no digital component)
- Simulations - Experiences that simulate a real life situation, often involving actors or virtual reality.
- Quizzes
- Online exhibits
- Interactive stands - Dedicated components or spaces within an exhibition that can be manipulated by the visitor.
- Participatory stands - The viewer becomes part of the exhibit.

Around twenty-five years ago a shift started to happen in the mentality of the museum industry; instead of focussing on research and their collections museums began to focus on their visitor and their learning [8]. The effectiveness of interactive exhibition experiences and their contribution to learning has been proven in research and is generally accepted. Well-designed interactive exhibition stands hold visitors' attention longer and visitors recall more information from these stands than from the non-interactive stands [9, 10, 11]. In addition visitors also associate interactive exhibition stands with more fun, participatory and enjoyable experiences than non-interactive exhibits [9].

ART MUSEUMS

Science museums and children's museums adapted especially well to the change of focus. They developed many interactive stands for learning [9, 11, 12]. Behind in this development are art museums. Many families associate art museums with non-interactive exhibits [9].

Out of fear for the digital environment distracting visitors from the real objects or creating chaos and noise, many of the interactive exhibits take place in especially dedicated galleries often resulting in the exclusion of many art pieces within the digitally enhanced experiences [9, 13, 14]. Contemporary artists already create, as a counter reaction to exhibits that are 'just made for looking', pieces of art that engage the visitor physically - in other words: they create participatory stands [9].

Most interactive exhibits that are in existence are focussed on children, visitors also associate interactivity with children. But interactive exhibits can help to change the perception of the visitors toward the art and provide visitors of all ages with inquiry and looking skills to understand an object of art in their own way [9]. Nevertheless, the focus on children remains and sometimes adults are merely seen as supporters for children in their

Learning process [9, 12]. Play and games are not solely interesting for children. Adults still enjoy learning through play; play can even be integrated in a work environment and leads to more productive employees and an inspiring work environment [2, 3, 5].

Many of the visitors of art museums are adults [15, 16]. They visit the museum either with their family, individually or in groups; with a larger percentage visiting individually than in other types of museums [9, 17]. This finding is also supported by the earlier interviews with the target group and the museum employees found in chapter 4. This elicits some questions. Why are there no interactive experiences focussed on adults in art museums? And why do people visit art museums alone more often? Aren't art museums offering experiences interesting to social groups consisting of only adults? Or is there no market for these experiences that are focussed on adult groups?

ONLINE EXHIBITS

The BND, The German Federal Intelligence Agency: 60 Years
The new interactive presentation commemorates the 60th anniversary of the founding of the Bundesnachrichtendienst (BND) in 1956.

Agent Storm: A Life inside Al Qaeda and the CIA
The new interactive presentation provides a chronological glimpse into the life of the Danish double agent Victor Storm. See how his personal archive from Storm that factored into the mission as a double agent.

Wireless Aerial Surveillance Platform
Designed by two creative experts in their genre, the cell was used to prove a phone could be used to launch a cyber-attack. With only an internet connection, the prototype can intercept cell phone conversations, take financial information, or access secure government documents, etc.

IN THE EXHIBITION
INTERACTIVE SPY EXPERIENCES

EXCITINGLY EVIL: 50 YEARS OF BOND VILLAINS
ABOUT THE COLLECTION

ONLINE EXHIBITS
The BND Agent Storm: Mission Dossier
Wireless Cyber Crime
FXA: The Americans' ARMO: Exposed

TRAVELING EXHIBIT

WHAT'S HAPPENING

APR 11
Global Terrorism: Experiencing and Celebrating the Local
12:00 pm
* 100+ Languages
* 10+ Locations

APR 12
Introducing Chris Costa
The New Spy Museum
12:00 pm
* 100+ Languages
* 10+ Locations



Virtual tours

Egyptian Antiquities
The objects in the Egyptian period are displayed on the east side of the building along the ground floor and first floor.

Egyptian Antiquities
* Learn more

Remains of the Louvre's Mast
The mast was discovered in 1988 and is now in the Louvre Museum. The mast was used to hold up the original Louvre mast and was the first mast to be discovered.

Virtual Louvre
* Learn more

Galerie d'Apollon
The Galerie d'Apollon is a gallery in the Louvre Museum. It was built in 1763 and is one of the most beautiful galleries in the Louvre. It was named after the Greek god Apollo.

Decorative Arts
* Learn more

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Ruimte bij de boekenkast

Over de draaaitafel met
virtueel met de boekenkast die de
deur naar het cultureel museum



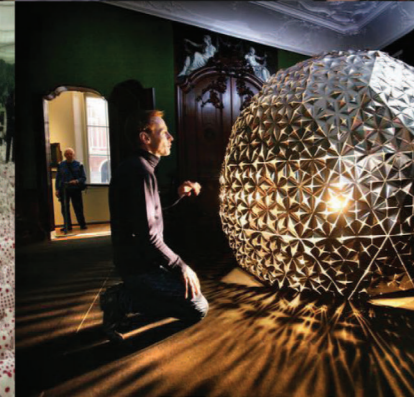
RIJKS STUDIO

Aan de slag met de meesterwerken [Nieuw in Rijksstudio](#)

Rembrandt van Rijn
RIJKS MUSEUM
[Meer hoogtepunten](#)

Johannes Vermeer
RIJKS MUSEUM
[Meer hoogtepunten](#)

Nu in Rijksstudio
Bekijk deze 626 426 meesterwerken en 393 353 kunstwerken



On the previous page figure 7 is found. Figure 7 consists of multiple photographs. From left to right and top to bottom the following images are shown:



FIRST ROW

1. Online exhibit - Spymuseum - online exhibits (Lieshout van, M. P. C. 2018)
2. Live demonstration - NEMO Science museum - demonstration 'Kettingreactie' (Nemo Science museum, n.d.)
3. Live demonstration - Nationaal Glasmuseum - continuous demonstration of blowing glass (Ben Deiman, n.d.)
4. Live demonstration - Klompen museum - demonstration of making wooden shoes (Rinius Jansen, 2010)
5. Treasure hunt - Teyers Museum - treasure hunt animals (Lemon and Peach, 2014)
6. Treasure hunt - Van Gogh Museum (Van Gogh Museum, n.d.)
7. Treasure hunt - Museum volkenkunde (Museum Volkenkunde, n.d.)
8. Participatory stand - LIGHT IS TIME - Milano design week 2013 (Takuji Shimmura, 2013)

SECOND ROW

1. Activity stand - Drukkerijmuseum Meppel - Papierscheppen (Drukkerijmuseum Meppel, n.d.)
2. Activity stand - NEMO Science museum - Opgesloten in een bel (Sabine, 2014)
3. Interactive stand - Rijksmuseum Boerhaave Leiden - 3941 (Bruns, (n.d.))
4. Activity stand - Doe museum - Doe Museum Schilderen (Doe Museum, 2017)
5. Online exhibit - Louvre museum - virtual tours (Lieshout van, M. P. C. 2018)
6. Simulation - Openlucht museum - Tram (Nederlands Openlucht Museum, (n.d.))
7. Interactive stand - Heineken experience - heineken02g (Bink, M., 2017)
8. Simulation - The Tech, innovation museum - tech-reboot-173 (Krause, M. E., 2017)

THIRD ROW

1. Online exhibit - 3D Anne Frank home - web (Lieshout van, M. P. C. 2018)
2. Simulation - Museum voor vluchtsimulatie - simulate flying a plane (Stichting de Link, (n.d.))
3. Live demonstration - Oude Ambachten & Speelgoed Museum - demonstration 'touwslaan' (Alle Uitjes, 2017)
4. Interactive stand - Gemeente Museum Den Haag, Wonderkamers (Fonds 21, (n.d.))
5. Simulation - London science museum - simulate an earthquake (Natural History Museum, (n.d.))
6. Interactive stand - Centre for the overweight adolescent children's healthcare, game - coach07 (Tinker Imagineers, 2017)
7. Online exhibit - Rijks studio - Rijksmuseum collection web-based (Lieshout van, M. P. C. 2018)
8. Interactive stand - Maritiem Museum Rotterdam (Maritiem Museum, 2015)

FOURTH ROW

1. Participatory stand - Boymans van Beuningen - Infinity room (Silvy, Suzette, (n.d.))
2. Participatory stand - Rijksmuseum - Lotus dome (Jans, Jean-Pierre, 2014)
3. Treasure hunt - Groninger museum - WSkinderactiviteiten (Unknown (n.d.))
4. Participatory stand - Drawn to the beat - participatory music drawing event (SashaLynne, (n.d.))
5. Interactive stand - Gemeente Museum Den Haag, wonderkamers (Kiss the frog, 2014)
6. Activity stand - Carnegie Museum of Natural History - 'archaeology digging' (Lovesgetaways32, 2011)
7. Interactive stand - Rijksmuseum Boerhaave Leiden (Bruns, (n.d.))
8. Interactive stand - Brussel, België, exhibition 'Explorer' (Bruns, (n.d.))



To answer the last question; there is a market for experiences focussed on adult groups. In the Netherlands, young adults start their own families at increasingly older ages. The average age that women get their first child is 29,8 years old. And this age increase is not exclusively Dutch, in the south of Europe this family-starting age lies even higher. A growing group of women even chooses for a childless existence [18, 19]. This has been going on for a while; with only 38% of all households consisting of a family with children in 1994, compared to a 55% in 1960 [20].

From research follows that young adults have a lot of free time, definitely more than young families and only a little less than senior citizens. Young adults spend the largest part of their free time on active activities, such as sports and social contacts that often take place outside of their home [21]. This means there is a market, one that is and has been increasing, for adults taking part in social activities outside of their home. Therefore an important target group for experiences focussed on adults, are the 20-30 year olds. Because this group often hasn't started a family, and its' members have started making their own money also they take the time plus have the need for such experiences. The need for experiences to be social and active

when going outside the home context also is understated during the focus group sessions, and during the interviews evaluating the first concepts. More about this can be found in chapter 4.

CURRENT MUSEUM FOCUS

Museums put effort and money towards actions to create long term relationships with their (potential) visitors [22, 23]. Increasing visitor numbers is a high priority for all museums and it knows many strategies and actions already [22, 23, 24, 25]. Nevertheless as all museums compete for the limited number of visitors many actions are set out and new expensive exhibits are promoted [17, 25, 26, 27]. But as many museums compete, the actions quickly lose momentum with new actions from different museums originating rapidly. Important is therefore that any action or design is not a one time only experience. To boost the number of visitors and keep them coming it is crucial that a museum offers a repeatable experience that stays interesting; not just a marketing stunt.

That the visitors art museums try to attract are to be younger than the current visitors is also mentioned by an anonymous Van Abbe employee during an idea pitch: "The current visitors are slowly disappearing, well I said that a bit blunt but.. Yes we need to attract younger visitors. And we are trying, also with the Young Art Crowd."

Thus the problem is recognized and there are efforts to draw a younger crowd to art museums. During the course of the project more of these initiatives arise. Initiatives such as 'Young Art Crowd' by Van Abbemuseum [28], 'Rijksescape' by Rijksmuseum [29] and 'Museum Bingo' by Museum TV [30].

Summarizing, a design opportunity can be found considering art museums. There is a lack of interactive experiences focussed on adults visiting art museums. Especially interesting is it to design these experiences for young adults, aged 20-30. Therefore they need to be social, thus for (small) groups, and somewhat active. For the designed experience to become a success it is crucial to take into account the current efforts of art museums. Meaning that the experience needs to be repeatable and still stay interesting.

The aim of this report is to document the design and the design process that aspire to tighten this described design gap.

RELATED KNOWLEDGE

WHY VISIT A MUSEUM

Csikszentmihalyi argues that we attend to information based on curiosity and interest. This interest can either be situational or based on past experiences (individual). Situational interest occurs when the environment has a degree of uncertainty, challenge or novelty. This curiosity and interest would be the reason for visitors to attend to an exhibit. But to achieve learning the visit has to become intrinsically rewarding. [31] Visitors are in first instance thus looking for uniqueness or something unknown in exhibits [9, 31]. Whereas, later, to keep visitors involved intrinsic motivation is important [31]. Intrinsic motivation can be achieved if the user feels autonomous, competent and can relate (self-determination theory). Relatedness is tricky in art museums; artists are elevated and disconnected from ordinary life. Therefore visitors have a hard time relating art to their own concerns [31].

An example of an interactive design that helps museum visitors relate in a war museum are the tangible smart replicas which are used to control an interactive museum exhibit.

The replica's connect to exhibition objects by means of RFID and tell a story about the exhibited item from the perspective that relates to the object the visitor picked to carry around the exhibition. Objects are found in figure 2. Since the exhibition was about the building of the Atlantic wall during the second World War each object stands for a perspective from a different citizen: civilian, civil servant or German soldier. The design of these objects helps visitors relate through storytelling and different perspectives [32]. Specific goals such as the task to relate a painting to a specific topic that is of personal relevance can also help [33].



Figure 8. Tangible smart replicas as controls for an Interactive museum exhibition. (Marshall et al., 2016, p. 163)

& BENCHMARKING

The number of virtual museums has been rapidly increasing. In many aspects those museums are similar in goals to real museums: they aim to educate and entertain, try to guide visitors to gaining certain knowledge and they translate unfamiliar situations to familiar information. But with digital collections displayed over the Web (especially paintings), in high quality, including interaction possibilities and educational games not available in the actual museum; why would people still visit a real museum? [34]. What is the different / unique experience a real museum can add compared to the experience of a collection in one's own home?

Since these online experiences are very individual based, one of the added values of visiting a real museum is in the social experience. This is also important to the target group. But it is in contradiction with the current interactive art exhibitions, which according to the benchmarking and research are largely focused on the individual experience [35]. An example is the growing use of virtual reality in museums which often, by means of a headset, exclude the stimuli and people around the user [34].

In the following paragraphs the examples of the different sorts of interactive exhibitions can be found with a focus on interactive exhibitions for adults. Overarching themes within these examples are that they are often touch screen based, involve an app and are often created for the individual. These overarching themes make an exception for the newest experiences that became available during the course of this project. These experiences however are not designed to be repeatable.



ROBOCASE

Brunsvick produced the Robocase and although it is still a prototype it is worth mentioning. The Robocase is a solution to the problem of excessive collections that cannot be displayed. Museums possess a lot of works that cannot be on continuous display as there are too many to show at once, while maintaining visitor attention and allowing all works to be displayed at well visible locations. The Robocase brings objects closer to the visitor. From a closet full of objects a robot arm picks objects chosen by the visitor, or at random, alongside a multimedia presentation on a touch screen. Many of the objects can be brought together in a narrative manner as they are connected through various storylines. [36, 37] (Figure 9)



Figure 9. The RoboCase picking an object from the closet. (own photograph)

ARTLENS

The Cleveland Museum of Art opened up the ARTLENS Gallery end 2017. This gallery and its predecessor (Gallery One) have been visited by many of the world's considerable museums to learn about the future of incorporating digital technology into their galleries. ARTLENS uses both physical and artwork on display and interactive games that allow users to manipulate the artwork digitally. The exhibited works change every so many months. The digital displays are multi-user interfaces that react to gestures, touch and gaze. Gaze sensors detect where the visitors looked at and compare it to how other visitors viewed it, allowing the museum to use that data to find out what attracts attention. This also allows visitors to learn about everyone viewing art differently.

Visitors can for example play the game 'Line Shape' where they make a doodle on a touch screen; ARTLENS locates shapes that are similar within objects of the museum's collection and shows them to the visitor; even if the shapes are very small (hidden within paintings) and do not attract much attention at first sight. Another example is changing the facial expressions, and with that the emotion and meaning, in an artwork by making a face. The museum staff observed people of all ages engaging in the exhibition and sees early indications that ARTLENS succeeds in creating long-term advocates who return regularly.

Similarly to its predecessor, the temporary gallery: Gallery One, which was designed to test the digital interactions and let to increased museum attendance by 30%. The staff observed visitors that do not know each other interact together with the games and with each other, making that the digital games are not taking away social contact within the museum but adding it. Important is also that the exhibition is designed to be viewed as a collection with painting overarching in the various concepts of art. Therefore the paintings can be interacted with within more than one game and the games do not serve as individual interactive stands; helping the user understand overarching themes. The interactive exhibit is confined to only one gallery, which has more games only interesting to children than to both: adults and children. [13, 38] (Figure 10-13)

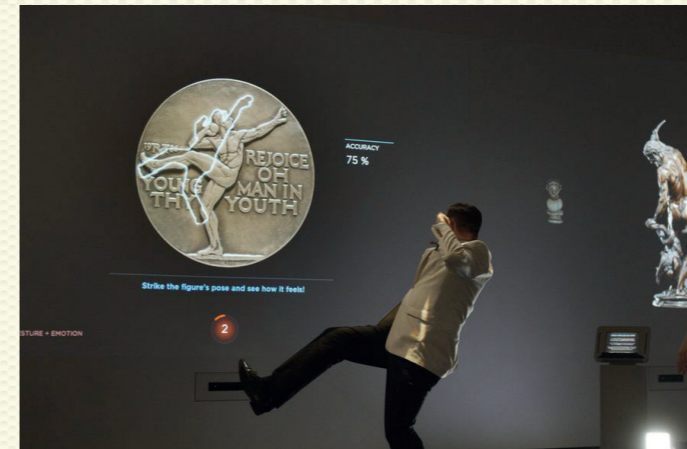


Figure 10. Interactive ArtLens game that is gesture based (Fusion Filmworks, 2018)



Figure 11. Digital clay is modelled into shape by visitors of the ArtLens Studio (The Cleveland Museum of Art, n.d.)



Figure 12. The multi touch wall and artLens mobile app at Gallery One, Cleveland Museum of Art (Marco Mason, 2015)

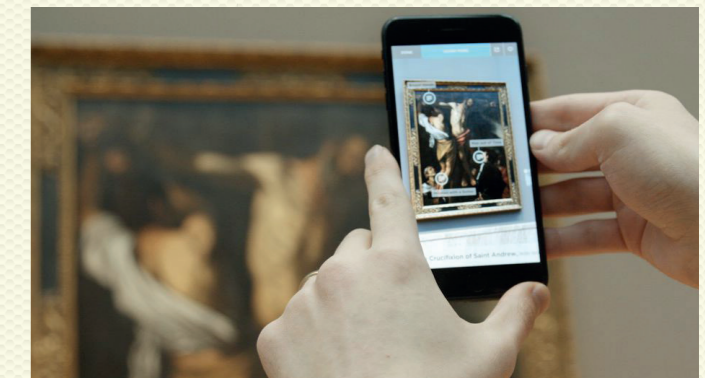


Figure 13. The ArtLens app, containing all artworks the museum has on display (Fusion Filmworks, 2018)

TOUCH VAN GOGH AND BE TOUCHED

The exhibition is designed to include different research tools. The visitor becomes a researcher of van Gogh's work. With an app the visitor can find out more about each painting, such as the original colour, damages and the art style. The second tool is a collection of 3D printed artworks that are the same in colour and structure as the work of van Gogh. Visitors can feel the difference in brush strokes. The third tool is a set of research samples where visitors might observe sand in the paint or under drawings. The fourth tool is a frame that allows for perspective drawing; just like van Gogh used to trace grid lines of the perspective frame. The visitor can go through the same experience and find that perspective drawing did not come to van Gogh naturally either. [39] (Figure 14)



Figure 14. In the Van Gogh app visitors can change the paintings based on or. (IJsfontein, 2013)

SHAPE

SHAPE uses mixed reality techniques. It uses technology to enhance the users' social experience and learning in museums with the regard to cultural artefacts. Visitors work as a team to dig up virtual artefacts of which the real versions are displayed in the museum. The visitors work together to solve a mystery about historical content. They move archaeological digging grounds virtually into the main museum halls connecting them to the collection. [40] (Figure 15)



Figure 15. Mixed reality technology is used to dig up virtual artefacts. (Hall et al., 2001, p.94)

SMALL WONDERS: THE VIRTUAL REALITY EXPERIENCE

While listening to prayer songs the visitor, with virtual reality glasses on, can explore a 16th-century prayer bead. He will be able to see the carvings enlarged and in 3D. Participants must be 13 years or older. [41] (Figure 16)



Figure 16. The exploration of a 16th-century prayer bead in virtual reality. (Michael Blase, n.d.)

APPS

Besides the described examples of interactive exhibits countless examples of museum apps can be found. There are apps with quizzes and tours. In some apps a visitor can re-enact paintings or in another app users can see changes to a paintings over time. In the 'New Dawn' the app of 'Het Nationaal Militair Museum' an app user even gets assignments and secret messages to decipher. The app is focussed on families exploring the museum in an adventurous way. [42] (Figure 17)



Figure 17. The 'New Dawn' app offers assignments and secret messages that the visitor has to decipher (Q42, 2014)



RIJKSMUSEUM ESCAPE GAME

The Rijksmuseum escape game is a bit similar to escape rooms. Visitors play the game in groups of 2 to 5 people and follow some kind of treasure hunt through the museum. To find the next clue about the treasure riddles and puzzles need to be solved. A visitor thus visits the museum looking at the art in another way, namely using it to find clues. Earlier visitors could already play an escape game 'Museum Escape' in the Allard Pierson Museum and Rijksmuseum van Oudheden Leiden [43, 44] (Figure 18)



Figure 18. Visitor trying to solve a riddle to get closer to finding the special alchemist formula. (Ronja Kool, 2018)

MUSEUM TV BINGO BATTLE

MuseumTV and CJP worked together to set up a game to lure young adults to the museum. The result: short video episodes in which a famous Dutch person runs through a museum to achieve as many challenges as possible with a punishment waiting for them if they don't finish all within 10 minutes. The episodes are meant to arouse interest in museums within young people. The interested youngsters can download a bingo card and try for themselves. Also museumTV learned from focus group sessions that young adults want to be able to ACT within the museum: They search an interactive museum experience that stimulates them to look differently at the museum. Next to that young people are afraid they miss certain prior knowledge that is required, stimulating them to form their own opinion helps to prevent this feeling of inferiority. [30] (Figure 19)



Figure 19. Bingo cards to play the museum Bingo with. (MuseumTV, 2018)

RIJKSMUSEUM SNAPGUIDE

Snapguide is focused on a little younger target group: high school students. These young visitors are guided through the museum by famous vloggers: influencers. In small groups they answer the questions the vloggers ask them. Each group can pick from multiple vloggers, each vlogger tells the information in her own way. The answers the students give to the questions of the vloggers are often rich answers; these answers are send to their teacher. Most students choose to participate in multiple tours using SnapGuide naming the stimulated debate a deeper understandig of the subjects and creativity as reasons. The app was well received and won several awards. [45] (Figure 20)



Figure 20. A group of teenagers using snapguide to explore Rijksmuseum. (Rijksmuseum, 2017)



STAKEHOLDERS

BRUNS & B.ENGINEERING

Designer Michelle teamed up with Bruns bv for the design of secret challenge | the museum. Bruns is a leading company in exhibit design all over the world. They deliver quality technical work and focus on interactive, innovative design and challenging experiences.

With over one hundred employees and with their own glass, metal, wood and electrical department they create over two thousand exhibits in a year; varying from a wind turbine for a science museum, where visitors experience the winds of a tornado, to a techniques wass for a weaving museum; where a virtual shuttle moves over a time line and can be operated by the visitor by means of joysticks.

B.engineering is a daughter company of Bruns bv. B.engineering just launched and works on all kind of design and engineering projects from coming up with a concept for a 'fun' bin for coca-cola to the engineering of a portable blender and setting up files ready for mass production. B.engineering was the result of Bruns bv expanding into multiple fields, different from the museum industry.

For the duration of the project Michelle worked at B.engineering as this company was just starting up and had more time resources that could be devoted to the project. The project however took place in collaboration with Bruns.

During the project it was Michelle's goal to learn more about the used strategies of a company working already in her desired occupational field (a field that is in-line with her vision and identity). It also was very important to her that the project would be of value to this field. Therefore a collaboration was initiated by her. As Michelle chose to specialize in the fields of 'users and society' and 'technology and realization' it was also important to choose a company to work with who specializes in the realization of quality products and systems. This collaboration allowed her to learn more about the production of unique products but also about the design process towards mass production (from her co-workers at B.engineering).

To create a valuable design for Bruns bv the design should fit to their clients (museums) needs and with some small changes, be a fit for multiple (art) museums. This allows them to do a market-push on the concept where else the project should be in commission to a museum already.

MUSEUMS

The goal of the project is to draw the target group of young adults to an art museum and let them leave with an enjoyable experience. As Bruns bv is a museum exhibition producer and not a museum in itself, another stakeholder in the project is their client: the museum.

During the project multiple museums have been contacted by Michelle as the design needed to be a fit for multiple museums. Although all contacted museums reacted enthusiastically to the idea two were able to free up time to work with Michelle on such short notice: Van Abbe Museum and Rijksmuseum. In early meetings with the museums both the theory and resulting requirements and the first concepts were discussed with marketing or education employees of the museums.

What had Rijksmuseum interested or what did they suggest?

- A social / group activity.
- The target group (20-30 year olds).
- A different way of looking at art: active museum visit.
- Repeatability.
- Challenges --> game elements.
- Competition
- English and Dutch
- Marketing opportunities for a game

What had van Abbemuseum interested or what did they suggest?

- Social character: people learn more about themselves and others through art.
- The target group (20-30 year olds).
- A different way of looking at art: active museum visit.
- Repeatability.
- A theme or perspective to experience the art from.
- Sharing what is done with other visitors (also for data collecting purposes)
- Challenges --> game elements.
- Competition

Also, museums are agents of change: they foster education and (personal) development. This goal remains.

Van Abbe is a forward thinking museum that doesn't necessarily see the art as the most important. Mentioned during one of the sessions is, that they are very modern in this thinking and that other museums might still focus on visitors discovering more about the art and art styles than on visitors finding their own voice or using the art for their own discovery. Looking at their main interests, everything that is created is automatically a fit for a different art museum as well. Because for them is not about learning about the art specifically but does involve the art actively.

20-30 YEAR OLDS

Although both museums are very different they share the same way of realizing budgets for projects. Often museums ask the government for financial support for specific 'public mediation' materials. These are often part of a larger package - the same sort of concept but for different target groups. In other cases, happening more often in Rijksmuseum but also happening at Van Abbe Museum, a company sponsors the project. This depends on the license costs or yearly rent. A part of the costs then falls on the visitor. This is often around 5-7 Euro and is based on the amount of potential visitors that can or will make use of the project.

A project can either be leased (rented for several months) for a budget that is paid each month for maintenance or a project can be bought with a contract for maintenance (and a yearly fee for this). Note that it is for Bruns thus important that the maintenance eventually can be done quite easily or fast.

Both museums are still interested in using the concept even when other museums use it as well. The concept could even connect the museums and become overarching. Nevertheless both are also willing to invest less in the project when it is used by multiple museums.

In the introduction it is bluntly thrown out: 'What is the value of a museum visit when everything is available online'. And it is also already suggested that 20-30 year olds' are looking for active and social experiences. [21, 30] While it has become clear that art museums do not support these kind of visits very well. But it isn't all that dreadful; there are 20-30 year olds visiting the museums currently; certainly there is already value offered by museums for this target group. And that value needs to be maintained.

The experience needs to be attractive to current visitors from the target group since they are the people telling, or not telling, their friends about the experience and starting the promotion. That this 'suggesting' something to others is important for the final concept to work also becomes apparent during the discussions about the 4 concepts and the disneyloop; discussed in chapter 4. Because even when an amazing experience is offered that fits exactly to the target group, it is still crucial for the target group to want to go themselves. Ant to want to go, they need to know about its existence of the experience. With the stigma placed on museums (this is seen in the results of the activities discussed in chapter 4 as well) getting the target group to the museum is one of the hardest bargains.

The stigma can be nicely illustrated with a quote from one of the 25 year old master students whom participated in a brainstorm with Michelle. Without any questions asked or suggestions done she answered to 'can you brainstorm with me?' *"Yes, if you don't mind that I am not really a museum visitor. I have intrinsic motivation to view art, it is nice. But the experience of an art museum is just so stiff."*

To support the claims made above (a lack of target group visitors, especially in groups) and elaborate on the reasons for visiting an art museum this target group does have, interviews were conducted outside of Rijksmuseum. Also multiple observations were held where a tally was kept to demonstrate the lack of young visitors.

The interviews, following a structured interview technique with beforehand defined questions, were held with groups of people and single visitors leaving the Rijksmuseum that ideally could also fit into the target group of 20-30 year olds. As there were little people leaving the Rijksmuseum that completely fitted into the target group, other mixed groups were asked about their experience as well. The interviews were recorded for analytic purposes with informed consent. A full overview of the interview questions, main insights and results can be found in appendix A.

From the interviews it was learned that visitors visit the museum either because they enjoy art or have an intrinsic motivation for viewing art or because they believe it to be important for their development and learning.

Visitors like the (inter)active exhibits and experiences better than the normal exhibits. But also mention that they came across these experiences in different museums, such as the maritime museum. Sometimes they feel as if the art museum could have done more with interactives by for instance adding movies.

People do not necessarily visit together because there is no need for it. Nevertheless they like visiting together because of the different perspectives the others have to offer. (If they discussed the art, not everyone did) But spending time together at all is really appreciated and lifts the experience to the next level: *"I really liked spending time together. Really doing something together is really nice, otherwise you are busy, busy, busy."* - female, 17



Figure 21. Art transport case (open) exhibited at Van Abbe Museum (own photograph)

The value of visiting an art museum in real life, over the suggested online visit where the art can be found in good quality is regarded as huge. People know where to look, where there is something interesting to see; because of the buzz. Next to the buzz the context; the building and city all add to the experience. And seeing the light hit the structures makes it worthwhile to pay an actual visit. Nevertheless the main reason is that you can visit a museum together easily and a web page not: *Well, I really don't see that happening. Do you see us sitting behind the screen, together? And then discussing; what do you think of this painting? Yeah, uh... no... And we're not going to really look at them alone either.*" - female 22

In the first brainstorm sessions with target group members (In chapter 4 an elaboration on this brainstorm can be found) the participants mention to them it is also important that the experience does not feel 'too serious' and that they are able to joke around with their friends without being looked down upon. They also mention that they currently feel as if this is not possible due to unwritten museum rules.

Summarizing the insights: The museum should stay educational, become more (inter)active and support the social, 'lose' experience better. A social experience is already possible but the added value of the experience to be

social should feel greater (so people actually see it as necessary and as greater value to come together). visitors should stay able to experience the art, the buzz around them, the building and the discussions.

Next to these insights it was already clear that visitors were looking for uniqueness or something unknown in exhibits [9, 31] and later intrinsic motivation was important to keep their interest. Therefore the 20-30 year old needs to feel competent, autonomous and be able to relate to the art. [31] To feel competent an appropriate level of challenge is required and to feel autonomous the visitor needs to feel as if she set her own goal or like she can approach the visit in her own way. To feel related to the art the visitor needs to be able to form her own opinion or find elements that fit to her personal life.

Furthermore research from the Smithsonian suggested four different reasons people have for visiting a museum where most museums offer a combination: object experiences (beauty, seeing something unique), cognitive experiences (learning something, knowledge), reflective experiences and social experiences (seeing someone learn, interaction). [46] Supporting multiple experiences enables the targeting of the most people.

OTHER MUSEUM VISITORS

Other visitors visiting the museum should not be disturbed in their own museum visit by the experience of the 20-30 olds. Otherwise this could lead to unsatisfied museum visitors which would defy the purpose of luring more visitors to the museum. Nevertheless the experience could also potentially be beneficial to them. For instance when the experience has a part that they can participate in as well (A part that helps them give more meaning to the art or think about it in more depth). This benefit can also be achieved when the experience triggers the young adults to have interesting discussions with them (if the other museum visitors are interested). Or by seeing the younger generation learn something, which is even one of the reasons for people visiting a museum altogether. [46]



HEURISTICS

Combining the design gap found in the related work section with the needs of the stakeholders in the project the following heuristics are set:

- Be for group use (around 2-10 people)
- Be applicable (with minor tweaks) in multiple art (history) museums.
- Not force the museum into major redesign or a rebuild of exhibition spaces.
- The new experience should not interfere, negatively, with the experience current/ other visitors have (be irritating to them).
- Be attractive to the user target group of 20-30 year olds. (Before taking part in the activity)
- Challenge the user target group appropriately.
- Support social interaction and collaboration.
- Enable some kind of learning with help of the exhibition.
- Allow for a repeatable experience (an experience that is still enjoyable the second or third time).

While the first four goals are quite clear, the second set of goals can be interpreted as quite extensive and abstract, they can be broken down to smaller specific goals or descriptions that can be evaluated or used in making design decisions as described next.

BE INITIALLY ATTRACTIVE TO THE USER TARGET GROUP OF 20-30 YEAR OLDS.

This criteria should be evaluated through discussions with the user group as it can be satisfied in multiple ways. All manners in which to achieve this criteria are different for the various different people and social backgrounds that are part of the target group. During the interviews and collaborative brainstorms two ways were mentioned by almost all participants; participants that did not mention these ways themselves agreed and marked them as important or even crucial when they were mentioned later in the brainstorm or interview.

- Enabling 'joking around' within the friend group to some extend.
- Doing / making something practical ('art museums are too stiff') that is not too easy.

Furthermore the Invitation stage of the concept should be and look interesting to adults. This is important as many projects in museums are designed for kids; the look and feel of the concept should therefore already announce its presence and that it is designed for adults without the concept completely losing its' playfulness, even though this playfulness is normally associated with children.

CHALLENGE THE USER TARGET GROUP APPROPRIATELY.

An appropriate level of challenge means that the competence of the user and the difficulty level of the concept are balanced, there is flow. To enable users of a game to keep enjoying the game intrinsic motivation and flow are needed. Flow consists of more than just balance, to experience flow a user also has to have clear goals [33, 47]. When visiting a museum this is often not the case. Setting manageable goals makes a museum experience more enjoyable for a visitor [31]. To achieve this:

- The interaction proceeds in small experimental steps with rapid feedback during interacting [33, 48].
- The design provides the users with representations that transform the problem. (unexpected information or approaches are available to challenge the user) [9, 31, 48].
- The design builds on previous experience / connect to their skills. This means that there should be several levels of freedom; enabling experienced and less experienced people alike to interact with the concept. Different amounts or levels of auxiliary material could help enabling this appropriate level of challenge [48].

Lastly, appropriate challenge means that the design is adapted to the various learning styles and motivations that visitors have. - People have different learning styles and visitors differ in preference, motivation and style considering learning [9, 11, 12]. The same holds up for people playing games, there are different player types with various motivations and preferences [34]. When designing for the varied public that visits a museum the player types have to be taken into consideration. - Offering some choices to the visitor (such as various subjects and multiple different tasks) benefits the experience as different player types enjoy different tasks.

SUPPORT COLLABORATION AND SOCIAL INTERACTION.

- Everyone should be able to follow visual references and see what is happening [38, 49].
- The design should subtly constrain users behaviour, to set up for collaboration [48].
- The design offers a lightweight means of creation and manipulation. (Easy basic level is available) This provides focus, allows for creation of shared visions and makes these visions discussable [48]. To avoid sensory and cognitive overload, familiar interactions and interactions that invite certain kinds of use and no other kinds of use (affordance) help; they ease the threshold to interact [12].
- The design should enable individuals to engage with it somewhat as well, this serves as a stimulus for other people to step up and interact. [49]
- The design could possibly create traces for the next group of visitors. [49]

The design should preferably use tangibles and not the mobile phone / an app on the phone as the main communication and interaction source within the concept. Because a phone serves other purposes besides the museum experience. It can give constant notifications which are distracting from the social activity [50]. Also mobile phones afford individual interaction better than they enable social interaction; which is for instance due to their size.* Next to these difficulties there can be problems with battery life and downloads of the app when international visitors (in the larger museums) need to use their phone to take part in the experience.

**In case of the use of tangible objects within the concept it should be evaluated that they are meaningful and of long lasting importance; physical and digital representations should be of the same strength and salience, users should be able to use them as props, they should provide a record of decisions and there should be a clear link between what the user does and what happens [48].*



ENABLE SOME KIND OF LEARNING WITH HELP OF THE EXHIBITION.

The concept should add to the exhibition, not completely distract from the art or replace the art; as art museums sometimes fear [9, 13, 14]. The user should therefore learn from the concept guided by the art. There are various ways in which a user can learn something but there are also various subjects the user can learn about that involve the exhibition. Skills of a user can for instance increase by means of using the concept. But besides this increase of skills; knowledge should increase in at least one of the following subjects:

- The process the artist went through (taking into account all his/her work)
- The period during which the work was created
- Terms used by artists to explain arts: art concepts
- Intentions / thought process of the artist
- Art styles
- Scientific facts about the artwork
- The (personal) life of the artist
- The thoughts of other people about the artwork
- Recognizing patterns in artwork
- Oneself, what you like and how the art is relating to what is happening or important in your life
- Your friends, what they like and how the art is relating to what is happening or important in their lives.

THE EXPERIENCE SHOULD BE REPEATABLE.

By replacing the user picked data / topics or the people that the user goes through the experience with; the experience should be repeatable. Meaning that the museum does not need to create a new experience / new data every time a visitor repeat visits the museum. The brain craves new data, not necessarily new experiences. A new experience can even overload the brain; a whole new system is needed instead of a new pattern. The brain will always try and find the easiest way to solve the pattern, cheating its way out if it can [9]. Humans prefer to add new experiences and information to conceptual schemes they already have. A new puzzle to solve or a new outcome every time are therefore important. The experience should not have 'one solution only'.





CHAPTER THREE

USER STUDY PARTICIPANT READING A SECRET- SECRET CHALLENGE USING THE
DECODER @ VAN ABBEMUSEUM. DETAIL SHOT (OWN PHOTOGRAPH)

SECRET CHALLENGE | THE MUSEUM

CONCEPT DETAILS

The aim of Secret Challenge | THE MUSEUM is to attract young adults to art museums. The hardest part is getting the target group there in the first place. For this they need to know about the existence of the experience and they need to trust that it is a fun experience. To set them up for repeat visits they should have a fun, educational experience that leaves them somewhat unsatisfied - wanting to see or discuss more or go on longer, this can then be satisfied during the next visit. The other option to set someone up for a repeat visit is for them to have so much fun that they want to experience it again.

Key to getting people to show up is word of mouth promotion and hype. For a large part this is about communication. Therefore the concept pays attention to communicating as well. With the stigma on art museums, and some target group members seeing them as boring, stiff and quiet institutions, it is extra important how the experience is communicated. Potential users need to feel as if visiting the museum is their idea and not something forced upon them.

In the concept this is achieved by means of the communication. This starts at the first encounter: how to get people to talk about the experience? For this the experience needs to be different from regular experiences, it needs

to be new and special. According to the benchmarking and the interviews with the target group evaluating the 4 concepts (elaborated upon in chapter 4), the experience is something completely new. Nevertheless the stigma on museums remains, therefore in first instance the experience is communicated as stand alone, with the museum merely being the location because it can be. The experience communication is about doing a social, fun, active activity with a group. An activity that has the added value of being educational.

To create even more hype on the experience and ensure potential users that it is OK to go through the museum in an irregular manner the experience is only available at limited moments. Moments at which also regular visitors know their museum visit might be busier and louder than normally. This limited availability triggers the 'fear of missing out' and motivates potential users to actually take the step to make a reservation for the experience.

Even when the experience is not available the existence of it is showcased through it's physicalization at the museum. Closed art transport cases in some halls with red lights shimmering through: What would that be? A closer inspection teaches the current visitors about the existence of the experience.

To help potential users to convince their friends to join and ensure as little effort as possible all information is available in one shareable image (prize, short description, dates etc.) Also semi-instruction & semi-promotion videos of influencers taking part in the experience should be available (avoiding text as much as possible) to create excitement.

When the experience is ordered (online), an idea of having a discount is given to make participants feel good about their decision to book.

To make the experience fit better to the various groups that book the experience and make the experience feel more personal, the user picks some characteristics for each friend from a list. This can also be done by each friend themselves when send as a meeting request. The request will automatically send reminders. The characteristics are used to fit challenges to the group members making them harder to discover.

With the goal of building up excitement for the experience, materials for preparation are send home. The preparation materials consist of: an introductory letter (figure 3) explaining the game and introducing the museum, a set of secret challenges; and some information that relates

to one of the challenges and the museum exhibition. This 'special' information is exclusively communicated to one person within a group.

The secret challenges serve various purposes: creating a feel good, social atmosphere (socially awkward / funny challenges), stimulating teamwork and cooperative play (buddy challenges), viewing the art in a different way, triggering discussions and stimulating forming an own opinion about the art (continuous challenges), adding surprise elements to get more interesting game dynamics (secret secret challenges)

Young adults bring a visit to the museum with a group of friends. In the museum they carry out challenges individually or in duo's, while trying not to get caught while performing the challenge. When they do get caught they need to pass the secret challenge card to the person catching them. This person will then receive the point worth of the card.

At the beginning of their museum visit groups receive a summary of the game rules and an extra boost to feel free in their interactions by means of an exiting / humorous communication: they call a phone number. This phone number plays a two minute voice mail explaining the

game play, the materials that they need to pick up at the museum desk and wishes them fun!

Users pick up a floor plan, their tickets and a key at the register. The key has an embedded RFID tag that allows the group to log-in at the 'Art transportation cases'. The art transportation cases are designed to support the groups in the continuity of their experience, enable collaboration, data collection, a common group goal and help users start in-depth discussions about art, 'art transportation cases' are found in several halls throughout the museum where visitors can perform extra challenges using the system that is hidden inside the transport case.

When logging-in at an art transport case with the group key, a random user of the group is selected. This user needs to perform a challenge for a specific artwork in the hall. To ensure selecting a random work in the hall, the user picks a work that makes him feel a certain way: happy, bored etc. This feeling is randomly assessed. The feeling serves as a hint for the group to what work is picked. The user performs a challenge such as giving a work a new name, drawing an element, describing an artist or describing a memory that relates to the work. The other team members have to guess which painting the user picked.

At the art transport case also group challenges are performed. When the transport case picks the group to perform a challenge the group has to record their answer by means of filming / audio / writing or drawing. The group first

picks a painting their selves and performs a challenge such as 'discuss why this is art and record your conclusion' and 'if the work would make a sound, what would it be'. The group records their answer and gets the recording of another group back. They guess which work this other group is talking about. This way they generate data and have interaction with other groups.

At the art transport cases the person performing a challenge can read a fact about the work. The user can choose to use or not use the fact during the performing of the challenge. This is to stimulate different ways of learning: knowledge based, forming own opinions and discussing deeper meanings.

Points can be earned at the art transport case for each correct answer for the person or group answering and for the challenge performer for each, at the first guess, correctly answered challenge. The scored points are added to the total score, including points earned by completing or guessing secret challenges.

The group goal is to have, as a group, more points than the other groups taking part in the experience.

There are also group art transport cases. Here all group members compete against each other at the same time. This enables them to talk about a challenge. Challenges at the group pillar vary from 'who am I?' - about a painting with many people on it - to 'creating the funniest MEME'.

Starting up the discussions at the art transport case does not only add an interactive element to the visit or only allows the users to elaborate on works. Nor does it solely serve to earn more points. It can also help in performing the secret challenges: a discussion can, with help of the system challenges, easily be started multiple times.

At the end of the visit, groups discuss the secret challenges in the museum bar while having a complementary drink. This concluding group activity makes the experience a whole and supported from beginning to end. It helps the users associate the fun they have while discussing the experience, with the museum visit rather than with the bar that they would otherwise go to afterwards.

At their exit, the group scans the cards of the challenges they each managed to perform (individually) at a special art transport case. This creates an end score.

The individual end scores are communicated to the group by means of a digital magazine about their museum visit. The magazine is filled with the data they generated at the art transport cases such as a work together with its newly given name. But also the group score compared to the scores of other groups is included. The magazine serves as a souvenir to remind participants of their fun experience and as free promotion when the users use it to brag to their other friends. Lastly the magazine serves as a common group goal helping the

group in their collaboration. Where an art museum visit currently offers an individual and passive experience, the concept thus changes a museum visit to a social, unique and active experience. This kind of experience fits better to the demand of the target group (see 'stakeholder' section of this report).

A storyboard describing this experience is found in appendix B. Figure 22 on the next page gives an indication of the various activities taking place during the museum visit when enjoying the envisioned experience.





Figure 22. impression of various activities taking place during secret challenge experience (own visual)

PROVE OF CONCEPT | TEST SET UP

METHODOLOGY: GOAL

The goal of the study was to explore how the designed elements of 'Secret challenge | THE MUSEUM' affected the experience of (the individuals in the) groups of 20-30 year olds visiting the museum and how this influenced their stand towards art, the museum, this particular museum visit and a repeat visit. Enabling the researcher to find the potential and the flaws in the design.

In particular the researcher aimed to evaluate if and how the 'Secret challenge | THE MUSEUM' experience made a museum visit more attractive and - or worth sharing, for this target group, without diminishing educational or artistic value. To find out if the design thus fulfils its purpose and how it can improve fulfilling this purpose.

Also to explore the reactions and interactions non-target group users would have to both: (seeing or possibly being disturbed by) the secret challenges experience and (seeing or taking part in) the interactive art transport case experience.

A secondary purpose of the study was to see if the proposed design indeed fulfils the heuristic requirements (according to the target group participants) and how the design otherwise could be changed to fulfil the requirements better.

METHODOLOGY: EXPERIENCE

The test took place at Van Abbemuseum where the art transport case was placed in it's own room with several replicas for the course of three weeks. During the second of the three weeks the art transport case was exhibited at Van Abbemuseum, the user test with the target group took place. During the other weeks regular visitors could interact with the art transport case.

Participants would have one group leader (the person contacting the researcher to join the research) whom the researcher would ask to pick characteristics for each of their team members, selecting from a list and to pick a team name. A date and time for the group visit were discussed. At the latest one day before the experience the researcher would drop of an introductory letter about the secret challenge game and an envelope with one personal secret challenge and further randomly selected secret challenges plus a voucher for a drink at the museum café and a decoder. (Figure 23)

The introductory letter introduced the experience and invited them to the museum at the specific date and time that was agreed upon. It described the game rules and what participants could expect to find in the museum. Furthermore it gave each participant some extra information about the exhibition that the other participants did not receive, looking at



Figure 23. Example envelope with secret challenges. (Own photograph)

the current exhibition in Van Abbemuseum with a perspective fitting to their specifically picked secret challenge. In the letter also instructions about their arrival at the museum could be found: call a phone number.

An example of the introductory letter, which is also depicted in figure 3, can be found in appendix C. An overview of all available secret challenges can be found in appendix D.

At their arrival participants called the phone number and received instructions from a

voicemail: overview of the game rules also explained in the introductory letter, behaviour rules within the museum a good luck wish the start sign for the experience and the notice that they would be expected at the museum café in 1,5 hours. They were also given the instruction to wait for the researcher who would be giving them the required materials: a map of the museum and a key to log on to an art transport case and their entrance tickets to the museum.

The researcher passed on the key and explained the experience started at that point and that the group was free to go about it as they wanted. She also explained that she would follow them throughout the museum for a while to observe. She asked for the group to assume she was an Van Abbe employee with a red blouse that could answer their questions. She announced that she might take some pictures and that, at the end of the experience when the participants would sign their consent forms, before starting the evaluation session, she would directly delete the pictures if no consent was given.

After that instruction the researcher would follow the lead of the groups throughout the museum to observe how they would go about their experience, help them during their first interaction with the art transport case when something was not immediately clear as the

Hee jij!



Ben je tussen de 20-30 en heb je zin om een gezellige, leuke en actieve activiteit te doen met je vriendengroep? Vind je het leuk om een keer iets anders te doen dan samen op het terras zitten en wil je een nieuwe ervaring testen, dan zoek ik jou!

Wat mag je dan doen?

Iedereen uit je vriendengroep krijgt persoonlijke geheime opdrachten toegestuurd. Samen ga je een activiteit doen waar je deze opdrachten uitvoert. Daarbij moet je natuurlijk proberen om niet ontdekt te worden. Lukt dit je, dan ben jij misschien wel de winnaar van jou vriendengroep!

DE SECRET CHALLENGES ERVARING IS NU TIJDELIJK BESCHIKBAAR IN HET 'VAN ABBE' MUSEUM!

In dit geval ga je dus met je vrienden als activiteit naar het van Abbe museum, daar voeren jullie je 'secret challenges' uit. Bij de 'secret challenges' ontvang je een uitnodiging voor het museum op de door jou afgesproken dag en tijd. De challenges die je ontvangt passen bij jullie groep en bij het van Abbe museum. In het Van Abbe museum vind je extra opdrachten om jullie te ondersteunen bij het uitvoeren van je secret challenges... en gewoon omdat het leuk is! De ervaring is natuurlijk ook niet compleet zonder een na-borrel met je vriendengroep in het museum café.

Afstudeeronderzoek!

Als afstudeerproject heb ik **SECRET CHALLENGES | THE MUSEUM** ontworpen. Nu is het tijd om deze ervaring te evalueren. Ik kan jou en je vriendengroep dus **GRATIS** deze complete ervaring aanbieden! Je reserveert de ervaring via mij. Na de ervaring vraag ik jullie dan om een korte vragenlijst in te vullen en samen met je hele groep wat vragen te beantwoorden in een interview direct na jullie borrel bij het museum café.

Wie? **4 tot 6** vrienden uit je vriendengroep tussen de **20-30**

Wanneer? **Tussen 24 november en 2 december** tijdens de openingstijden van Van Abbe. De tijd en dag spreek je met mij af. Je bezoek duurt ongeveer **één dagdeel**, de ochtend of de middag dus.

Waar? **Van Abbe Museum**

Wat? **Een te gekke ervaring samen met je vrienden** dus! Die je daarna met mij evalueert.

Bedankt voor je interesse!

Liefs, Michelle

Figure 24. Requesting participants image (own visual)

Van Abbe employees would do too and to answer possible questions. After 1,5 hour, if the group did not notice themselves, she gave a sign that it was time to go to the museum café.

At the museum café the groups were given the opportunity to discuss the challenges and calculate their scores themselves. After half an hour the researcher suggested to move to a different space and carry out the evaluation. At the new location participants were given a consent form to sign and the evaluation would start.

METHODOLOGY: TOOLS

As playfulness is designed into the experience for it to become more meaningful [51] and the activity is meant to be a playful (read: active and (overall) perceived pleasurable and fun) learning experience, the playfulness needs to be measured. This can be done by means of the PLEXQ which is a recognized, reliable statement list which is used to reliably evaluate playfulness of 17 of the 22 playful experiences discussed in the PLEX framework. [52] Measuring the playfulness can help define the strengths and weaknesses of the concept.

The statements were formed into a questionnaire and measured using a 5 point Likertscale ranging from totally agree to totally disagree.

As the statement list from the PLEXQ is in English and the questionnaire was held in Dutch, to support people from different backgrounds with various educational levels that do not feel as confident in English, the statement list needed to be translated.

To create an acceptable translation, both, the researcher and a second researcher, Joep Frens, created a translation. The researcher compared the translations and decided to go with the translation of Joep Frens as she could agree with this translation when translating it back to English.

The data gathered in the questionnaire, found in appendix E, is quantitative. To understand the sense-making of the participants and get rich data that can help evaluate and improve the experience; also qualitative questions need to be asked. For this a structured interview was set up, also found in appendix E. This interview was checked by Priscilla van Lieshout and Joep Frens for clarity and fit to the heuristics / ability to gain insights about the experience regarding the heuristics.

People actively construct or make sense of experience—reflexively and recursively. They make sense of an experience in different ways by means of 6 stages: anticipating, connecting, interpreting, reflecting, appropriating and recounting. [53] To evaluate the experience as a whole and find the points at which the experience excels or can be improved questions need to be asked considering each stage of sense-making.

To analyse if the impact, if any, of the experience is indeed the impact that is aimed for, it is important to measure the fit to the heuristics. Therefore various questions are added that ask (all in just a little bit different ways) how the participants experienced the topics. As the repeatability and enjoyment, important evaluation points of the experience, are already part

of the heuristics they do not need to be measured separately from the questions related to measuring the fit to the heuristics.

METHODOLOGY: PARTICIPANTS

Participants for the concept were required through the researchers friends, social media and friends of friends by means of spreading an image with some information about the research and the experience. Simply awaiting responses of interested target group members.

INTERVENTION PROTOCOL

The researcher would answer all questions that were asked at all points of the experience; both concept and art-wise to the best of her abilities. Sometimes the researcher would give some information about an artwork, similar to the Van Abbe volunteers would sometimes (non-requested) do.

If the group experienced any unclarity or encountered a bug while the researcher was not present, they were encouraged to let the researcher know by calling.

When the group splitted up in the beginning already, to perform their own challenges, the researcher would recommend staying together as staying together was the only way to bust others while they tried to perform their challenges and for some challenges more people were required.

During the interview the researcher would ask questions directed to a participant directly, if she never answered, or had the opportunity to answer.

TESTED PARTS OF THE CONCEPT

To test the envisioned experience, according to the previously described methodology, one art transport case (the quiz version, not the group version) was created. In chapter 4 this creation process is elaborated upon.

Looking at the concept; the first part can't be tested yet as it requires a long term test set up. Nevertheless in the communication used to search for test participants (figure 24) the same values were regarded considering promoting the experience.

Due to the lack of 'group pillar' a competition challenge was added to the challenge sorts to compensate: with the competition challenge the group members still had a challenge that was the same for all where they could talk about, the difference being that the challenge does not have to be carried out at the same time.

The rest of the experience meaning the pre-experience and the gameplay consisting of: the secret challenges (chapter 3 introduction figure, figure 24, 54), the voice mail (figure 25), picking personal characteristics (challenges according to characteristics can be found in appendix F), the key to log-in, the art transport case (figure 2, 21, 26, 27, 55), having drinks afterwards and the information that is send home could be tested completely. The only restriction being that there is only one art transport case available (that cannot be moved quickly during the test) and therefore there not being continuity in this experience or value in creating a magazine of the experience afterwards.



Figure 24. Participant checking secret challenges during visit. (Own photograph)



Figure 25. Participants listening to the introductory voice mail. (Own photograph)



Figure 26. Participant group performing group challenge at the art transport case. (Own photograph)



Figure 27. Participant acting out painting while group members search for it. (Own photograph)

TEST RESULTS

PARTICIPANTS

31 young adults participated in the test. An overview of the participant demographics is found in figure 28. The participants were divided over 8 groups (generated by the participants themselves). This resulted in 7 groups of 4 and one group of 3. The group with 3 did not receive a buddy challenge.

The groups all went through the museum differently. Some groups were quite wild and some were very serious and quiet. Most groups were a mix of the two. In all groups there was a lot of laughter and almost all groups had discussions about artworks together. Most groups went through the museum as a group, but some splitted up.

DEMOGRAPHICS

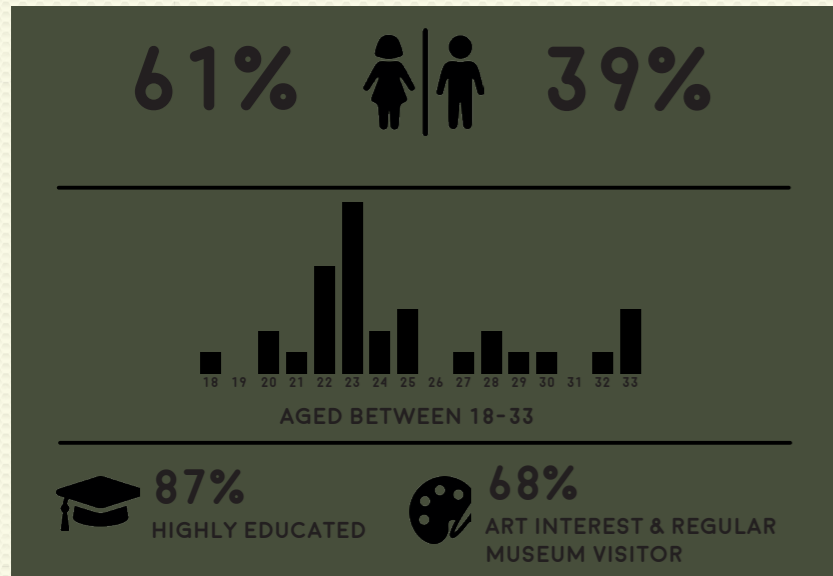


Figure 28. Participant demographics. (Own visual)

ANALYSES QUANTITATIVE DATA

The data recorded from the questionnaires was loaded into ILLMO, a program similar to SPSS but more visual, for analyses. Although the data most likely assumes Gaussian distribution because the data is the result of many small factors put together, nevertheless non-parametric tests of empirical likelihood were performed. Using this method usually 'less' effect is observed, as due to the lack of distribution there are also less extreme (expected) results. But empirical likelihood results are reliable and realistic. As for publishing purposes it is important to find large effect sizes (or effects at all) modelling the data using a distribution is often preferred by researchers.

Empirical likelihood produces Log Likelihood profiles while optimizing over all possible distributions on the observed data. If the insights generated from this data do not differ much from the insights generated from the assumed Gaussian distribution, a Gaussian distribution fits reasonably well and parametric tests can possibly also be performed and even greater effect sizes can be found. Evaluating the data, this is the case. But it was chosen to present the data analyses using empirical likelihood as these insights are realistic as well, or are even more realistic in terms of effect sizes.

Non-robust EL was used to analyse the data. Non-robust was chosen over robust analyses due to the Likert scale having limited choices. Therefore the data has no extreme outliers.

Figure 29 illustrates the absolute average effects for each statement and their confidence interval. Only the data that is does not include 0 in the confidence interview has an average effect that is interesting to elaborate upon.

The figure displaying the difference effect between two randomly selected conditions (figure 30) illustrates that the LLF (black) and the LLP (red) are almost coinciding. This implies that the value of the estimated average has only little influence on the estimated standard deviation. This influence decreases with the sample size. This diagram looks different for each condition (each statement) due to sometimes large variation in answers this variation is not seen in the absolute average effect.

Because the numbers on the Likert scale, which was used to gather the data, have no Intrinsic meaning; looking at relative effects is the better choice for evaluating the data and this evaluation is chosen over absolute effects. Because relative effects provide information about how much the answer varies across

observations; it provides this information next to the information about the average answer in the form of more extreme results, separating the interesting data from the non-interesting data.

Figure 31 illustrates the relative average effects for each statement and their confidence interval. Although all previously already observed effects still exist it can now be observed which statements were agreed upon more among participants as the average effects of these conditions (statements) increased drastically.

To find the impact, or effect size, one has to look at the difference effect. Note that in psychology an effect size of 0.2 is considered small, an effect size of 0.5 is considered medium and an effect size of 0.8 large according to Cohen's d. The absolute difference effect is illustrated in figure 32 and the relative difference effect is illustrated in 33. In the absolute difference effect illustration it can be seen that all confidence intervals are about the same while in the relative difference effect illustration the confidence intervals vary. The confidence interval here size says something about the spread of the answers.

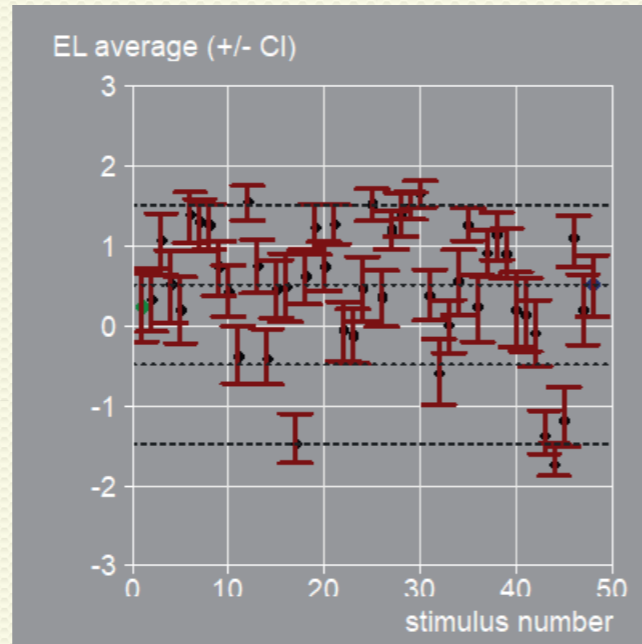


Figure 29. Average effect all statements, absolute data. (Own visual)

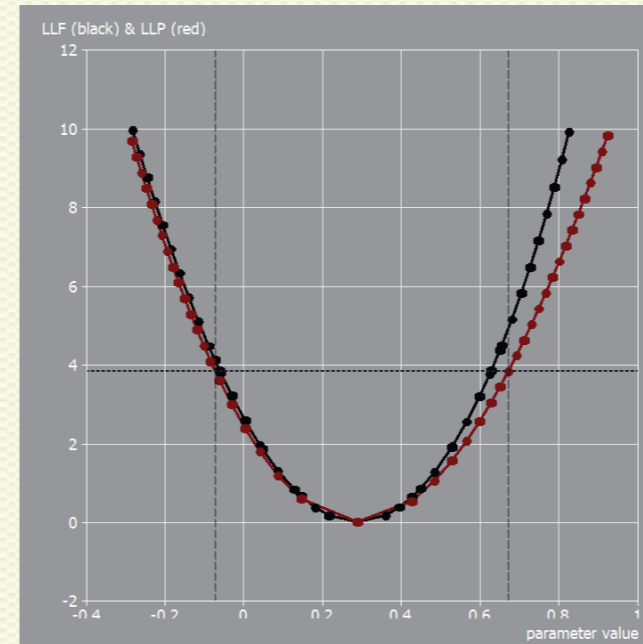


Figure 30. Log likelihood, difference effect condition 1 and 48. (Own visual)

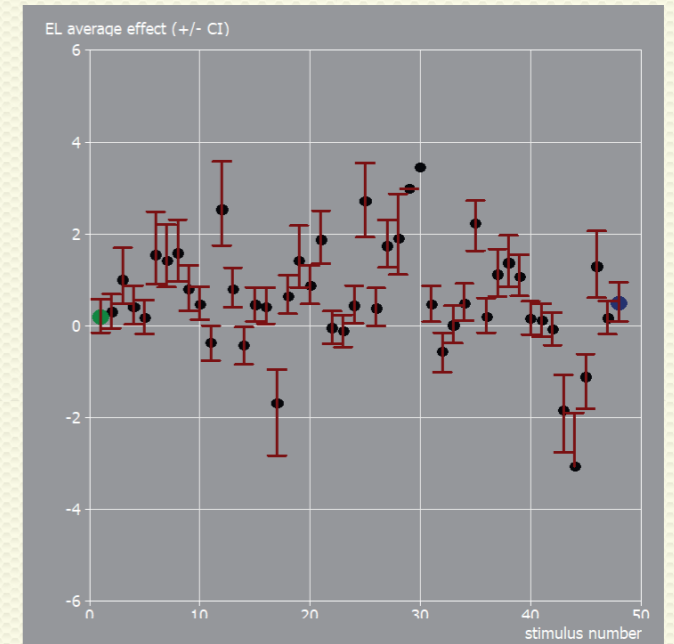


Figure 31. Average effect all statements, relative data. (Own visual)

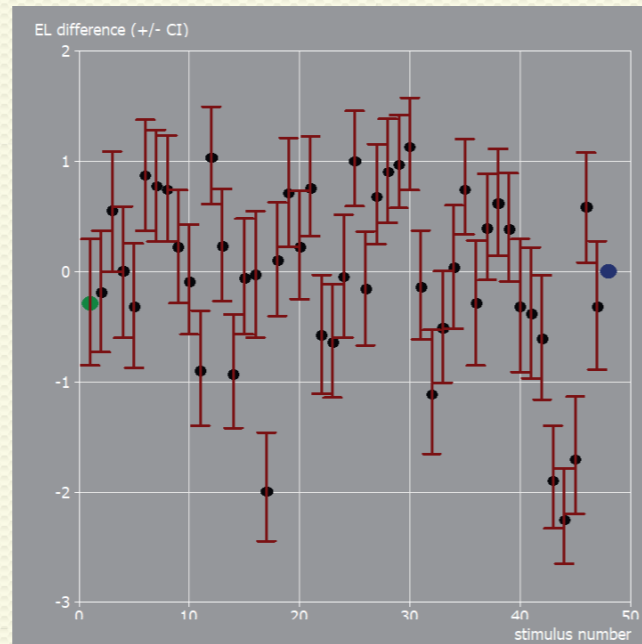


Figure 32. Difference effect all statements, absolute data. (Own visual)

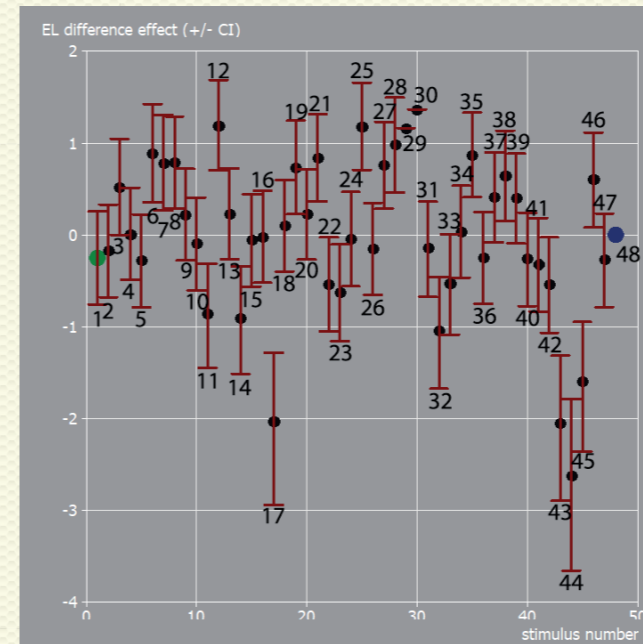


Figure 33. Difference effect all statements, relative data. (Own visual)

Based on the relative difference effect the statements with confidence intervals excluding 0 were ordered from largest effect to smallest effect. When an negative effect was observed the statement was reversed (from positive to negative) creating the following list:

1. I had fun. d (Non-robust EL) = 1.35863, with 95% CI.
2. It did not feel like I wasted my time. d (Non-robust EL) = 2.08251, with 95% CI = [2.8471, 1.43571]
3. I did not feel mad. d (Non-robust EL) = 1.60293, with 95% CI = [2.27724, 0.997342]
4. I did not feel malicious towards others. d (Non-robust EL) = 1.61875, with 95% CI = [2.34018, 0.986025]
5. I did not feel stressed. d (Non-robust EL) = 1.24751, with 95% CI = [1.89541, 0.67575]
6. I experienced funny situations.
7. I enjoyed succeeding. d (Non-robust EL) = 1.3782, with 95% CI = [1.93707, 0.869267]
8. I enjoyed sharing my experience with others. d (Non-robust EL) = 1.36797, with 95% CI = [1.91375, 0.872744]
9. It made me laugh. d (Non-robust EL) = 1.24751, with 95% CI = [1.89541, 0.67575]
10. I enjoyed passing time with it. d (Non-robust EL) = 1.09246, with 95% CI = [1.61142, 0.609086]
11. I enjoyed learning new things. d (Non-robust EL) = 1.08692, with 95% CI = [1.6673, 0.543657]
12. I enjoyed finding something unexpected. d (Non-robust EL) = 1.05565, with 95% CI = [1.58114, 0.564435]
13. I enjoyed competing against it. d (Non-robust EL) = 1.00541, with 95% CI = [1.54745, 0.49032]
14. I enjoyed discovering new things. d (Non-robust EL) = 0.949029, with 95% CI = [1.49908, 0.426123]
15. I enjoyed the visuals. d (Non-robust EL) = 0.869498, with 95% CI = [1.39662, 0.366594]
16. I enjoyed the suspense. d (Non-robust EL) = 0.830868, with 95% CI = [1.37835, 0.288817]
17. I forgot the time. d (Non-robust EL) = 0.732467, with 95% CI = [1.29283, 0.200198]
18. I did not feel powerful. d (Non-robust EL) = 0.586715, with 95% CI = [1.1334, 0.0709876]
19. It did not feel as if it took care of me. d (Non-robust EL) = 0.189212, with 95% CI = [1.29008, 0.189212]

ANALYSES INTERVIEWS

All interviews have been audio-recorded and were transcribed digitally afterwards. The transcriptions are found in appendix G. Of these transcriptions, a thematic analysis has been conducted by means of NVivo, analyses software for qualitative data.

This software was chosen over ATLAS.ti and physical coding after trying out all three; it was chosen due to the ease with which codes could be resorted or edited.

The software allows the researcher to move back and forward between the original data set, the coded data extracts and the sorting of the data extracts [54]. The data was analysed by “open coding”, this means that it was clustered without a predefined coding scheme, allowing meaningful clusters to arise during the analysis [55].

In this process of coding and categorizing a continuous process of reviewing and iterating on the clusters and their description went on. Done by the design researcher.

In order to increase the reliability of the analysis, a second independent coder was involved. In order to evaluate the coding scheme made by the design researcher the independent coder was given one interview, as a sample, to code from scratch and create clusters herself. The independent coder then explained to the design researcher what her reasoning behind the clusters was. This led to the next iteration in the clusters.

REGULAR VISITORS

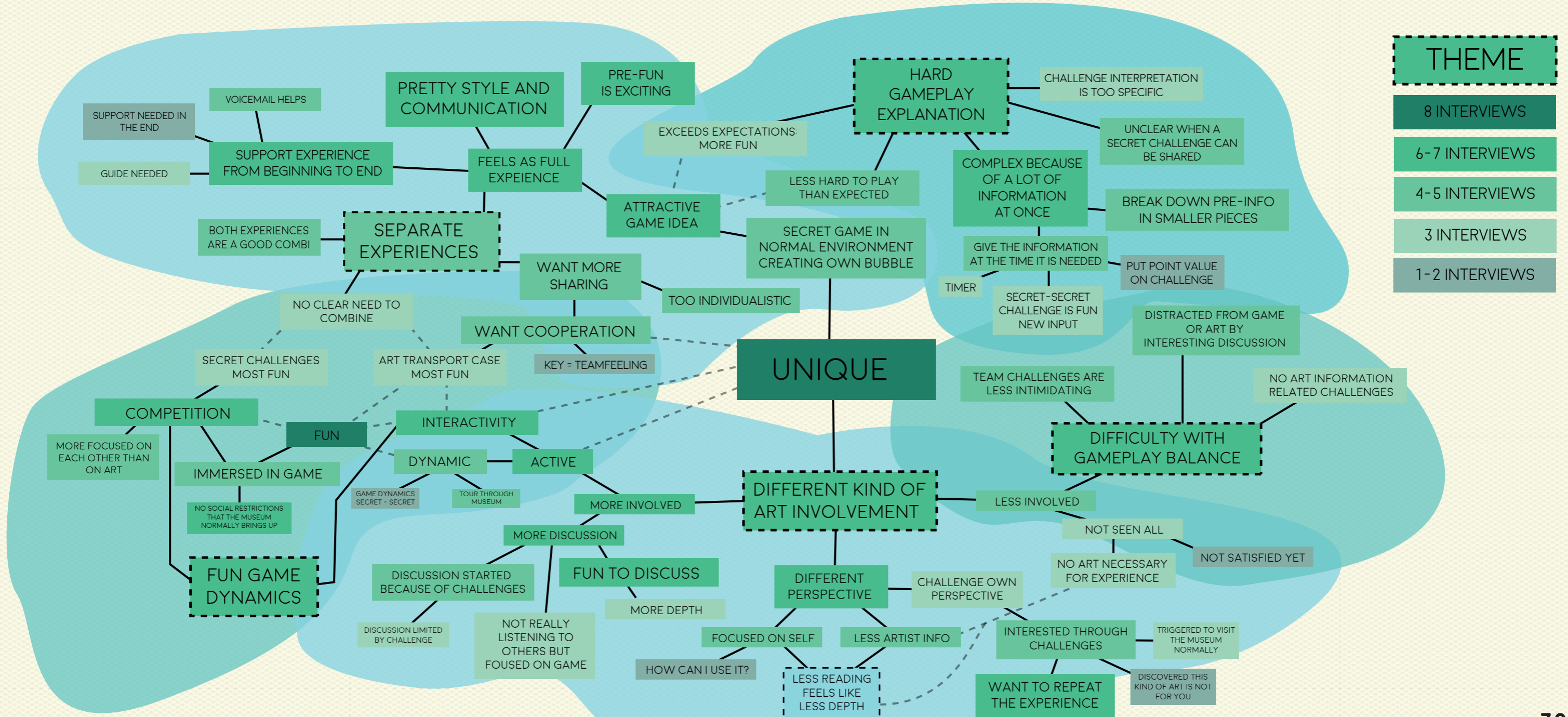
The regular visitors interacting with the art transport case were very enthusiastic. Most visitors only performed one challenge. But that the art transport case was received well is understated by the security guard watching it all day for a week. As the researcher was starting up the system the guard walked up to her and without further conversation he asked her if she designed it and told her:

“You really see that the object also draws people to it, people are really curious. And if they are engaged than they are really talking about the art. Like really. This way the museum visit also really has more depth. Very nicely done, a lot of fun adding interactivity.” - Raymond van Lieshout

Besides the positive feedback the visitors that the researcher talked to also have some suggestions:

- Let the system read the challenges out-loud.
- More images and less text.
- If there is only one person, getting them to do a challenge previously left by another single visitor.

DATA ACCORDING TO ANALYSES THEMES



DATA AND THE HEURISTICS

In the following paragraphs the data is used to reflect upon the heuristics. To support the claims made in these paragraphs quotes from the interviews are used. (This is the extended version of the evaluation) Please note that the interviews were held in Dutch and that the quotes are therefore translated. The names behind the quotes are pseudonyms to ease reading.

Be for group use (around 2-10 people)

The experience currently fulfils the 'being for group use' criteria but not for the number of people that the heuristic required. Nevertheless there is an easy implementable future option to do so.

The experience is a true group experience

The experience is perceived as group experience and fun group activity. Participants agree that it is crucial for the experience to be with a group and that being with a group makes it fun. That participants enjoyed spending the time together can also be seen in the large size effect found in "I enjoyed sharing my experience with others."

"If I think about it now, we really were running like crazy through the museum. Well I don't know about you but I NEVER have. I am always really careful in a museum. Like 'I have to be quiet' And I really did not even notice other people. If you ask me how many other people were there, I would tell you that maybe three times someone

came in when we were in the hall with the transport case. And furthermore I have no idea if there were people or not. I was in a bubble with only this group hahaha." - Chloë, 23, group 4, in answer to "Did you feel free in your museum visit or were you restrained by something?"

"For me my perception about art and museums changed because you guys were there as well. For me a museum visit is often a very individual experience. And other people walk around in the museum as well and you never really know why they are there or why they like it. So again a bit more perspective from others." - Linsey, 22, group 1, in answer to "Did your perception of art or museums change?"

"Well I expected to really experience something. I was going to compete in a game. It would be a sociable, fun, team, friend-group activity. And it also was." - Rachel, 33, group 6 in answer to "What were your expectations before you started the experience?"

Concept is currently, without intervention, only well adjusted to 4-6 people taking part in all aspects of the experience.

The number of people the current experience is intended or interesting for lies between 3-6 people with an ideal group of 5-6 persons. The physical prototype was designed to be used with 2-6 people at the same time, for larger groups it needed to become too big for it to be placed in museum halls easily. But a larger group

could be split into two to also interact with the prototype.

The groups taking part in the secret challenge experience consisted of 3 or 4 members, they suggested that groups of 4 to 6 or 8 people were most acceptable for the secret challenges but 2 people were already enough for interacting with the art transport case. Too many people would make the group a large mass going through the museum which could irritate other visitors. Too enable larger groups to participate in the experience (and to make the experience more social) in the future they could see the experience happen with multiple small groups competing against each other: 5 duo teams competing.

"I would do more, uhm that you do this with multiple small groups, like with 2. That you have a standard buddy and that you get challenges together. Meaning you compete against multiple other groups in the museum. That you enhance the competing against other teams aspect." - Jacob, 22, group 5 in answer to "With how many people, do you think, this experience is most fun?"

"If you make the group larger than 5-6 you can't really talk to everyone anymore." - Anna, 23, group 1, in answer to "With how many people, do you think, this experience is most fun?"

"I was thinking it might be fun with 2. You have more time to really see everything and to discuss. I think you can also choose better with whom to go, someone that really is interested. But for certain challenges you can't (...) think you can do the thing at the case with 2, that would still be fun." - Senna, 25, group 1, in answer to "With how many people, do you think, this experience is most fun?"

I think a group that is a little larger would be nicer. But not a too large group. Than it will probably become chaotic. And also it will become very hard because for some challenges you really need all your friends. I think a group of 4-5 like that. 6. - Lena, 25, group 8, in answer to "With how many people, do you think, this experience is most fun?"

Be applicable (with minor tweaks) in multiple art (history) museums.

The concept fulfils this criteria but some improvements could be made.

The physical object limits the amount of museums interested or able to afford it (due to the need to buy instead of rent) while for other museums the physical object creates value. Due to the size of the art transport case Rijksmuseum decided not to be a test location. Rijksmuseum believes the art is the most important and nothing should distract from

it and they believe that a large object (not specifically designed to fit in their specific rooms) would distract from it. By designing the object specifically for their halls and making it smaller it would still be applicable, this is a minor tweak for Bruns as each exhibit needs to be fitted to a museum and is therefore unique. But it also has implications for the finances: it cannot be rented to the museum and later passed on to the another but it really has to be bought by the museum which is a large investment. Rijksmuseum also expressed that they thought the concept, as it was, would already fit in to multiple museums but just not with theirs due to their vision.

Nevertheless Rijksmuseum is, besides this aspect, very enthusiastic about the possibility to trigger young adults and the way in which to do so: active group activity and secret challenges, that stimulate young adults at their own level. It is the physical object where Rijksmuseum is reserved: with the amount of people that can currently make use of the concept at the same time, would the concept make enough turnover to buy the 'art transport cases'. (Say there are 6 cases then you would let a maximum of 10-12 groups in to do the experience each 2 hours). This needs to be investigated further.

The concept was tested in Van Abbemuseum and was very well received by the participants, the employees and the regular visitors; which makes that it is applicable - as it is now - at Van Abbemuseum. For them the physical object

created value for both the secret challenge experience and the regular visitor, as was noted by the Van Abbemuseum employees.

A fit to multiple museums, specificity required
Participants believe it would be interesting to do this in multiple museums, also non-art museums could use the concept base. Participants also have some critique on the fact that it can. The concept was first designed and afterwards only adapted to fit into Van Abbe as current testing museum. Participants would have liked to see challenges that were even more adjusted to the specific museum and exhibition meaning that they would like to learn about the artist intent next to their own opinion about the art. But even participants see the potential of placing this 'secret challenge throughout the museum' and 'getting more in depth through regular challenges that are specific to the concepts in one hall' in other (not even art) museums and believe this to be fun. Therefore they even bring this up themselves, out of the blue.

"If it was up to me we would have done this for a longer time. That I would have enjoyed. And I think it is a really good, like really good concept. I see this as something that can be done at multiple museums. Not only this kind of museum but also other sorts, like natural history museums. Yes." - Kim, 23, group 1, in answer to "What was, directly after the experience, your first impression?"

"Well those challenges you could do are actually really funny. You can do them everywhere. You are more sociable and active in a museum. But I don't know."

- Christal, 33, group 6

"Yes! It does cost some preparation time though, if you make it yourself to do somewhere. I would like to do this as a company retreat. When the weather outside is bad than this is a good option. It is learning and team building." - John, 33, group 6

Both in answer to "Did you have new insights or ideas that you could maybe use for your next museum visit?"

"I expected that uhm, it would be more connected to Van Abbemuseum. And this is something, well it is separate. I don't even think that you need to do this in a museum. The principle has nothing to do with art." - Mark, 27, group 7, in answer to "What did you expect to take from the experience?"

"I thought, that what you are going to do now, the game, is distracting from the art. But I think the content could therefore be more focused on art. On the understanding or trying to understand art pieces. What the artist meant. But that is something I would personally find interesting." - Naomi, 23, group 5, in answer to "What was, directly after the experience, your first impression?"

Not force the museum into major redesign or a rebuild of exhibition spaces.

The concept fulfils this criteria by for a large part not being physically present in the museum. And for the physical part by being not too large (in comparison) and by being 'easily' movable and plugged in to the grid, but it is not true for each exhibition.

In Van Abbemuseum the art transport case, which is clearly part of the concept, was given it's own hall. That the object was given it's own hall was due to the current exhibition. The exhibition is about art and art exhibits which means the halls are completely curated and for instance set to look like a hall from a certain time period or (imaginary) country. Therefore the object could currently not be placed in the existing exhibition halls.

The new experience should not interfere, negatively, with the experience current/other visitors have (be irritating to them).

This heuristic is fulfilled by the experience. Other visitors liked seeing the enthusiasm of the participants and listening to their discussions. They also enjoyed the added value the experience had for their own experience: They could also use the interactive art transport case.

The current visitors and employees that were asked about their reaction to the participants, at random, were not bothered by the participants

in the museum. Most visitors did not even notice and the visitors who did (for instance at the art transport case) liked to see the participants engage this ecclesiastically. Nevertheless this could be different in another museum. The participants themselves also noticed the enthusiasm of the employees and visitors.

Visitor enthusiasm

Participants noticed that other visitors and Van Abbe employees liked their enthusiasm rather than that they were bothered by it.

“It was hard to estimate what the group dynamics would be. And how the museum would react. Because in the museum people are often quiet. Where they walk around on their 1 won and read a little. But actually it was pretty easy to just talk with each other without feeling like I was bothering others..” - Linsey, 22, group 1
“I thought the museum guides thought it was super fun that some young woman were really going into depth on.. Well at least I saw them look like ‘Oh wow, they really find this interesting.’” - Anna, 23, group 1

Both in answer to “What were your expectations before you started the experience?”

“That the other visitors of the museum, that they went into the room and they started looking at what we were doing. I really liked that.” - Bas, 22, group 3, in answer to “What did you like best about the experience at the physical prototype?”

Be attractive to the user target group of 20-30 year olds. (Before taking part in the activity)

In the heuristic description it is stated that the experience needs to be attractive to the user in the invitation stage (communication), that it needed to enable humour and fun and that it needed to be challenging. All elements are evaluated separately. It can be concluded that the heuristic is satisfied but that improvements can be made in terms of improving perceived challenge by improving the (non-existing) difficulty that follows from complex information.

Attractive communication and style

The receiving of information beforehand and the looks of this information- the whole branding, also continued in the museum, made participants feel special. But also the expected dynamics (active and social) of the experience were attractive to the target group.

“The mail we received beforehand, that really felt like WOW, this is really special and it looks very pretty. I also thought it was really exciting that you had to call a phone number on arrival. ‘Who will answer?!’.” - Amy, 25, group 7, in answer to “What really cannot be changed about the experience, what needs to stay?”

“When talking about the experience, than it’s just the whole branding. That you also get mail at home and the whole theme. With all the card and the installation. The station, as it where. And with the button. That really adds to it. It was really something special and really something

new. It really adds to the experience that you journey through the museum. Some sort of safari, so that you do not only stand still at one location with each other.” - Anna, 23, group 1, in answer to “What about the experience added to achieving what you expected about it?”

“I really liked my cards. Really. It really added to the experience. Also fun that it had a nice illustration and that everything fitted together.” - Sam, 22, group 3, in answer to “What was your favourite part of the experience?”

“How I received the experience I already thought was new. At my home. I got something beforehand. I got this paper and those challenges, so it became very much alive already. I thought that was innovating. I already really liked that!” - Rachel, 33, group 6, in answer to “What made this experience innovating or stand out from other experiences (also non museum experiences)?”

A humorous and fun experience

To be attractive to the target group the experience also had to enable joking around and humour. Looking at the quantitative data it became apparent that the experience offers humour and funny situations already. Because of the agreeance with- and the large effect of the statements suggesting that participants had fun, it made them laugh and they experienced funny situations. Plenty examples of these situations can also be found in the interviews.

“I again have to bring up those five minutes at that painting with the tear. I really don’t get it. I opened up that secret secret challenge and was like ‘nope, this is not going to work, I totally am at the wrong location for this.’ And then you came and stand next to me. And with three we were talking about the nonsense of the painting and I filled the 5 minutes. I really liked that haahahaha.” - Bas, 22, group 3, in answer to “What was your favourite part of the experience?”

“I did not know if it would be very much based on theory or - Well I found them very diverse and that I really liked. For one you just had to stand in one spot until someone would say abstract. And I was completely trying to make you say it. But it didn’t work. And I was just standing there like.. That was really funny. It was just fun.” - Lena, 25, group 8, in answer to “Did the secret challenges also correspond to your expectations?”

“Mostly it was just funny to see how people were gone at once and we were there like uhm??? I don’t know what they are doing now, - I don’t either. That was a funny effect from everything that happened. I did not expect that there would really be a ‘hahahahah’ effect. But it was mostly really funny.” - Sarah, 21, group 4, in answer to “Did the experience correspond to your expectations, how or how not?”

Information expectations: Fun but hard and chaotic experience

As there is a heuristic especially devoted to 'challenge' only the expected challenge will be discussed at this point.

Before the experience, after receiving the information, participants expected the experience to be hard and chaotic. This is not attractive to them. But participants also came up with a solution: breaking down the information into even smaller parts that they get more spread such as with the secret secret challenges and with the voice mail.

"In the beginning there was so much information, the 4 pages that I read and all the challenges. I thought 'do I have to remember this while I am looking at art?!' So continuously I was like 'oh I have to read again what I need to do all at once. So that made it harder to take the time to look at the art works." - Moniek, 20, group 4, in answer to "What was, directly after the experience, your first impression?"

"I expected that I would really totally not get the game. Hahahaha. No but really. So I really, really read it a couple of times. So then I thought 'How will I get all these cards done?!' But when we started it was really easy." - Christal, 33, group 6, in answer to "What were your expectations before you started the experience?"

"That made the time challenges with the decoder really fun! I thought those were really nice. Because that was something like 'you read it now and then you have new input again'.

Especially because you already processed the other cards. And then it's 'fack, how am I going to do this now.' So that brings a new element to the game. And I really liked that. It is really simple but it was really nicely done. Also 'oeeeh decoder' oooeh. I don't know. I really really liked it." - Naomi, 23, group 5, In answer to "What was, directly after the experience, your first impression?" When talking about information overload.

Enable some kind of learning with help of the exhibition.

This heuristic is satisfied but could, in combination with the 'challenged appropriately heuristic' be satisfied better. Participants perceive they have learned something during their visit, but this is something different from what they expected or would like to learn. Therefore there is some discussion around learning more about the art or learning less about the art within the interviews.

Learning in a fun and challenging way

In the interviews all participants indicated that they learned something. If this wasn't about the art then it was about their group members and their interests. That they enjoyed the experience and thought it was triggering them to actually appreciate works that would normally not get their attention, feeling more connected to those works.

"An escape room, that's where you also go for a fun experience with friends. And I really think

it is a positive addition that you actually learn something here. That it is useful. That was also what I hoped beforehand." - Kim, 23, group 1, in answer to "What this you expect to take from the experience?"

"At the art transport case you are also more involved in the work. Normally you look and you have seen it. But now you are really involved." - Ron, 29, group 8, in answer to "What was your first impression directly after the experience?"

"I thought it was really special. And I really enjoyed it a lot. I was doing everything. Secretly also a bit with the game. But actually also that I thought 'ooaah, this is actually a kind of cool art work and stuff.' And otherwise I would probably just pass it." - Jenna, 24, group 2, in answer to "What was your first impression directly after the experience?"

"It really is the game. It really is a game. A game that involves you more. That you are actually thinking about art but that you get approached in a different way. So you really get challenged in that way." - Iris, 18, group 2

"You talk about challenge in a museum. But I didn't even think about it as a museum visit this way. It was more interactive. I connected more to the art now. This works better for people that never go to the museum." - Jasper, 20, group 2 Both in answer to "What made this experience innovating or stand out from other experiences (also non museum experiences)?"

"Yes, normally people are silent in a museum right? Hahaha, I forgot that for a while. I was just to enthusiastic." - Zoë, 23, group 2, in answer to "Did you feel free in your museum visit or were you restrained by something?"

"You also have to do things that are not in your comfort zone. So you get taken out of your comfort zone and start looking at something that does not interest you. But then you have to, and that is sometimes a little less fun, but that has to do with the challenge. So you get forced to do something you normally would not because you want to succeed in the challenge. And that makes it actually fun again. But I just wanted to say, you are there looking at stuff you normally would give the time of day. hahaha" - John, 33, group 6, in answer to "What did you like least about the complete experience?"

"I uhm, I thought it was a lot like an escape room. So you can do this with colleagues or with friends. Or with the board hahaha like we did. And I have the idea that you really get to know each other better. That you learn how people think. The same actually with an escape room. That you see the problem solving happening." - Rick, 23, group 3, in answer to "What would you tell to your friends about what you just did?"

Less information about artists equals less depth

Participants that visit museums more often felt that they learned less than they normally would. They normally read a lot in the museum and try to see everything. During this experience they 'received' less information and created more

information themselves. So there were more discussions about art, but to them this felt as learning less because there was no straight up knowledge about artists. Learning this information is in line with their interest.

“Now everything was based on our opinions and on us. I thought that was less interesting than looking at it from the perspective of another person.” - Kara, 23, group 5, in answer to “What did you expect to take from the experience?”

“You are really focussing on each other, all the time. So you are focussing less on the art. So I think I eventually read less about the art works than I normally would have. But I did talk about them. So I really liked that.” - Linsey, 22, group 1, in answer to in answer to “What about the experience added to achieving what you expected about it?”

“And maybe the challenges a little more about the museum pieces. Because now I only looked at one specific thing. And if I really would have wanted to see the museum and the art, then IF I was directed towards something, I would rather have been directed towards some things that could really teach me something.” - Sarah, 21, group 4, in answer to “What can be improved about the complete experience?”

“I would get more into the specifics of the art that is there. Even if it is not specifically on a painting but more broad. The year or the time it was made, you know. So like 1800 in general. So you also do something with the art, and not

only with each other. And some more buddy challenges or in small teams or something. That you are not alone.” - Naomi, 23, group 5, in answer to “What did you like least about the complete experience?”

“If you go the museum to really see paintings, you should not do this, the challenges next to it. Because you will mostly be doing the challenges. Next to that I thought it was really really fun to do the challenges in the museum without the regular visitors knowing you are doing something really different from looking at art.” - Ben, 22, group 3, in answer to “Did you feel free in your museum visit or were you restrained by something?”

Not seeing all works feels as learning less
That participants did not see all works because they were focussing on the challenges or because they did not have the time to do so made them feel as if they learned less than they normally would during a museum visit. They did not feel satisfied yet. Nevertheless, some participants felt as if they saw more art than they normally would during a museum visit because they had less interest in art beforehand and they ‘really saw’ some works. Meaning that they thought about the art, which they normally would not really do. For them this experience was a way to see more.

“I thought the experience was a lot of fun only I noticed that I had the feeling that I missed some things because I was doing two things at once. I am not that good at multitasking, so

that was a bit like ‘oh I am doing a game but I also want to read things.’ So finding the balance I found a bit hard. But I did think it was really nice to go through the museum in a different manner.” - Linsey, 22, group 1, in answer to “What was your first impression, directly after the experience?”

“Well maybe if I would visit the museum with the premeditated idea that you are ‘chilling while looking at art’ and that you are going to see the whole museum. Well, that is not the case. Because now you have seen very specific paintings. (Side note: A group did not get directed to see these paintings, they picked the paintings themselves, paintings they relate to the challenges.) But there are also a lot of paintings that you not really took in. But doing that now was not my intention because I also wanted to play the game. I thought ‘I’ll see what happens’. But if that was not my idea then I would not be satisfied now.” - Sanne, 22, group 4, in answer to “What did you like least about the complete experience?”

Different perspective through challenge
Participants looked at the art differently than they normally would. They learned about it by looking at it through a different perspective. Taking on such perspective is often also something they want to take from the experience to use in their next visit.

“And if I find something really interesting than I think, oh I will tell the other person what I just read. But that is more knowledge you

discuss together. So not really an opinion or a perspective that you discuss. So I think that because of what we just did. Or indeed by looking at the art a certain way, that this is something that I take to the next time I visit a museum. Because those conversations are really fun.” - Elle, 24, group 4, in answer to “Did you have new insights or ideas that you could maybe use for your next museum visit?”

“What I really noticed is that I took a certain perspective because of the cards I had. So if you need to start the discussion about this and that than you also look at it in that manner. It is a bit like you put on blinkers and ‘I am looking for something that means art or not’. That is also quite fun because this way you also see more of a trend in the museum. Like ‘oh it comes back here, and here’.” - Linsey, 22, group 1, in answer to “Did you feel free in your museum visit or were you restrained by something?”

“We played a game in the museum during which we would look at the art there in a different way.” - Vera, 28, group 7
“I was more aware how others were interacting with the art. By looking at how the others in the group were discussing the art, with that.. Yes, trying to find out if they were doing a challenge.” - Mark, 27, group 7
Both in answer to “What would you tell your friends about what you just did?”

“I think I went through the museum differently than I normally would. Normally I would read everything and now I - well normally I may even

look at the signs too much - and now I was really paying attention to the paintings. But more like 'how can I make a MEME' or 'how can I do a challenge with this' So yes, maybe I am reading less and looking at the art more and thinking about it more.” - Kim, 23, group 1, in answer to “Did you feel free in your museum visit or were you restrained by something?”

Challenge the user target group appropriately.

This heuristic is somewhat satisfied by the current experience. Challenges are fun and challenging but sometimes the experience is a bit too challenging: the balance between challenge, art and social is not easy to maintain for everyone.

A well received experience with flow

Users were, for the most part, appropriately challenged by the experience. This can also be seen looking at the list of impactful playful parts of the experience in the quantitative data analyses. This list contains ‘I enjoyed succeeding, I enjoyed competing against it, I enjoyed passing my time with it and I had fun. All of these statements indicate a fun experience. To have fun there needs to be flow. And to have flow the level of difficulty and the competence of the user are balanced. [33, 47]

A well received experience

That the experience was well received also became apparent from the interviews as already can be noted in the quotes in the already discussed heuristics.

“This is really a fun way to immerse yourself in a museum and artworks. And you are really. The time goes so fast. You really have the feeling that you are doing something fun. And you don’t feel like you are forced to look everywhere. But you look at the things you like. And you are also taking game actions.” - Jenna, 24, group 2, in answer to “What was your first impression directly after the experience?”

“I only saw it when we went to the restaurant. I was like ‘oh there are a lot of people here’ Were they all in the museum? I would not know. Really bad, I know” - Elle, 24, group 4, in answer to “Did you feel free in your museum visit or were you restrained by something?”

“I really forgot about the time. The only reason I knew was because I needed to make the MEME. I had a lot of messages. And I was like ‘wow’ life really goes on. I was really into the experience.” - Anna, 23, group 1, in answer to “What was your first impression directly after the experience?”

A hard time balancing art and game

However some participants had a hard time keeping up with all: the art, the social and the challenges. Here the challenge became a bit too much. This is already seen in ‘not seeing

all works feels like learning less’ in the previous heuristic. Focussing the challenges on learning about art information as well could help deal with finding this balance.

“Well you can also have a challenge like ‘collect from everyone in your group information about the painter Andy Warhol’ or something. And then you also have a continuous challenge, but than differently.” - Mei, 23, group 5, in answer to “What really cannot be changed about the experience, what needs to stay?”

Something for everyone, variety in challenges

The variety in challenges was appreciated and ensured, for everyone, at least some challenges that the participants liked. The best liked challenges are different for all. Where one would enjoy the making of the MEME competition another would feel more for buddy challenges or the secret-secret challenges.

“I really liked the variation in the sort of challenges. They were all fun.” - Lena, 25, group 8, in answer to “Did the secret challenge part of the experience also correspond to your expectations?”

“I thought the challenges that helped to do something in the museum that you normally do not do were really fun. Because than you - like ‘read everything in one room, like I was accused of, but what wasn’t my challenge’ than you really look in a different way than you are normally used to. So I really liked those challenges. And then you indeed have a discussion you

would normally not have.” - Linsey, 22, group 1, in answer to in answer to “What about the experience added to achieving what you expected about it?”

“I think it is very nice that you have short duration challenges and long challenges. Both. So you need to keep that.” - Jacob, 22, group 5, in answer to “What really cannot be changed about the experience, what needs to stay?”

“At the art transport case there were also a lot of challenges that you really had to think about. Also with the personal memory. You really had to think hard about that, if you were able to connect a work somewhere to somehow. So than you are really, really involved in the art. That was something I really liked.” - Lena, 25, group 8, in answer to “What did you like best about the experience at the art transport case?”

Support social interaction and collaboration.

This heuristic is not completely satisfied. The experience supported social interaction between visitors and within the group better than a normal visit would. This group feeling was really appreciated. But collaboration was not experienced as stimulated enough. Because of the competition, cooperation is limited. This resulted in a more individual experience within a group that for some participants made the experience less interesting..

From individual to social

It was enjoyed that something that normally is not done together was done together.

“Really doing something with your friends in a completely different environment. You know that you can function well in a game together. But also in such an environment.. That you know that you would normally not visit something like this in this make up. That I thought was really fun.” - Rachel, 33, group 6, in answer to “What kind of value did this experience create for you and your group?”

“Well normally you think about it alone, and you keep it to yourself. En sometimes when you went to the museum together and you go outside, you say ‘oh I liked that’. Or ‘I enjoyed this’. But in that experience you are really focused on doing something individually. I now have the feeling that I can share more.” - Lex, 30, group 8, in answer to “Did your perception of art or museums change?”

Social interaction because of Art transport case

Most cooperation takes place at the art transport case. For some participants this part of the experience is therefore the most fun. Here also other visitors are involved, they sometimes watch the groups interact, forming an audience. The art transport case ensures in-depth conversation about art is supported and triggered by making participants elaborate on a specific work. The physical design of the object supports the team feeling and social interaction.

“I really liked the art transport case. Because

you stand around it with everyone. I actually really liked the things you did together because it did not require you to constantly focus on what your personal goals are and how you could achieve them. But also really thinking together ‘what would they mean with this’. So I actually would have liked it better at the art transport case if we had to all guess together, what we tried to do initially.” – Linsey, 22, group 1, in answer to “Did you discuss or work together during the experience?”

“I thought the group challenge at the hall with the art transport case. That I thought was really well designed. That was something where we had to work together.” Mark, 27, group 7, in answer to “Did you discuss or work together during the experience?”

“I thought it was really funny that someone stands on one side and someone else on the other side and then you have to wait and press the button fast. That is actually again a competition element.” - Christal, 33, group 6, in answer to “What did you like best about the experience at the art transport case?”

“I thought it was most fun, the best I think. The strongest. That you uhm, that you had to describe what you thought and that the others then also have to guess what matches to what you think about it. I think that you have a ‘Ooooh, so you see it also a bit like..’ I think that you can do a lot with that.” - Lex, 30, group 8, in answer to “What did you like best about the experience?”

Supported discussions and team feeling

For a lot of participants doing something together and discussing / working together is one of the best liked parts of the experience. That you need to do challenges together and need to observe the others in the group keeps the group together. Meaning that the group feeling and sociability is supported by design elements such as the key, the discussion challenges and the game dynamics.

“Well, uhm. I really liked the buddy part. And I really like doing it together. Just being together.” - Naomi, 23, group 5, in answer to “What did you like best about the complete experience?”

“Well actually, you are doing something and you also are hanging out with each other because you need to check, if they are not trying to perform a challenge haha. But that does make it so that you really do it together as a group. And that you don’t all go walking around randomly.” - Jenna, 24, group 2, in answer to “Did you discuss or work together during the experience?”

“No, and also when you go to a hall together. We regularly were looking at something together and that you think like what is this?! Or that we all were looking at Hitler’s painting together.. ehm” - Rachel, 33, group 6, in answer to “Did you discuss or work together during the experience?”

“The key I thought was a very positive addition. It results in more of a team feeling. Like.. Let’s

go for it!” - Senna, 25, group 1, in answer to “What did you like best about the experience at the art transport case?”

Support for competition and not for cooperation while this support is also needed

Where for some participants competition was the most important element for others cooperation was. Cooperation was for them a bit lacking because of the competitive elements. But those competitive elements, and puzzling to figure something out themselves, were also important to participants.

“I am someone who doesn’t really like it to do something alone. I really wanted us to do it together. Or something. That’s why I also broke the rules and asked Naomi to do a challenge together with me. So for me the alone part is not fun. Or less fun.” - Kara, 23, group 5, in answer to “What did you like least about the complete experience?”*

*She liked doing the secret challenges individually least because she wanted the group to be even more involved as a group, she wanted to share the ‘win’ of completing a challenge with someone else in the group.

“I think searching a buddy is the only thing you try to do together. I don’t think there were other challenges where you had to achieve something as a group. It was all ‘you do this’ and the rest is suddenly your opponent.” - Bart, 25, group 7, in answer to “Did you discuss or work together during the experience?”

“So I thought, well I thought we would do everything together. But I am not. It did not disappoint. I also thought it was fun to do things on my own. To figure out myself ‘how am I going to do that’. And I also liked that it was more general. It was a good mix.” - 23, group 1, in answer to “What were your expectations about the experience beforehand?”

“I think the challenge cards that made you try to provoke certain words in the others, I thought that was hard, because you could not really get into a conversation. So there the game element was a bit limiting. So the game element was fun for the experience but at that point it was preventing me from learning something.”
- Anna, 23, group 1, in answer to “What about the experience added to achieving what you expected about it?”

Allow for a repeatable experience (an experience that is still enjoyable the second or third time).

This requirement is satisfied.

Visit a less interesting museum like this
Almost all participants are eager to go through the experience again. Might it be for another exhibition or for another museum. The participants saw this as a fun way to visit a museum that was already visited or they were less interested in. That this is really true, and a strong feeling, is supported by the fact that participants brought this up themselves before being asked about it.

“I went to the museum with friends a little time ago and I felt guilty that I was reading for a long time and I think that those kind of friends, that they also find the museum interesting with this kind of experience. So I can lure them with this experience. And we can stay in the museum longer as well.” - Anna, 23, group 1, in answer to “Does it matter with whom you go to the museum for this experience?”

“I would recommend this to my friends and then just go with them. Again. hahahah”
- Sanne, 22, group 4, in answer to “Would you recommend the experience to your friends?”

Wanting to revisit the museum normally

All participants enjoyed themselves, even the ones that would not go for the experience again. Interesting is that these were triggered to visit the museum again, together with some people that do want to go through the experience again. These people did not feel like they saw everything, and they felt the need to come back to see the rest of the museum. They were more likely to plan a museum visit, where they would normally not consider planning one.

“Because I have the idea that now you had a little taste of the museum. And even though Van Abbemuseum is like 100 meters away from where I live now, I have actually never been. And now I have a more clear image of what it is. And it may be a museum that does not really trigger me. But I got A LOT more interest in the museum because of this.” - Sam, 22, group 3, in answer to “Does this experience add to this

wanting to visit the museum again?”
“For me this is a trigger. And that might be positive. Because I want to go to the museum again. And then really take the time to see everything. So I think it can also trigger people. That is actually really interesting. The next time I will go just for no reason.” - Anna, 23, group 1, in answer to “Would you go to the museum again for this concept?”



SUMMARY

The aim of the study was the exploration of the designed elements of ‘Secret challenge | THE MUSEUM’ and see how they affected the experience of 20-30 year olds visiting the museum. Enabling the researcher to find the potential and the flaws in the design. The researcher would do this by means of a thematic analyses and review of the heuristics according to a questionnaire and interviews with the groups visiting the museum.

The researcher found that the experience was, overall, very well received by the target group. And satisfied the heuristics almost completely. Nevertheless some aspects of the experience could be improved: The integration of support for cooperation, improve intergrating the secret challenges with the art transport case, offer support for balancing gameplay with art in the form of more specific art related challenges and decomplexifying the information by splitting it up into smaller parts.

Next to these larger improvement themes the researcher received a lot of very specific feedback on how a challenge was for instance formulated which could help improve the experience.

SUGGESTED IMPROVEMENTS TO EXPERIENCE

Integrate art transport case and secret challenges

To better integrate the art transport case and the secret challenges secret challenges that succeeded should be scanned at a case (QR code + webcam) and they can be added to a live scoreboard. The group can then also discuss the already completed challenges immediately.

Secondly users should be able to earn secret-secret challenges by performing challenges at the art transport case.

Also add art knowledge related challenges

To support a better balance between art and game challenges that require participants to gather information about artists should be added. Furthermore the 'constantly' or 'in each hall' formulation needs to be changed to something that feels more achievable such as 'with each groupmember'.

Creating smaller information fragments

Instead of communicating it in the introduction letter add the pointvalue of a secret challenge card on the card itself.

Split up the information in the introduction letter in two. Allowing participants to open an envelope at a certain time before the experience: e.g. 2 weeks and 1 week.

Remove group pillar

Since the group art transport case was not developed. Participants received a 'competition challenge' this challenge was the same for everyone. Since participants really enjoyed this challenge and it worked well without the transport case, this group- case can be removed from the concept. It is a nice addition but very costly, with this cheaper alternative it is not worth the costs.

Support complete experience

Support users in their complete experience by having them call multiple times to various voicemails. Such as a voicemail supporting the voting process for the challenges at the end of the experience.

Support cooperation better

Add multiple buddy challenges for an experience with a group of 4-6 people. Adding a 'more' winning feeling that comes with succeeding at something together.

Add challenges that make the user help someone understand something or teach someone something.

At the art transport case add more group challenges. Make these challenges get selected more often. While also allowing for more video recording time allowing users to record their

full discussion and not forcing participants to always summarize their answers.

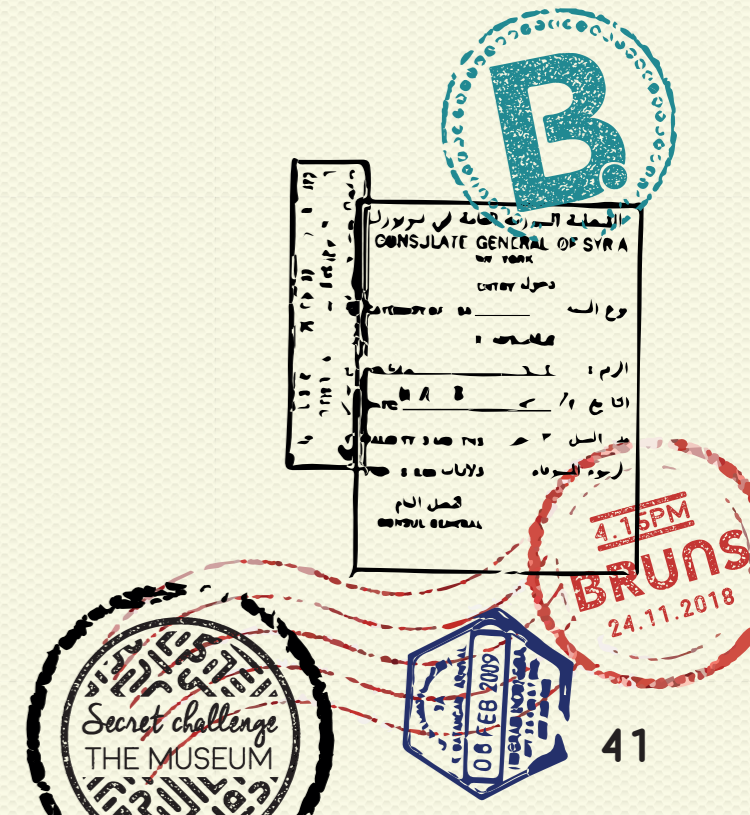
Adding a visible scoreboard in the museum displaying the total score of other groups, enhancing group feeling and groups wanting to earn points together.

A company retreat option: up to 20 users

Add the opportunity to go through the experience with more people (company retreat) by allowing teams of 2 to receive challenges with a maximum of 10 teams competing against each other.

Add entertainment when waiting

Add small facts to the art transport case that can be read at the side of the users that are waiting for the challenge performing user to be done, for entertainment purposes.





CHAPTER FOUR

CONCEPT PRESENTATION AT THE DEMODAY DETAIL SHOT SECRET CHALLENGE
MATERIALS 21 DECEMBER 2018 (OWN PHOTOGRAPH)

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DESIGN PROCESS

During the project a reflective transformative design process was followed. [7] This resulted in several iterations (in the second semester) that were mainly driven by stakeholder input and (in) context research.

The visual below and on the next page provide a chronological overview of the design process, mapped according to sort activity. (Figure 34 and 34.1). The full-sized visual can be found in appendix H.

As the reflective transformative design process has no order, it is up to the designer and context to decide the order of activities, supporting “flexibility and individuality”. [7] Switching between the steps entices reflection, which made the designer more aware of her process and enabled her to take deliberate decisions regarding the next step to take.

This section of the report elaborates on the design process towards the final design described in chapter 3.

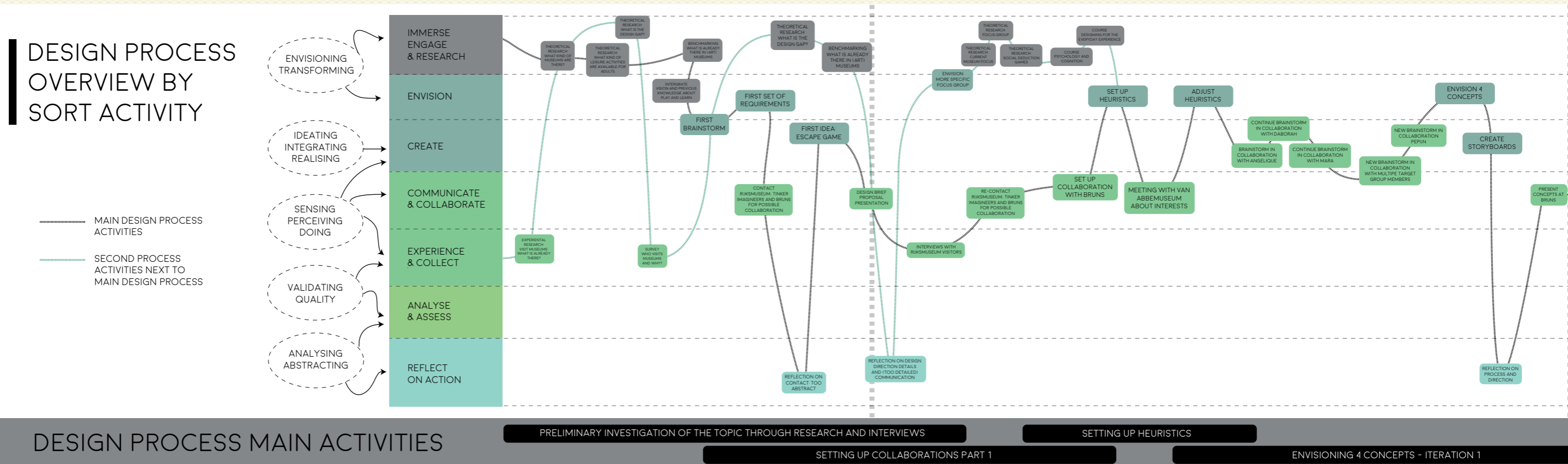


Figure 34. Design process overview first semester.

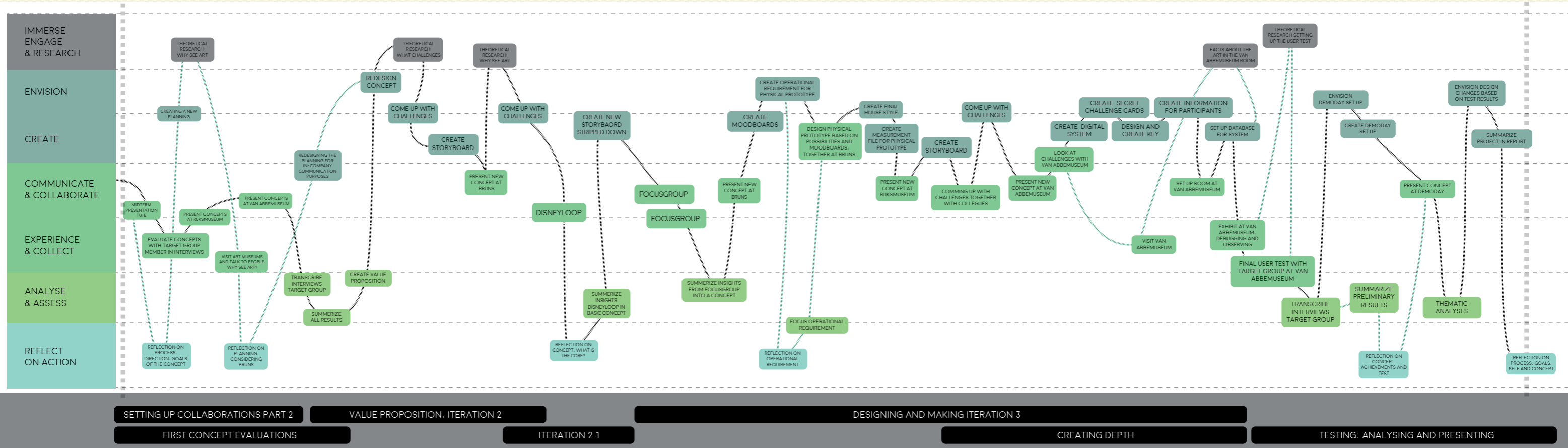


Figure 34.1 Design process overview second semester.

PRELIMINARY INVESTIGATION & INTERVIEWS

RESEARCH

Directed by her vision Michelle started the process researching the field of museums for a design opportunity. This was done by means of looking into the different kinds of museums there are in the Netherlands. At the same time museum visits were planned and websites were skewered for what there is available design wise.

SURVEY

To gather input in a different way and to learn more about the likings of adult museum visitors in the designer's direct environment, a short survey was set up. The main purpose being: reassurance for the choice of direction and finding more examples of what kind of exhibits are out there that people specifically enjoy en remember.

For the survey 42 people were asked about their favourite memory of a museum visit, what they like best when visiting a museum, what they don't like when visiting a museum, what their favourite museum is and why it is their favourite. The people participating in the survey varied in age from 18-57 years. The ages of the people reacting are evenly spread with only a small peak in the reactions of 22 year olds.

About as many people mention elements that relate to liking the subject and background stories as people that argue for beauty being the most enjoyable when visiting a museum. Almost all respondents mention interactivity as being important for an active and enjoyable museum visit.

Especially respondents above 35 mention that they enjoy visiting the museum with a group of their family and that they enjoy their visit because they see their family learn, discover and enjoy the visit.

Variation seems to be key. Participants dislike forced silence, extremely busy spaces, loudness, information overloads, expenses and not being able to understand or interpret art due to a lack of knowledge. During their visit they read as little as possible and spend their time as much as possible at the interactive elements of the exhibit.

Half of the respondents name an art museum as their favourite despite all participants naming experiences that happen more often in art museums than in other museums (such as war or children museums) as dis-satisfactory.

BRAINSTORM / FIRST IDEA

The survey results were reassuring considering the direction. Therefore the direction was investigated further and the findings, plus my previously gained knowledge in the field of games, play and learning, fed into a first brainstorm.

From this brainstorm a first set of requirements, next to it being for art museums, followed:

- Interactive
- Social
- For adults - adult groups
- Active
- Educative but no information overload
- Offer variation for the various visitors looking for various different things in their visit.
- Challenging

With help of the first set of requirements a design opportunity was formulated.

'ESCAPE GAME - A PAINTING THAT DOES NOT FIT IN'

To enable clear and more specific communications on the project intents an idea from the first brainstorm was elaborated upon a bit more. 'Escape game - discover a painting that does not fit in'. This was done based on the previously performed research into playing, games, learning and museum design.

At the beginning of their visit a group of visitors receives a tool kit with various devices that can uncover different types of knowledge when using them to view specific paintings. Included can possibly be the following items, which all uncover different information based on the different reasons for visiting a museum:

- 'A diary' which shows videos and short written messages that relate to the artist emotions. (Beauty and narrative)
- 'A magnifying glass' that allows zooming in to the painting and finding hidden messages or textures. (Exploration)
- 'A newspaper' that reveals information about the period the artist lived in. (Facts and narrative)

Besides these items a group receives some encrypted messages and riddles that give tips about a certain school of thought in the arts / about practices of forgers / about a specific artist. Once the messages are solved, which can only be done by finding the information in the paintings by means of the tools in the tool kit, a painting can be discovered - within a given set - that does not quite fit in with the rest.

As this experience is a puzzle, visitors are challenged and given a specific goal. This, as suggested in the reviewed literature, helps the learning experience.

INTERVIEWS

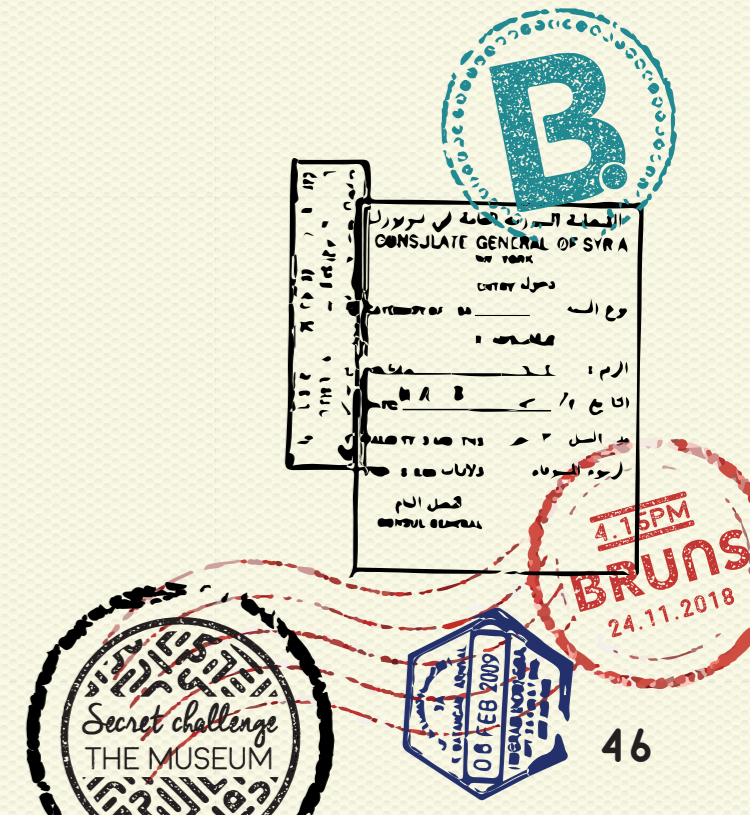
During the theoretical research several questions were raised that led to assumptions. To clarify and expand my understanding, interviews were conducted. A summary of the most important results has been given in the 'stakeholders' section - 20-30 year olds, of this report. A complete overview of the questions and results can be found in appendix A.

MORE RESEARCH

Next to the interviews, discussions with project coach Joep Frens offered more clarity: repeatability was a big issue that museums currently deal with and this first idea (escape game) did not. Therefore research needed to be conducted into the current focus of museums. Also the design opportunity needed some work:

“Designing an interactive social experience within the current galleries of an art (history) museum, in first instance focused on adults and adult groups; without forcing this museum to do an invasive redesign and rebuild of their gallery spaces due to the design.”

After the proposal presentation for the design brief it also became apparent that the target group should be defined in more detail. Flaws in the reasoning within the proposal were laid out and after reflecting upon these flaws they formed the base for a second research session into the related knowledge and the target group.



SETTING UP COLLABORATIONS

PART ONE: SEMESTER ONE

With a clear design space the hunt for companies to collaborate with began. From these companies three seemed extra interesting and fitting: Bruns bv, het Rijksmuseum and Tinker Imagineers.

Het Rijksmuseum mainly seemed interesting due to their large collection, containing famous artists and many works from the same artists helps with concepts that establish links throughout the whole collection. Their constant stream of visitors makes them ideal for testing. In other words, Rijksmuseum is an ideal fit for the first idea.

Bruns bv, with whom the designer teamed up, is already elaborated upon in the 'Stakeholders' section - Bruns bv & B.engineering, of this report.

Other companies (such as A1 Produkt design) and museums remained a possibility for a collaboration but were a second choice as their vision and focus were less in line with the designers vision and focus.

The defined design opportunity was the base for a contact e-mail. In the mail a short description of designer Michelle, her interests and her specialization in the field of play and learn were given. After which a short description of the master program,

the opportunity to define a project herself in cooperation with a company and an invitation to work together in some form followed. A short description of the design opportunity and a previous project (VersaTiles) were added to illustrate a possible direction and a possible design outcome in term of quality and skills.

Although reactions to this mail and the following calls were very positive, the request was too abstract for the companies. This could be expected as the project was still very undefined. Instead of seeing the abstract description as an opportunity for companies to have a say in the direction of the project the companies perceived the direction as too unclear to make a decision.

Only Bruns BV reacted negatively to the request. This was, besides the unclear description, due to the focus of their company; as Bruns always works with designers that are connected to the museums and does not have their own design department, they did not see opportunity for cooperation. As they worked market-pull a student working on a concept that was market-push would be of no use to them. This reason was not communicated.

After the interviews and with the first idea as a base (and a brief mention of repeatability), the companies received a new contact mail. The target group was now better understood and the communication was more clear. Bruns BV had already turned me down and did not receive a new mail.

In reaction to the new mail 'Het Rijksmuseum' expressed interest. But after some in-house discussion they had no-one available with enough time for the proper counsel needed to handle a graduation project. Nevertheless they offered to give feedback to the concepts.

Tinker imagineers also expressed interest but with holidays coming up they needed some time to discuss this in-house.

As designer Michelle still believed Bruns bv would be the best fit for the project, based on their previous work and their market position she contacted them again; with the idea being more concrete. As she was not aware of the reason for the rejection for the collaboration She tried to get a meeting with the CEO via someone that works at Bruns and is a family friend. Firstly because she wanted to know what the reason was for their lack of interest and secondly because she still wanted to collaborate.

A meeting was set up with two engineering designers at Bruns bv. They explained the reticence. But during the meeting they became enthusiastic for the direction and saw a fit when adding a design constrain: The design should be a fit for multiple (art) museums.

PART TWO: SEMESTER TWO

As running an own project at Bruns meant that the project needed to be a fit for several museums. Contact with museums needed to be set. To start this process van Abbe was contacted for a session with their educational director. Results are explained in the 'stakeholders' section - museums, of this report.

Furthermore Rijksmuseum, Stedelijk museum, Groninger museum, Kröller Muller museum and Gemeentemuseum Den Haag were contacted for a feedback session on the four concepts following the brainstormings that took place in collaboration with target group members.

Rijksmuseum, Groninger museum and Kröller Muller museum expressed interest to participate with only Rijksmuseum being able to free up time on such short notice.



Figure 35. The designer setting up the room with replica's in Van Abbemuseum for the final user test. (Own photograph)

Gemeentemuseum Den Haag and Stedelijk museum reacted to slowly to mails, with their respond time being over 3 weeks, to set up collaboration.

At both: Van Abbemuseum and Rijksmuseum several feedback sessions took place. Both museums expressed interest in the project and saw it's potential. Depending on the outcome fitting to the museum vision and the quality of the project both museums also became potential testing locations. With the visions of Rijksmuseum and Van Abbemuseum being very far apart from each other, as both communicated to the designer, a fit to both these museums means that the concept also fits to a lot of museums with visions that lie in between those of the two museums.

Despite being asked about definite “do’s and don’ts” Rijksmuseum eventually fell through as testing location due to the size of the physical object. They saw this as a problem because of their vision: Which is about the art being the most important. They reckon that nothing should distract from the art, and feel that a large object in an art hall does. The feeling of being reluctant to physical objects in spaces was not communicated before even though in the previously communicated concepts this also appeared.

Nevertheless Rijksmuseum also expressed their enthusiasm for the project and still saw it's potential for multiple museums, just not theirs at this moment in this way. With the size being something that can be tweaked for each museum the concept could still be a fit for Rijksmuseum when changed a little. Other feedback is laid out in ‘chapter 3’ of this report. In the evaluation of the final concept.

The final concept was tested at Van Abbemuseum where the concept had it's own room. (figure 35) To ensure a reasonable fit and create more depth the challenges, part of the final concept, were also discussed with them and edited in collaboration.

MAGAZINE

Participants buy the museum experience for a small price and are then invited to make their group's own magazine; to do this they receive a toolkit consisting of various tools with different purposes. They collect materials and select materials from the museum database to be part of the magazine. From a pre-set or from scratch they create the magazine at the magazine tables, guided by a tips and tricks booklet. The magazine tables are especially created for easy group discussions and have a screen above them where the non-participating audience can see the groups progress. The group can work on the magazine at various times throughout the experience as more magazine tables are available throughout the museum. At the end of the experience the group receives a test-print of the magazine and they can decide to buy more magazines.

A full storyboard can be found in appendix I. The visuals in figure 37 give a small impression of the concept.

Consists of:

- Several magazine tables
- Several toolkits (camera, drawing pad, notepad/digital typewriter, tips & tricks booklet)
- Large magazine printer
- Magazine stand(s)

Main selling points based on heuristics:

- Interesting for non-participating audience; as they can watch on the screens and read some finished magazines.
- Presents participants with a clear goal but leaves them free in how to achieve it; nevertheless the activity is guided by picking topics and the tips & tricks booklet.
- Activity with result that can be shared afterwards, which means extra promotion for the museum.
- Can easily be levelled to participants skills because an established lay-out can be picked or participants can start making a magazine from scratch.



Figure 37. Impression interaction in 'magazine' concept. (own visual)

CONTROL ROOM

One participant books the museum experience for the group and other participants receive a save the date card and secret challenge. The participant that books the experience receives a package containing information about the exhibition, a secret challenge and guide-tips. This participant sets up a tour through the museum and during that tour tries to achieve his secret challenge. If his secret challenge is guessed by the group, he loses. During the museum visit the tour guide guides the experience from the control room where he can follow the group throughout the museum. In the meanwhile needs to guess as many secret challenges, that the group received, as possible.

A full storyboard can be found in appendix J. The visuals in figure 38 give a small impression of the concept.

Consists of:

- Control room
- Several audio headsets and two walkie talkies
- Several challenge cards
- An information set to send to one's home
- An online environment to book the experience and a control room timeslot

Main selling points based on heuristics:

- Participants learn more about each other - what does he normally do and how does he act now? – as well as about the exhibition.
- Concept easily enables joking around; e.g. not all information given in the tour has to be true.
- Presents participants with a clear goal, by means of their secret challenge.
- The control room experience, where one participant can follow and guide his friends, is a unique experience that isn't widely available in other situations.



Figure 38. Impression interaction in 'control room' concept. (own visual)

WTF?!

Participants find the museum experience at the main entrance hall and go through the red door to start it. Opening the door they find a smoky locker room. One participant unlocks a locker with the amount of devices that is equal to their number of group members, leaving a deposit. The groups start walking through the museum where in each hall participants in turn get challenges. During the challenges they need to describe painters, paintings, objects, objects in paintings, art concepts etc. by means of acting out, drawing, description or a one word only description while the other group members guess. The challenges automatically load to the board and the boards keep score: fastest reactions, most correct answers, most correct answers about one topic. When leaving the museum participants walk through a triumph arch which either cheers or 'ahws' based on their results. On the led screen across from the triumph arch each participant sees an animation and congratulation. Afterwards they hand in their devices and receive their deposit back.

A full storyboard can be found in appendix K. The visuals in figure 39 give a small impression of the concept.

Consists of:

- Triumph arch
- Led screen and sound installation
- Locker room
- Several charade boards

Main selling points based on heuristics:

- Participants learn more about the exhibition by means of active descriptions.
- Concept easily enables joking around; e.g. jokes made when acting out the name of a painter.
- Competitive and with different results each visit.



Figure 39. Impression interaction in 'WTF?!' concept. (own visual)

PERSONALITY TEST

In this situation participants download the app and create a group which they all join. Throughout the museum they participate in several mini-games such as the completion challenge to discover their groups art style or period. The results from the challenges influence what the next challenge will be but all challenges require cooperation. As all challenges have multiple correct solutions the chosen solution is decisive. Some challenges are assessed by the app and some by a group member that did not participate in the particular challenge. At the end of the experience the participants receive a description of their groups art style or period and a description of some of the paintings of that style / period, which they saw throughout their museum visit.

A full storyboard can be found in appendix L. The visuals in figure 40 give a small impression of the concept.

Consists of:

- App
- Several content completion installations
- Several puzzle windows
- A set of doors

Main selling points based on heuristics:

- Easily scalable for larger and smaller museums as it consists of multiple mini-games.
- Different results based on choices and within group assessments.
- Presents participants with a clear goal but leaves them free in how to achieve it; but the way in which they achieve it influences the results.

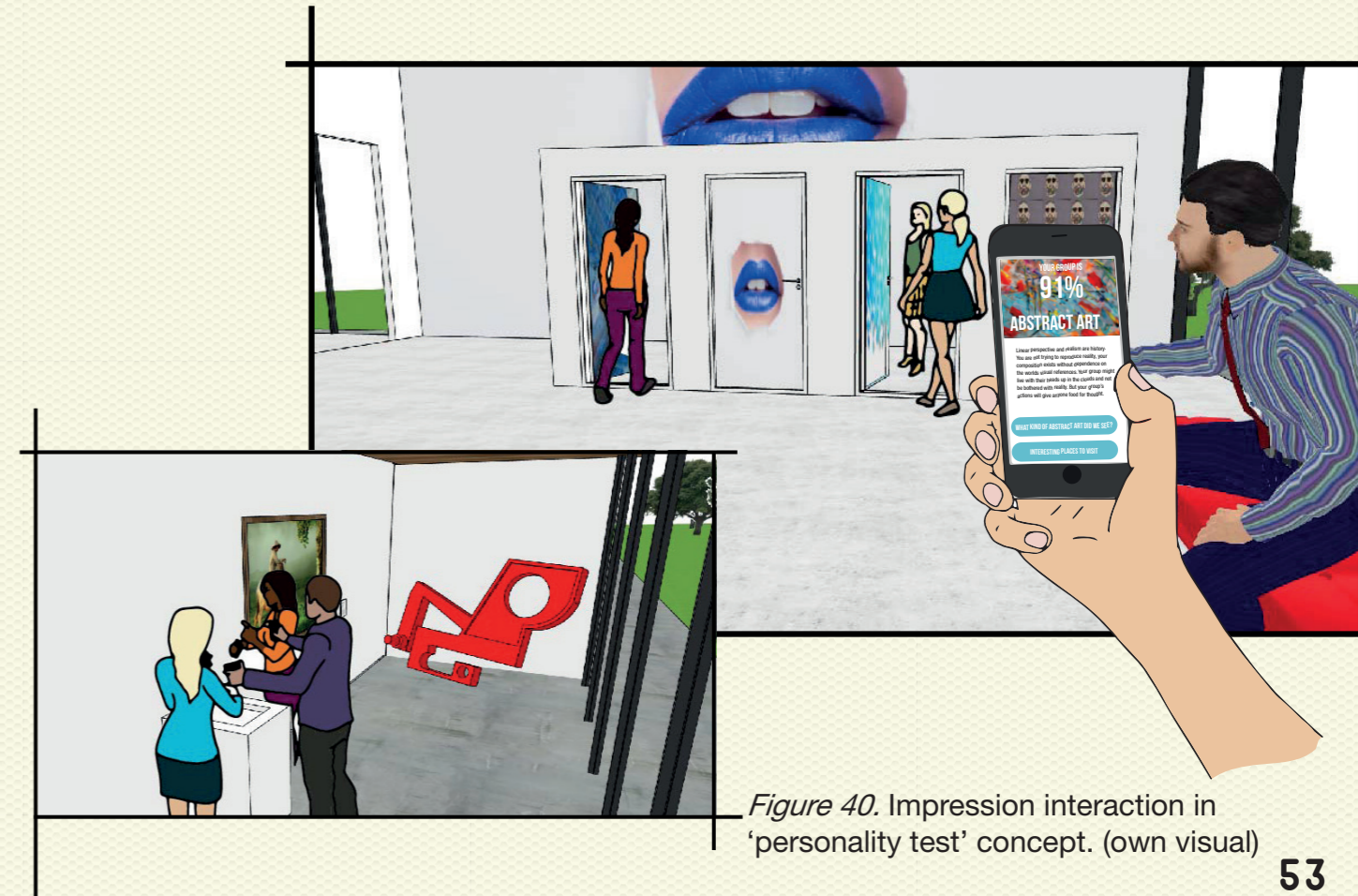
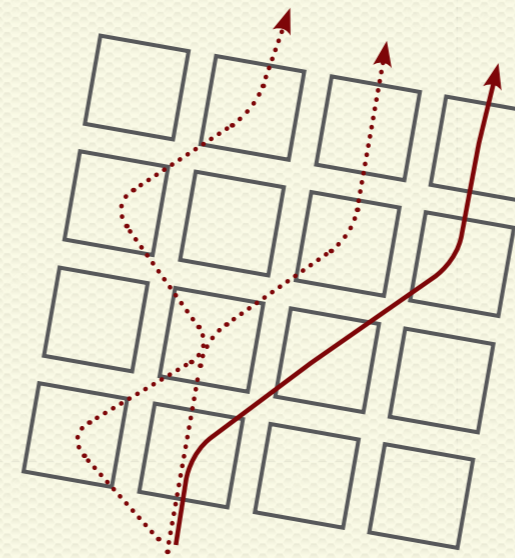


Figure 40. Impression interaction in 'personality test' concept. (own visual)

ITERATION 2

CONCEPT EVALUATIONS AND VALUE PROPOSITION

TARGET GROUP EVALUATIONS

The first iteration of the described concepts could be well explained and assessed by target group members by means of the storyboards and interviews, using the co-constructing stories method [58], instead of a fully working prototype. Therefore an elaborate structured interview was set up with the first part of the interview anticipating previous museum visits. 11 participants were interviewed.

Demographics and data certainty: 6 participants are male and 5 are female. The ages of the participants are evenly spread between 20 and 29. Not all participants were personally known by the design researcher and all participants had different backgrounds considering both educational level and study or work direction. The backgrounds of the participants differed from a graduated mechanical engineer to beauty specialist and hospitality employee. The participants are all Dutch and live in the Netherlands near or in Eindhoven. This quite wide variety sets up the experiment for data saturation. [59] At participants 10 and 11 answers started to be very similar to previous participants, nothing completely new came up.

This is an indication for data saturation. [59] Nevertheless due to the lack of a quantifiable number of participants to check against for data saturation and the group for instance not being multi-cultured one cannot be certain. [59]

The transcribed interviews can be found in appendix M.

No specific analyses method was used for analysing the interviews. The interview data was summarized into pro and cons for each concept. This summary was then again used to make decisions on what elements of the concept to keep and which to eliminate, also taking the heuristics into consideration. The rest of the rich data served as input for a value proposition (customer segment), as inspiration for the creation of a new concept and as a way of creating a better image of the target group described in the 'stakeholder' section of this report.

A summary of the insights per participant, overall and per concept, from the interviews can be found in appendix N.

A shorter summary of the insights concerning the redesign of the concept is given in the following paragraphs.

The 'control room' concept is by most participants seen as most interesting with the 'WTF?!' concept coming in second. In the 'control room' concept the excitement, humour, social aspects and uniqueness are greatly appreciated while in the 'WTF?!' the challenge, learning and social aspects are regarded interesting. What participants don't enjoy is the amount of work and commitment making the 'magazine' costs and the separation of the group in the control room concept. The opinions about creating an art-personality are divided.

While for all but one participant the concepts are an improvement to the current visit the participants that do enjoy art would mostly like to visit a museum that they are less interested in with the concept, otherwise a normal visit will suffice. More than half of the participants that normally does not visit museums would like to go to a museum when one of the concepts they liked best would be available.

What the young adults enjoy are:

- The (secret) challenges that fit to their personality and provoke (art related) discussion.
- The excitement of the unknown in the secret challenges and the humour.
- The pre-fun. The booking of the experience and receiving materials.
- An active tour where they can choose what is interesting themselves.
- Information about the museum pieces.
- Challenges that need no prior knowledge.
- A common goal / something to take away at the end.
- Competition
- An active experience
- Doing it together
- Small investment in terms of effort



BRUNS. MUSEUM EVALUATION

Besides an evaluation with the target group also an evaluation of the concepts was done with the customers (Rijksmuseum and Van Abbemuseum) and within the company. This evaluation consisted of a presentation of the concepts and a discussion of each concept. This was done through a non-structured interview. At the end of the meeting the following needed to be answered:

- Pro's and con's for each concept.
- Preferences and why.
- Improvement suggestions.
- If another museum made use of the same concept, would it still be interesting to you?
- How are projects normally financed?
- When do you start to lobby for finance for a project?

The results of these meetings are summarized into an overview found in appendix O.

The meeting at Van Abbemuseum was completely recorded and transcribed. This transcription can be found in appendix P.

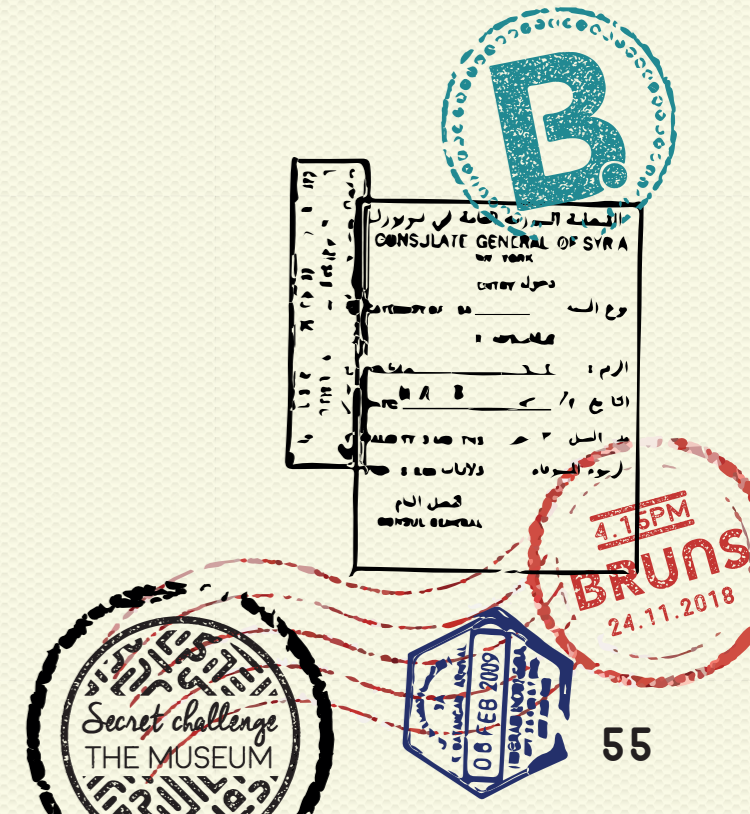
How the finances translate is answered in the 'stakeholder' section of this report.

An extremely short summary of the insights concerning the redesign of the concept is given in the following bullet points and paragraph.

What the museums like to see in the concept:

- Challenges that fit to the level of adults.
- The excitement of the unknown in the secret challenges and the humour.
- The pre-fun. The booking of the experience and receiving materials. But also available in the museum.
- Competition.
- Physical presence in the museum. So people can see and know the concept is there.
- Content creation, for other visitors and for the museum (data generation).
- A theme that visitors can use for their personal search (really learning something about looking at art).
- An active experience.
- That it is a group experience: together.

From the meetings with Bruns and the museums it was also learned where the technical difficulties of the concepts lie. A control room concept seems easy to integrate but comes with many constrains regarding privacy and camera use and a whole museum rebuild for all camera cables (wi-fi is often not a well functioning option.)



JOBS

- THE VISITOR WANTS TO ENJOY AESTHETICS OF ART HE/SHE LIKES.
- THE CUSTOMER AIMS TO ACCOMMODATE AN ENJOYABLE EXPERIENCE FOR ALL VISITORS.
- THE VISITOR WANTS TO HAVE AN ENJOYABLE MUSEUM EXPERIENCE.
- THE VISITOR WANTS TO FEEL INSPIRED BY ART.
- THE CUSTOMER NEEDS TO CURATE EXHIBITIONS.
- THE CUSTOMER AIMS TO SET UP VISITORS FOR REPEAT VISITS.
- THE VISITOR WANTS TO FEEL INSPIRED BY ART.
- THE CUSTOMER NEEDS TO DEVELOP NEW TECHNOLOGIES / TOURS / MARKETING STRATEGIES ETC. TO ATTRACT VISITORS.
- THE CUSTOMER AIMS TO TEACH THEIR VISITORS ABOUT ART.
- BRUNS AIMS TO DELIVER QUALITY WORK THAT TS TO THEIR EXISTING CUSTOMERS NEEDS.
- THE VISITOR WANTS TO LEARN SOMETHING NEW.
- THE CUSTOMER NEEDS TO MAKE MONEY BY MEANS OF ATTRACTING VISITORS.
- BRUNS NEEDS TO MAKE MONEY BY MEANS OF SELLING / RENTING EXHIBITIONS TO MUSEUMS.

PAINS

- AS NO ACTIVE ACTIVITIES ARE OFFERED, VISITORS (20-30) ALMOST NEVER VISIT THE MUSEUM TOGETHER WITH THEIR FRIENDS WHEN ONE FRIEND IS INTERESTED
- VISITORS FIND IT DIFFICULT TO REALLY THINK ABOUT THE ART (WITHOUT HELP).
- IN THE MUSEUM THERE IS A LACK OF ACTIVE ACTIVITIES (FOR THIS TARGET GROUP).
- VISITORS (20-30) DO HAVE INTRINSIC MOTIVATION FOR ART BUT ARE NOT ALWAYS INCLINED TO PAY FOR 'JUST' LOOKING AT IT.
- LITTLE VISITORS AGED 20-30.
- VISITORS EXPERIENCE AN INFORMATION OVERLOAD IF THEY VISIT THE MUSEUM FOR LONGER PERIODS OF TIME. (NOT DIRECTED ENOUGH?)
- THE VISITOR DOES NOT KNOW ABOUT THE EXPERIENCE OPPORTUNITIES. IF THE EXPERIENCE IS THERE, HOW DO THEY KNOW?
- FOR INFORMATION VISITORS NEED TO DO TOO MUCH READING.
- VISITORS (20-30) FEEL THE CURRENT EXPERIENCE (LOOKING & READING) IS TOO QUIET AND STIFF. (MUSEUM STIGMAS!)
- VISITORS FEAR THAT THEY DON'T UNDERSTAND THE ART - DON'T KNOW WHAT TO SAY ABOUT IT / HOW TO LOOK AT IT.
- THE EXPERIENCE IS NOT SUPPORTING SOCIAL INTERACTION (DUE TO FOR INSTANCE APP USE, TO LOOK FOR INFORMATION).
- IN THE MUSEUM THERE IS A PERCEIVED LACK OF INTERACTIVITY (OR MORE INVOLVING EXHIBIT ADDITIONS SUCH AS MOVIES).
- THE VISITOR BETWEEN (20-30) DOES NOT KNOW WHAT THE CUSTOMER HAS TO OFFER AS THE CUSTOMER DOES NOT COME TO MIND WHEN THE TARGET GROUP IS PROPOSING AN ACTIVITY TO DO: AND THEREFORE THE VISITOR DOES NOT ACTIVELY LOOK FOR 'WHAT IS NEW'.

GAINS

- THE CUSTOMER WANTS TO INCREASE THEIR REACH AND CAPTURE NEW AUDIENCES.
- THE CUSTOMER WANTS TO TEACH THEIR VISITORS SOMETHING NEW (DOESN'T NECESSARILY HAVE TO BE THE ART).
- VISITORS ESPECIALLY ENJOY SOCIAL ACTIVITIES AND LIKE DOING ACTIVITIES TOGETHER WITH FRIENDS - SOCIAL INTERACTION.
- VISITORS WANT ADDITIONAL INFORMATION ABOUT THE EXHIBITION.
- THE VISITOR WANTS TO HAVE AN ACTIVE EXPERIENCE.
- THE VISITOR WANTS TO FEEL AND BE PERCEIVED AS SMART: BY MEANS OF UNDERSTANDING THE ART. (WANTS TO BE ABLE TO INTERPRET THE ART, NOT JUST STAND THERE AND FEEL 'LEFT OUT')
- VISITORS WANT EASY TO USE EQUIPMENT AND EASY TO UNDERSTAND CHALLENGES AND OUTCOMES.
- THE CUSTOMER WANTS TO ENCOURAGE NEW WAYS OF THINKING AND SUPPORT THE USE OF ART FOR THE VISITORS OWN 'RESEARCH'
- THE VISITOR IS LOOKING FOR HUMOUR IN HER ACTIVITIES.
- THE VISITOR ENJOYS PLAYFUL ACTIVITIES.
- VISITORS ENJOY COMPETITION.
- THE CUSTOMER WANTS TO COLLECT DATA ON THE VISITORS TO BE ABLE TO FIT THE (NEW) COLLECTION TO THEIR WANTS AND NEEDS OR TO ADD TO THE EXPERIENCE OF OTHER VISITORS.
- BRUNS WANTS TO PUSH BOUNDARIES (TO SET THEMSELVES APART AND USE INHOUSE EXPERTISE TO ITS FULL EXTEND).
- THE CUSTOMER WANTS TO ESTABLISH A CONNECTION WITH THE VISITOR, WHERE THE VISITOR ADVERTISES FOR THE MUSEUM.
- BRUNS WANTS TO MAKE EXTRA SALES BY OFFERING THEIR CUSTOMERS EXHIBITIONS / TOOLS THEY NEED OR WANT BUT WHICH THE CUSTOMERS DID NOT DEVELOP / THINK UP THEMSELVES. (SELL ONE CONCEPT / IDEA TO MULTIPLE MUSEUMS)

VALUE PROPOSITION

The customer segment of the value proposition canvas [60] was filled out based on the interviews and meetings. A concept ideally eases the 'pains' and meets the 'need' while also stimulating 'gains'. The value proposition customer segment can be found on this page. Although this proposition served as a good start and a great summary for the various stakeholder needs, wants and

current pains the redesign of the concept became very complex and detailed. A value proposition turned out to be too abstract (not rich enough in data) for designing the details of the concept into greater depth. This made that the canvas served as stepping stone for creating the concept rather than as evaluation method later on in the process, as was intended.

NEW CONCEPT (ITERATION 2)

The results of the co-constructing stories interviews, the meetings with stakeholders and the value proposition feed into a new concept.

In the new concept some choices have to be made:

- The experience is booked beforehand with as advantage that it supports anticipatory pleasure / gift giving or inviting someone. Participants receive a 'save the date'. They are able to pick character triads for their friends and the challenges are fitted to be either very challenging to perform (not fitting to character) or hard to figure out (very well fitted to character). *Elements that are present are: creating own game, humour, mindfuck. Impression in figure 41.1, storyboard in appendix Q.
- The experience is booked in the museum and the secret challenges are directly printed on receipts. Participants pick one of their own character triads and the challenges are fitted to be either very challenging or hard to figure out. *Elements that are present are: creating own game, humour, mindfuck. Impression in figure 41.2, storyboard in appendix R.



Figure 41.1 Booking experience beforehand. (Own visual)



Figure 41.2 Booking in museum print challenge directly. (Own visual)

During the museum visit with the secret challenges the museum is explored in one of three ways.

- Participants perform (theme) challenges and actively get involved in the art. They learn through describing and discussing. They perform challenges that also involve the art physically. Impression in figure 41.3, storyboard in appendix S. Challenges found in appendix T.
- Participants follow an audio tour for which they pick a theme that fits their group (passive). They look at the art in a way that fits to their personal quest. In every hall several discussion points are received that fit to the theme, to help perform the secret challenges. Impression in figure 41.4, storyboard in appendix U.
- Participants follow an audio tour during which they pick the art that they like. They are free in their visit. They have to start their own discussions. Impression in figure 41.5, storyboard in appendix V.

After the museum visit the challenges are guessed by fellow group members and depending on the matching percentage the answer is translated into an amount of points. Impression in figure 41.6.



Figure 41.3 Perform extra challenges. (Own visual)



Figure 41.4 Get discussion points. (Own visual)



Figure 41.5 Move around freely. (Own visual)



Figure 41.6 Discuss results afterwards. (Own visual)

ITERATION 2.1



DISNEYLOOP

A Disneyloop, a strategy developed by Walt Disney, is a method that is used to create a clear foundation for a concept within a team when innovating products or processes. During a Disneyloop the concept is evaluated from three standpoints - the dreamer, the critic and the realist -, enabling everyone in a team to deliver input at the right time. The result of a Disneyloop is a concrete, applicable product or service. A Disneyloop is used to quickly create depth in concepts while ensuring their achievability. [61]

As the concept during iteration 2 became very complex, Maarten Taborsky - Bruns project director development, suggested to do a Disneyloop to make it into a more realistic concept with a lot of depth. Maarten led the Disneyloop and Matijs Moeskops, Michelle van Lieshout and Anke Turelinckx participated. For designer Michelle using the Disneyloop technique was an opportunity to learn a new strategy for creating depth in concepts while for Maarten this was an opportunity to practice the newly learned technique again. This created mutual benefit.

Despite the extensive search for more participants from the target group to join the session, by personal messaging people the designer had not spoken to in years, creating posts that were shared multiple times and

offering compensation, the researcher failed to find more people of the target group to join the session on the short notice due to it being too much effort or conflicting work hours. She considered hiring a company to find the participants but as this would cost almost €1000,- this idea was dropped.

The Disneyloop started with finding the core of the concept.

“Luring 20-30 year olds to the museum by means of secret challenges.”

During the dream session all associations with 20-30 year olds were laid out and all associations with secret / challenge were charted. Also the associations that combined both were outlined.

In the critical session these associations were ordered into groups and it was critically evaluated what the weak points of the concept were regarding these groups / themes and what the strong points were.

During the realistic part the group came up with a plan to tackle those weak points and strengthen the strong points. Namely by involving the target group in the design of the concept by means of a focus group.

During the Disneyloop it was learned that the format is a good fit! Secretive, challenge, a different dynamic and mindfuck fit well.

But ground could be gained. The questions that needed answers are:

- How can the experience be more social (it feels lonely to be the only one in ‘your’ challenge) and does it have to be more social?
- It needs to be more simple: there needs to be more clarity and less choice.
- Why does the target group want to do it? What motivates them to take part in the experience?
- The experience: keeping secrets, guessing, preparing etc. might be too much effort. The target group likes to achieve a lot with almost no effort.

For iteration 2.1 the concept was stripped down to its core. The storyboard for the stripped down concept can be found in appendix W.





Figure 42. Focus group session 1, group discussion. (Own photograph)

ITERATION 3

FOCUS GROUPS

Finding more than 4 participants for a focus group, at all -but especially for people that need to be available the same evening, on short notice turned out to be as hard as finding participants for the Disneyloop session. Therefore two smaller focus group sessions were held, both with 4 participants.

The focus group session was meant to identify the necessary elements of iteration 2 and add the missing elements. An advantage to holding a focus group session is that also the right words to describe the experience, in a way that is attractive to the target group, can be found. The stripped down concept, iteration 2.1, is used as concept for the duration of the focus group session. The storyboard for the stripped down concept can be found in appendix W.

The designer chose to set up a focus group session using Kruegers guidelines to set up the interview questions. [62] She decided to add a co-creation part to the focus group. [63] Good co-creation evokes feedback and direction of participants about their lifestyles, perceptions and unmet needs that enable the group to think on how to meet those needs. [64] A co-creation part fits well with the goal of the session: addressing the concerns that arose during the Disneyloop and defining the missing elements in the stripped down concept.

Designing the new experience within the group helps define the missing elements in a concrete manner.

The co-creation part of the focus group consisted of converting the brainstorm - : Meaning all things that were written down all along the guided discussion (figure 42) during the beginning of the focus group session. - to an experience map. [65] (figure 43) Hand outs with examples were used to explain to the participants how to create the experience map.

The focus group sessions were recorded with informed consent of the participants.

In focus group 1 the following people participated:
Rick van Wijk - 24 (Student spatial design),
Ezra Hollman - 21 (Student at Fontys business college),
Allitze Faro - 23 (Industrial design master student) and
Senne Friedrichs - 23 (Industrial design master student).

In focus group 2 the following people participated:
Lianne de Jong - 25 (Industrial design master student),
Matij's Moeskops - 21 (Engineer),
Britt Teunissen van Manen - 18 (Communication student),
Bastiaan van Hout - 29 (Designer).



Figure 43. Focus group session 2, creating an experience map. (Own photograph)

Please note that the people participating in the focus group sessions are all highly educated and for a large percentage consisting out of industrial design students. This creates a less than ideal situation that might impact the reliability of the results negatively.

The interview questions, the brainstorm results and the experience maps both groups created can be found in appendix X. It can be seen that the results for the experience map for both focus groups are quite similar.

To summarize the results:

- Participants want to perform multiple (secret) challenges.
- Participants want different kinds of challenges: awkward / buddy / art related
- Participants believe the experience needs to be marketed as an unique situation that is not always possible (limit possibility to make a reservation / hours it can be used to avoid museum stigmas and create more hype)
- Participants want a complete experience including an after drink.
- Participants want clear information in a fun way. If there is more interest the right information should be found quickly.
- Participants want to have the idea they have a discount when booking the experience.
- Participants want a common goal or some team challenges in the museum.
- Participants want to learn, challenges should involve art.

The results of the focus group sessions are synthesized in an experience idea by means of setting the basic phases of the design and the elements that are part of these phases. Later adding brainstorm ideas for challenges / communication to the various phases of the experience (start / game play / after etc.). (Seen on the middle of the table in figure 45) This idea can be found in appendix Y.



EXPERIENCE

The experience of iteration 3 is elaborated upon in chapter 3 as this is the concept that was tested during the final user test. The storyboard describing the experience of iteration 3 can be found in appendix B.

OPERATIONAL REQUIREMENTS

Although the design of the physical elements was in the hands of designer Michelle, the prototype would be crafted by Bruns employees in the workshop. Therefore it was critical to be at the same level of understanding. To achieve this Michelle created a statement concerning the operational Requirements - version 1 can be found in appendix Z. This document was discussed in a meeting with Ilone Bloemen, Erik Groot, Nick van Herk and Matijs Moeskops. (Figure 45 on the next page)

During the meeting the options concerning the physical design of the quiz pillar - eventually the art transport case were discussed and the basis for a design was laid out. As the requirements statement was quite elaborate the 5 most important goals were chosen to be focused on. Other goals were evaluated on achievability.

As such the goal concerning a battery. This goal was not achievable: Firstly because it would take an immensely powerful battery which would be a huge cost post (contradicting one of the other requirements) and secondly because of fire safety issues.

With many design activities taking place at the same time it was almost forgotten to check the requirements against the challenges again. Last minute this was done and a sound system and video camera were added to the requirements. The revised version of the operational requirements is found in appendix AA.

The six most important requirements:

1. The hardware: The quiz pillar contains 2 touch screens, one big red button, one RFID reader, one webcam with microphone and one sound system, (battery).
2. The positioning of the screens: From the position of an interacting user only one screen of the quiz pillar is visible. The screens are placed at +/- 1.45m making them easily accessible for a standing regular grown up human.
3. The quiz pillar can be easily moved by one person, possibly assisted by a pump-truck. This has implications for the size as well: the quiz pillar should fit through a regular door as a whole or in pieces. Maximum sizes of one piece are 1.20m x 0.80m x 1.95m.
4. The style of the quiz pillar should not conflict with the museum style, the style should be universal or include museum related elements.
5. The prototype for the quiz pillar can be produced in a maximum of three weeks (considering materials and accessible techniques) and the production price should stay within reason (+/- €12.000,-).

6. The design of the quiz pillar can be translated to the other pillars such as the group challenge pillar retaining a coherent style.

STYLE

To come to the physical design of the Art transport case and the house style of Secret challenge | THE MUSEUM moodboards were key. To search for a fitting style several different moodboards were created focussing on the secretive elements, the elitist vibe an unique experience gives, the competition / game show element and unexpected elements. (Figure 44) The moodboards were discussed during the same meeting the operational requirements were.

Two moodboards jumped out: the industrial secretive style and the elitist minimalist style. The industrial style would fit well in both modern and classical museums, is warm and inviting, feels secretive. But also might stand out to much in a room and might be too laborious to make. It makes use of squares which is preferred for production. The minimalist elitist style feels exclusive, pretty and special. It is more universally fitting to multiple spaces. On the other hand it is cold, less standing out, less exciting and makes use of circular designs which is harder and more costly to produce.

Figure 44. Several moodboards (own photograph)



Figure 45. Quickly sketching out ideas for the 'quiz pillar'. (own photograph)

Several quick designs were drawn up such as a small squared stand similar to a high closet filled with wooden crates; with at both sides at a different levels a gap for a screen. Users should be able to see each other by looking around the 'closet'.

After consideration of the ideas it was decided to go with a puppet-show - art transport case idea. This because the design enables 'being closed for business' in an interesting way and it fits to all art museums, as all receive the art in art transport cases. Next to these reasons the puppet show idea, that follows from this design, already sets some sort of literal stage for performing challenges in front of an audience and communicating.

Considering the style it was decided to combine the elitist style with the secretive elements, industrial style, as they go well together and the choice for the transport case enabled the usage of both where it was a hard choice to make before as both styles had their qualities. One style fitting to the external looks, being inviting, and one style fitting to the internal looks of the system, feeling more special and unique. This combination of styles was extended to the communication: initial contact is in the industrial, secretive looking style. While actual interaction with the concept takes place in the elitist minimalist and fancy style.

In the 'game show moodboard' there were game pillars that lighted up. As the lights drew

the attention, even in a picture on a moodboard, this was interesting to add to the physical design as well in the form of plinth lighting. The light serves the purpose of drawing in the visitors and potential users, sending out a mysterious vibe befitting to the style.

All moodboards can be found in appendix AB.

PHYSICAL DESIGN

The sketches, style and requirements were translated into a solidWorks model (figure 48) for the purpose of correct measurements and the positioning of the touch screens and sensors (phidgets).*

The measurements file for the Art transport case can be found in figure 46.

*Note that both screens became touch screens instead of one screen being a regular screen, this differs from the initial operational requirements. The regular screen needed more space than the touch screen to be placed in the prototype. Placing the screens in the optimal angle - which was found by trying out the different angles and attempting to see the screen on the other side or from greater distance - for interaction would then not be possible. In the pricing of the screens there was almost no difference, therefore a touch screen was the better choice. Since the touch screen was integrated it was decided to also make use of the screen being a touch screen during the team challenges.

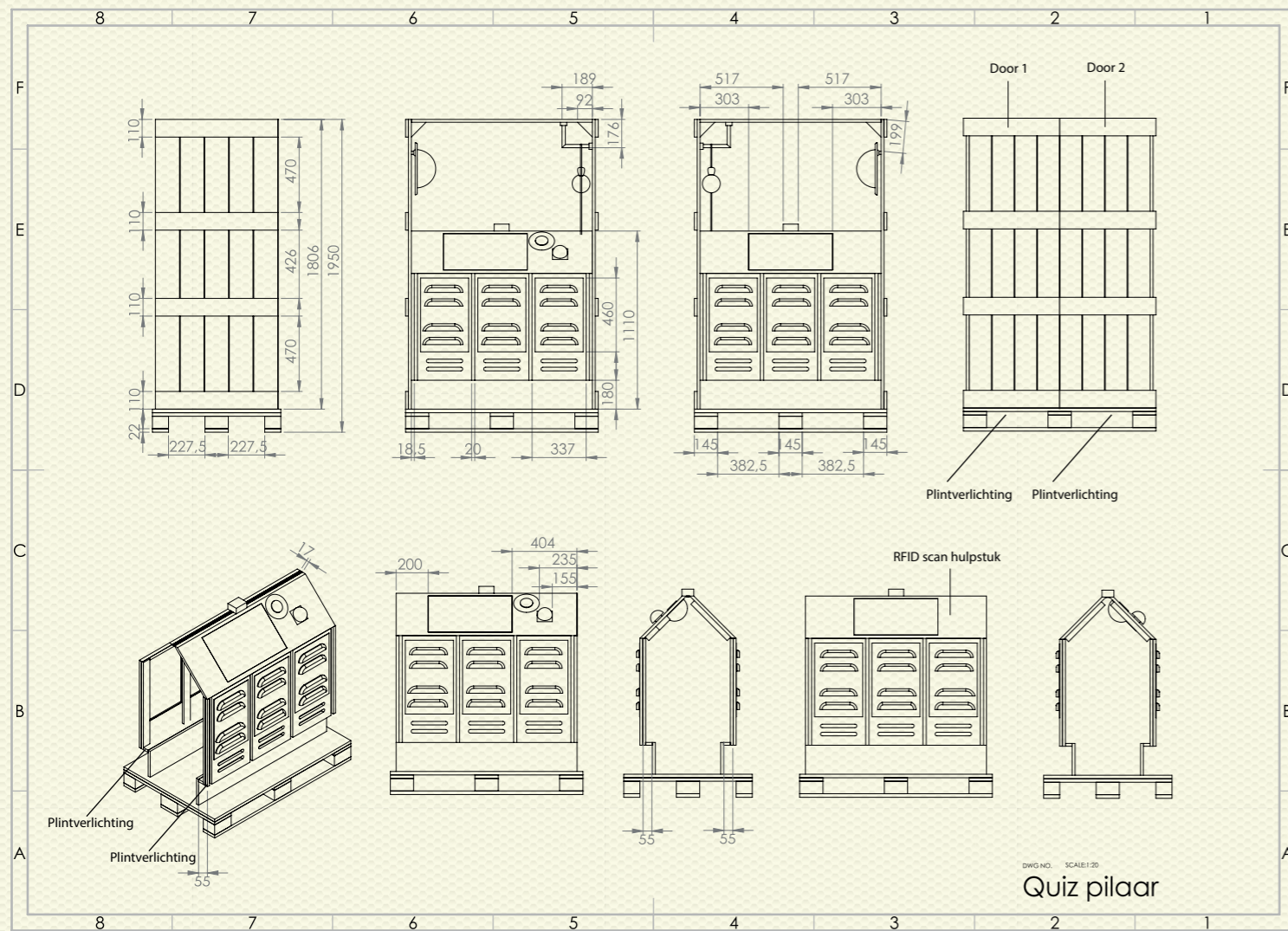


Figure 46. Measurements art transport case (own visual)

This measurement drawing was communicated to the team crafting the Art transport case who chose the assembly techniques themselves based on previous experiences to fool-proof the design. An example is the ‘opening’ system of the closet for getting to the technical aspects. This system is pull-up and then pull-towards instead of the normal opening of a closet, which seems illogical to visitors so they do not try it.

Several different types of wood were considered for the art transport case based on their looks. (Figure 47) Eventually pine wood was chosen as this is where normal art transport cases are also made out of and it therefore was the best fit for the design.

This is only a single example of attention for details within the project. For the whole project duration attention is paid to details and style. All information went through several iterations to be as clear and consistent as possible; this is true for reading but also for colour or material choices. An example is the demoday poster which was test printed on three different materials (canvas, heavy paper and glossy paper) while trying out more than 30 different background colours and structures.

In figure 49-53 photographs of the physical prototype during the creation process are found.

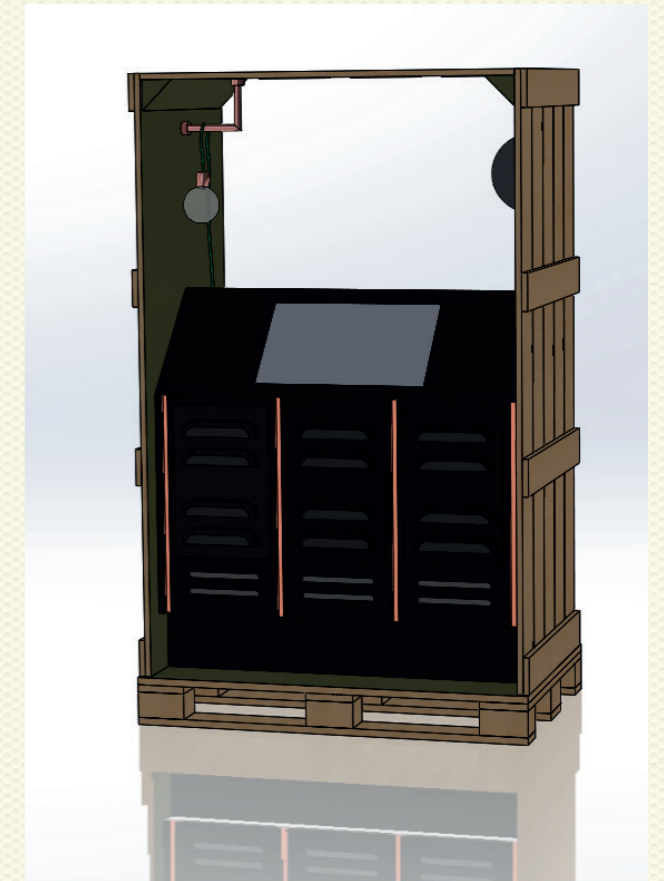


Figure 48. Art transport case design solidWorks rendering (own visual)



Figure 47. Different wood considered for the art transport case (own photographs)



Figure 49. Art transport case sides after milling. (own photograph)



Figure 50. Inside parts art transport case (own photograph)



Figure 51. art transport case put together before spray painting (own photograph)



Figure 52. Art transport case technology on the inside (own photograph)



Figure 53. Art transport case without technology added in (own photograph)



Figure 54. User test participant engaging in a discussion about the art based on the received information and a challenge. (own photograph)

DESIGNING CHALLENGES. CREATING DEPTH

A huge part of the experience are the (secret) challenges. The first iteration of challenges is based on how children are taught to become perceptive and sensitive viewers of art. To achieve this they need to be actively involved in looking and talking about art. Craig Roland, professor at the school of art and art history at the university of Florida shares ways teachers achieve this goal. [66] The questions asked in this paper and the games that are proposed form the basics of the challenges. The first iteration of challenges can be found in appendix T.

The 'funny' challenges and buddy challenges are later added because of the input from the focus group session. As inspiration for these challenges the focus group session ideas were used and crazy 88's were consulted, also 'Wie is de mol?' challenges served as inspiration. To keep the well fitted and fun challenges rid the boring or too awkward ones, multiple people looked over the challenge set: Matijs Moeskops, Ine van Lieshout and employees of Van Abbemuseum.

The buddy challenge was added with another purpose as well. Competition elements were clearly visible throughout the concept already. But cooperative play could only be found in competing against other teams which is not clearly visible in a test set-up as only one

team is present in the museum. In cooperative play people can succeed through team achievements as well as through individual performance. Individual success therefore becomes of greater value as it is associated with the success of others resulting in more available opportunities for success and stronger benefits and feelings of achievement. This creates stronger team cohesion and often promotes continued play and pro-social behaviours. [67]

To retain a better fit for the challenges in combination with the museum, and to ensure the challenges were related to art, enough, 'Van Abbemuseum' was consulted. Together the challenges were edited to the current set. This set is found in appendix D.



Figure 55. User test participant engaging in a drawing challenge at the art transport case. (Own photograph)

MAKING THE SYSTEM INSIDE THE ART TRANSPORT CASE

The system inside the art transport case runs on a web browser. As soon as visitor starts a challenge the PHP code 'communicates' with an especially set up database through use of MySQL. In the database challenges, user data (linked to a team RFID code) , user answers and facts are stored. When a team is logged-on by means of holding the key to the RFID reader, the code randomly selects a team-member to perform a challenge (figure 55) and saves the data to this team members name and group in a database table.

The system inside the art transport case contains four sensors: a camera with integrated microphone for recording certain challenges, an Phidget RFID reader for recognizing the 3D printed keys (with RFID tag) that the groups receive and a Phidget big red button for smashing when a visitor knows the answer to a challenge. All communicate their values through Javascript for this purpose. Phidgets are used because they (can) run on a local server and work in combination with a web browser, this means the exhibit can be debugged from a different location using Teamviewer when there are technical difficulties. Allowing for easy future implementation that does not require engineers to drive to the exhibit location.

Furthermore the system consists of one computer with two touch screens, an amplifier and stereo and two sets of plinth lights. To create enough usb ports for all devices to be connected a usb hub is added.

Designer Michelle had no previous knowledge of back-end programming with languages such as PHP and MySQL and with the little experience she had in front-end web development using CSS and HTML (note that she did not know Javascript either) this meant she first needed to find out what languages she needed to learn and then had to learn the languages from scratch. For this learning the book 'PHP and MySQL, the missing manual' was used'. [68] To decide on the best languages to learn an expert on backend programming was consulted, Pepijn Verburg.

As the prototype needed to work reliably without the design researcher present the more advanced and widely used languages of PHP and MySQL were recommended. With the warning that succeeding in learning them and creating a working prototype in the short time-frame was going to be a very difficult challenge. Nevertheless with some effort this worked out quite well. With some help from

Bart Verhaagh, when the designer did not know what to google on to solve the problem she encountered, the system was realized.

It was decided to keep the system quite simple, the interactions with the system had to be about the art and remain understandable for the visitors to whom the system was new. The interactions should not be about interesting or highly interactive animations used within the system but about clear communication.

As there were two screens that needed to 'work together' one of the screens became a 'slavescreen'. For this the web page checked if the screen needed to change to a new page, every 3 seconds, by looking up the current page in a certain table in the database. The screen that was interacted with at that moment changed the numbers in the database depending on the interaction. To ensure the data was shared between both web pages the generated data and participant information retrieved from the database was temporarily stored in the browser session until clicking exit, completing a challenge or logging in again using the RFID key.

To keep track of the system which was continuously growing in complexity the designer created a visual of the page references. (Figure 56) This helped track down the problem fast during debugging. To ensure

everything worked as planned an overview of the processes that needed to happen front end and back end for each action was made. (known user / unknown user) (Figure 57)

For the facts that were retrieved from the database for each challenge, little pieces of knowledge found on Wikipedia or the Van Abbemuseum website were used. They were created and matched by Michelle as best as possible to be of value to the picked challenge. Therefore a fact for each work for each challenge can be found in the database excluding the challenges that did not lean themselves for a fitting fact.

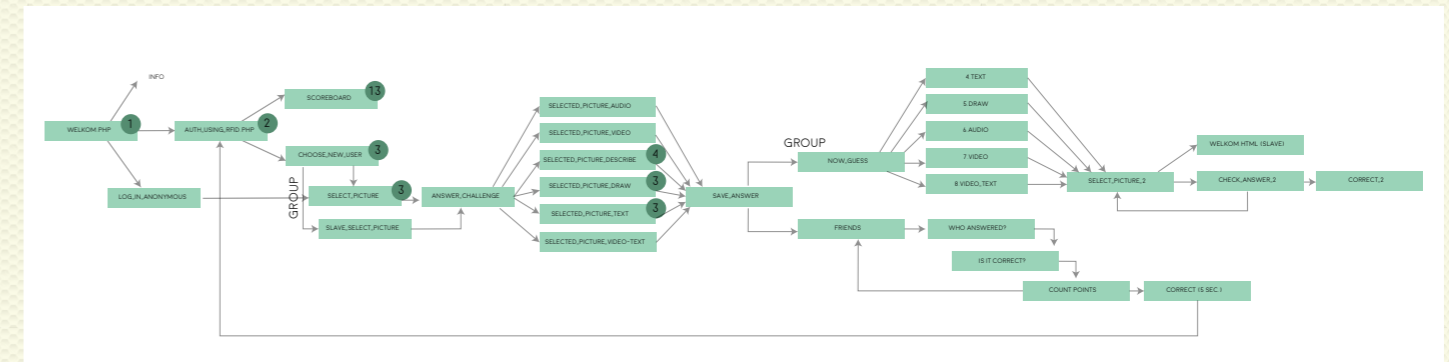


Figure 56. Webpages overview links, system. (Own visual)

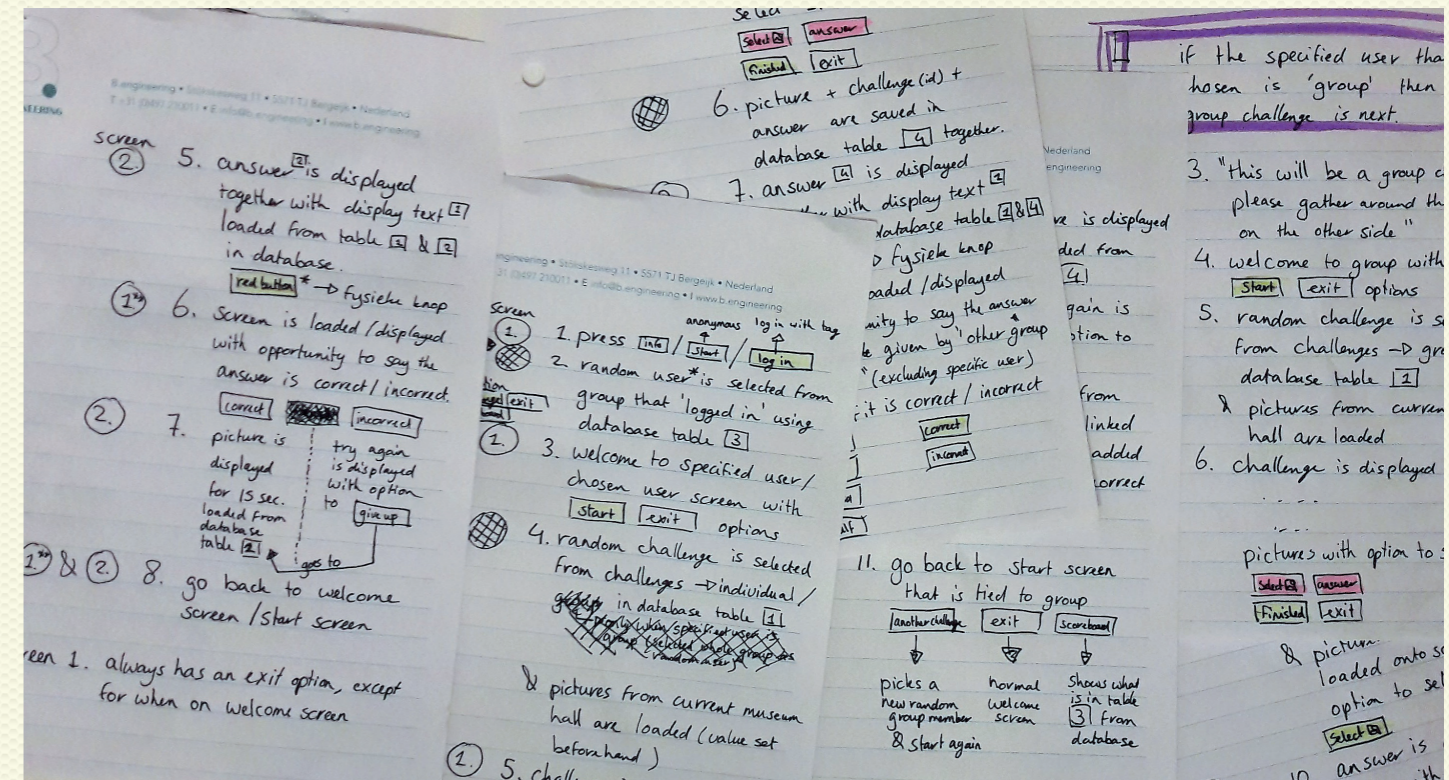


Figure 57. Back-end planning notes. (Own photograph)

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