

A woman with long brown hair, wearing a large red hat and a light-colored jacket, is looking out through a colorful, abstract glass partition. The partition is made of various colored glass panels (red, orange, yellow, green, blue) and metal frames, creating a complex, geometric pattern. In the background, a red sign with white text is visible, partially obscured by the glass. The overall scene is brightly lit, suggesting an airport terminal or a modern public space.

TU Delft | Schiphol

Master of Science Thesis
F.S. van Gent

IMPROVING THE PERCEPTION OF WAITING TIME

THROUGH POSITIVE INTERACTIONS AT THE G-GATES OF SCHIPHOL

IMPROVING THE PERCEPTION OF WAITING TIME

THROUGH POSITIVE INTERACTIONS AT THE G-GATES OF SCHIPHOL

4th of March 2020

MASTER THESIS DESIGN FOR INTERACTION

Faculty of Industrial Design Engineering
Delft University of Technology

AUTHOR

Floor van Gent
fsvangent@gmail.com

GRADUATE COMMITTEE

Chair | **Prof. mr. dr. ir. Santema, S.C.**

Mentor | **Ir. Beets, M.F.**

Company mentor | **M. Brouwer**



**“WE WANDER FOR DISTRACTION,
BUT WE TRAVEL FOR FULFILMENT”**

– H. BELLOC

PREFACE

This report is the result of my graduation project and the final deliverable for obtaining my Master of Science degree for Design for Interaction at the TU Delft. This project is conducted in collaboration with the Passenger Experience Platform of Royal Schiphol Group. I am grateful for the opportunity and the freedom that they have given me to conduct my own process and to learn a lot over six months of time.

The goal of this project was to discover how the perception of waiting time could be improved at the G-gates of Schiphol. The result is a concept that enhances a positive state of mind through positive interactions. Personally, I feel very attracted to Positive Design, but I purposely chose not to graduate on that domain, because I felt I had too little experience with it. However, it seems that it subconsciously slipped into the project anyways. I wanted to make the most out of this graduation project, which made things very tough sometimes. Yet, it has made me even more proud about the result and about becoming an engineer. I would like to take this opportunity to thank some people who have guided me through this project, both+ educationally and emotionally.

Sicco, thanks for supporting me in making my own choices. Your four titles intimidated me a little in the beginning, but after the first meeting I knew that you would be the best chair for my project. I am really grateful for your direct approach of tackling problems and your down-to-earth attitude during our meetings. I felt better and more confident each time I had spoken to you.

Margreet, thank you for being a real mentor and coach during the last couple of months. I really enjoyed our meetings in which we often wandered away from the subject and ended way over time. You were genuinely invested in me and kept reminding me of the fact that I should enjoy this project. We had a great time during the field trip to WONDR museum together, making photos and discussing things that they could have done better. You made me realize that I was the owner of my project and that my

decisions matter. Thanks for your positivity, your honest feedback and your efforts to steer me towards being a designer with an opinion.

Maryan, thank you for being a role model when it comes to being a designer. Not only are you extremely creative but you are also able to put your creativity into practice in a challenging environment such as that of Schiphol. You were always 'running around', connecting people, being cheerful and sincere. You listened to me and 'sparkle'-d new ideas or directions when I needed them. I admire your infinite energy and positive but hands-on approach. Thanks for having me in your team together with Sven, Jelmer and a bunch of other very kind and supportive Experience Innovators!

Mom and dad, thanks for giving me all the support and love I could wish for. You two were sincerely proud of me no matter what, and not only during my graduation project. Thanks to you I was able to obtain my degree. By the way, thanks for letting me use the house as a graduation office...

Also, a special thanks goes out to my sisters and dear friends who supported me, offered help and celebrated milestones with me. You offered me the distraction that I was trying to design.

Lastly, I would like to put my boyfriend and partner-in-crime, Wouter, in the spotlight. Thanks for being constructively critical about my design and approach, even though I did not always seem to appreciate it. You yourself knew all too well that mood swings can be an unfortunate by-product of a graduation project. You encouraged and motivated me throughout the project to let me get the most out of it. You have been proud of me and loved me no matter what. That has kept me going!

Thank you all!

*Floor van Gent
Rotterdam, 2020*

READING GUIDE

This reading guide aims to assist for reading the report by showing an overview of the main chapters and the lay-out used throughout the report. It also provides with a list of abbreviations and definitions.

Introduction

Discover

Define

Ideate & Iterate

Demonstrate

Conclusion

GLOSSARY

AAS

Amsterdam Airport Schiphol

ASQ:

Airport Service Quality

CI:

Customer Insights

PX:

Passenger Experience

OD:

Origin Destination passengers

TRF:

Transfer passengers

NPS:

Net Promotor Score

SCHENGEN:

Countries to which passport control is not needed (mostly EU)

NON-SCHENGEN:

Countries to which passport control is needed (mostly out of EU)

LIVING LAB:

A label for specific locations at Schiphol to indicate an experiment-in-progress.

STRUCTURE

The chapters in this report are structured according to the approach of this project. Therefore, the visual of the approach in figure 8 (on page 19) can also be used as a reading guide. The project phases of this project are: Introduction, Discover, Define, Ideate & Iterate, Demonstrate and Conclusion. The colors that are shown in this visual, are also the colors used throughout the report for each chapter. The shape that is shown at the bottom right corner of this page indicates the end of a section. New chapter are clearly indicated by a completely filled page.



EXECUTIVE SUMMARY

To achieve the ambition of providing a 9+ experience for every passenger, the Passenger Experience Platform develops concepts that improve on impactful touchpoints of the passenger journey. Increasing the passenger satisfaction contributes to the ambition of Schiphol to become Europe's preferred airport. The departure gates are impactful touchpoints that currently receive relatively low satisfaction scores. Therefore, this project focuses on creating a memorable waiting experience at the gates by reducing the perceived length of waiting time.

The G-gates of Schiphol in particular could benefit from a shorter perception of waiting time. Passenger satisfaction scores on waiting comfort at the G-gates have increased after a major redesign in 2019, but the average score is not on target yet. Research shows that emotions dominate while waiting and that positive emotions at the end of an experience can improve overall satisfaction. This indicates the importance of enhancing the emotional state of the passengers to improve their perception of waiting time and contribute to a 9+ experience.

Research shows that distraction possibilities and exhilarating ambient conditions seem to lack at the G-gates, while these play an important role in improving the passengers' emotional state. Distractions can make the waiting experience of the passengers more memorable; for example, entertainment and beautiful and eye-catching objects can distract from feelings of discomfort and boredom. Certain design qualities of the ambiance can also impact the passengers' emotional state. This project aims to design a distraction that improves the ambiance. The focus will be on evoking positive and desired product-human interactions, because these have shown to be very important in stimulating positive emotions.

An airport terminal is designed to be a low-load environment; simple, familiar and unsurprising to reduce stress. However, most passengers experience the current G-gates as being plain functional, impersonal and boring, and, regardless of the intended purpose of the current terminal design, still feel restless. Studies show that adding some complexity and unique

colors to a coherent environment increases its liking and stimulates positivity. Passenger analyses show the need for more exciting, warm, relaxed and personal interactions. At the same time, it is also identified that the distraction should only be moderate as passengers should not be withheld from activities they want and need to perform. Some passengers are actively looking for a distraction in this phase of the passenger journey (the so-called stimulus seekers). Others prefer to stay seated, but would nonetheless enjoy being passively distracted (stimulus avoiders). A distraction at the gate could facilitate both types of passengers, as the active interaction that stimulus seekers will have with it could lead to stimulus avoiders being passively distracted.

Research shows that the identified design qualities and types of interactions may lead to the following positive emotions: feeling enchanted, amused, relaxed, dreamy, at ease and connected. During the project, some design interventions were tested, having the potential of creating the desired interactions and emotions. More insights were gathered on how to create the desired interactions, but also on what type of distraction passengers want to engage in. The results of these experiments have led to the creation of a concept proposal that is tested with the passengers at the G-gates by means of an experiential prototype.

'FLIP' offers a moderate distraction for passengers waiting at the G-gates of Schiphol. Stimulus seekers can modify the ambiance around them by flipping colored window filters to another color, thereby leaving a personal pattern. The eye-catching and unique appearance improves the ambiance of the G-gates because it adds some complexity to the coherent and boring environment. Passengers will feel enchanted and amused because they are able to create special effects with bright colors. The warm light in a fluent dynamic design enhances relaxation. FLIP allows passengers to connect with the environment. Their perception of waiting time is improved; for a moment, passengers forget that they are waiting at an airport.

TABLE OF CONTENTS

1. INTRODUCTION

9

1.1	PROJECT STAKEHOLDERS	10
1.1.1	Amsterdam Airport Schiphol	10
1.1.2	Passenger Experience Platform	10
1.2	PROJECT BACKGROUND	13
1.2.1	The mission Hospitality	13
1.2.2	Improving passenger satisfaction	13
1.2.3	The G-gates of Schiphol	15
1.2.4	Project scope	16
1.3	PROBLEM DEFINITION	16
1.4	ASSIGNMENT	18
1.4.1	Project aim	18
1.4.2	Assignment	18
1.4.3	Research questions	18
1.4.4	Approach	18

2. DISCOVER

20

2.1	LITERATURE BACKGROUND	22
2.1.1	Peak-end rule	22
2.1.2	Perception of waiting time	24
2.1.2	Conclusion literature background	26
2.2	EXTERNAL ANALYSIS	27
2.2.1	Benchmarking	27

2.2.2	Trends Analysis	33
-------	-----------------	----

2.2.3	Conclusion external analysis	36
-------	------------------------------	----

2.3	G-PIER EXPLORATION	37
-----	--------------------	----

2.3.1	Stakeholders G-pier	37
-------	---------------------	----

2.3.2	Departing procedure at the G-Pier	39
-------	-----------------------------------	----

2.3.3	Conclusion G-pier exploration	41
-------	-------------------------------	----

2.4	PASSENGER ANALYSIS	42
-----	--------------------	----

2.4.1	G-pier Passengers	42
-------	-------------------	----

2.4.2	Interviews & observations	43
-------	---------------------------	----

2.4.3	Generative Sessions	47
-------	---------------------	----

2.4.4	Problem finding session	50
-------	-------------------------	----

2.4.5	Conclusion Passenger analysis	52
-------	-------------------------------	----

2.5	CONCLUSION DISCOVER	54
-----	---------------------	----

3. DEFINE

56

3.1	DEFINED PROBLEM STATEMENT	58
-----	---------------------------	----

3.2	DESIGN GOAL	58
-----	-------------	----

3.3	INTERACTION VISION	58
-----	--------------------	----

3.4	DESIGN CRITERIA	59
-----	-----------------	----

4. IDEATE & ITERATE

60

4.1	IDEA GENERATION	62
-----	-----------------	----

	Ideation session	62
--	------------------	----

	Follow-up ideation	64
--	--------------------	----

4.2	DESIGN DIRECTION	67
	Experiment questions	69
4.3	DESIGN INTERVENTIONS	70
4.3.1	Colored Triangles	71
4.3.2	Amsterdam Houses	73
4.3.3	Drawing Doodles	75
4.3.4	Leaving a must see	77
4.3.5	Flipping colors	79
4.3.6	Extra Research	82
4.3.7	Answering the research questions	83
4.3.1	Specify to one concept	85
4.4	CONCEPTUALIZATION	87
4.4.1	Interaction qualities	87
4.4.2	Shape design	87
4.4.3	Filter design	88
4.5	FLIP	91
4.5	Conclusion Ideate & Iterate	97

5. DEMONSTRATE 99

5.1.	EXPERIENTIAL PROTOTYPE	101
5.2.	USER TEST	103
5.2.1	Method user test	103
5.2.2	Results user test	105
5.2.3	Discussion user test	109
5.2.4	Limitations user test	111
5.2.5	Conclusion user test	112

5.3.	EXPERT FEEDBACK	113
5.4.	REDESIGN OF FLIP	113
5.5.	FUTURE RECOMMENDATIONS	120

6. PROJECT EVALUATION 122

6.1.	PROJECT DISCUSSION	124
6.2.	PROJECT CONCLUSION	126
6.3.	PERSONAL REFLECTION	127
6.4.	LITERATURE REFERENCES	129

7. APPENDICES 132



**“PATIENCE IS NOT SIMPLY THE ABILITY TO WAIT,
IT'S HOW WE BEHAVE WHILE WE'RE WAITING”**

- J. MEYER

1.

INTRODUCTION

This chapter includes:

- 1.1 Project Stakeholders
- 1.2 Project Background
- 1.3 Problem Definition
- 1.4 Assignment



Help us to recycle

1.1. PROJECT STAKEHOLDERS

1.1.1. AMSTERDAM AIRPORT SCHIPHOL

An airport is like a country's front door; both the first and the last memory of a passenger's travel are made here. This graduation thesis is written in the context of Amsterdam Airport Schiphol (AAS), the main airport of the Netherlands and one of the biggest airports of Europe. Royal Schiphol group N.V. manages the airport and is responsible for airlines to be able to operate, restaurants and shops to sell their products, that people are able to travel, and that cargo will be shipped. The airport is an engine for the Dutch economy by contributing to international trade, exchange of knowledge and tourism. 67.000 people are working at Schiphol to make sure 71.1 billion passengers a year can relax and feel safe as they are guided through the airport (Schiphol, 2019). Currently Schiphol is the third biggest airport of Europe, after London Heathrow and Paris Charles de Gaulle when looking at the number of passengers a year.

Becoming Europe's preferred airport

The long-term ambition of Royal Schiphol Group N.V. is to develop AAS into Europe's Preferred Airport. In order to realize this, they have set up five strategic pillars to focus on: 1) Top connectivity, 2) Excellent visit value, 3) Competitive marketplace, 4) Development of the Group and 5) Sustainable and save performance. With competition getting stronger all over the world and especially in Europe, it is essential for Schiphol to keep innovating with its focus on improving the passenger experience and satisfaction. This is part of the pillar 'excellent visit value' that comprises of investing in high-quality capacity, digital processes and many other resources that improve the passenger experience (Schiphol, 2019). The growth of number of passengers (3.7% in 2018) and the size of the airport remaining as small as possible, has its impact on the quality of the passenger journey. Schiphol needs to constantly understand and exceed passenger expectations at impactful touchpoints in this journey to deliver memorable experiences in a qualitative process.

Passenger satisfaction is an important measure to determine Schiphol's competitiveness and performance. The department Customer Insights (CI) of Schiphol keeps up a bimonthly Quality Monitor that measures the satisfaction scores of various service items along the passenger journey. Such an overview is shown in figure 1. Next to that, Schiphol participates in the Airport Service Quality (ASQ) monitor, which is a globally established benchmarking program measuring passengers' satisfaction for different service items. In 2018 Schiphol finished in eighth place out of 14 other European airports comparable in size. Based on the results of this benchmark and the Quality Monitor, Schiphol decides each year what service items or aspects need most attention to achieve their long-term ambition of becoming Europe's Preferred Airport. The service items that are indicated by red numbers in the Quality Monitor score below target; these need extra attention for improving on passenger satisfaction.

1.1.2. PASSENGER EXPERIENCE PLATFORM

The Passenger Experience (PX) Platform develops concepts for different aspects of experiences that passengers encounter during their travel that improve the overall customer satisfaction. This is what they refer to as impactful touchpoints of the customer journey. The four missions that they are working on are; Security, Arrivals, Hygiene and Hospitality. Under each of these missions, different concepts are being developed and tested to prove the effect it has on the passengers. The PX team is doing this research in an iterative process, where they improve a design multiple times before implementation. They test their concepts in a so-called Living Lab; a label for specific locations at Schiphol to indicate an experiment-in-progress.

Next to developing concepts that improve the passenger experience, the PX team also keeps an eye on everything else at Schiphol, like constructions and innovations, that can influence it. In order to help other

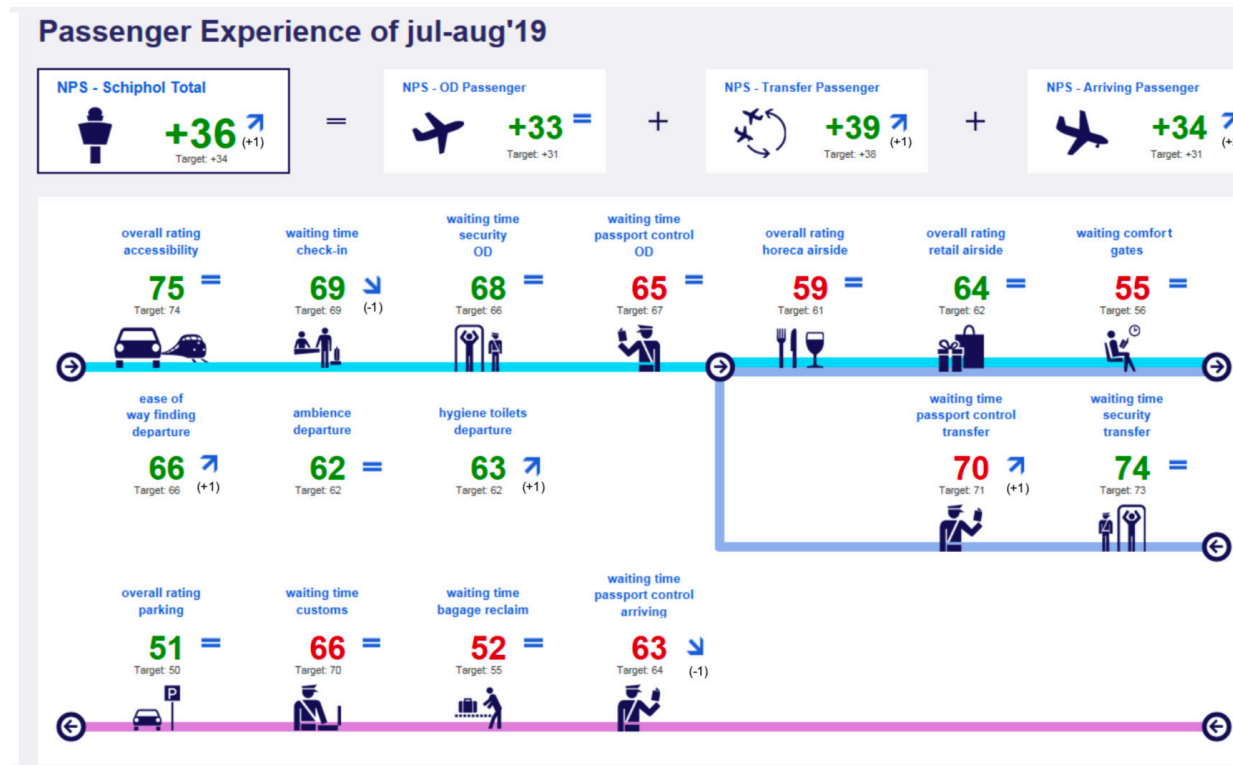


Fig. 1 - Monthly passenger satisfaction report with satisfaction scores per service item (Schiphol, 2019)

departments that consciously or unconsciously influence the passenger experience with their activities, the PX team is developing a method of their way of working. This is not only good for structuring the process in a complex organization, it is also needed to communicate their process and to validate the effect of a concept before doing investments for implementation. 'The PX way of working' model that they created is separated in two phases: The Test Living Lab and the Deployment Living Lab.

In the Test Living Lab, which is visualized in a working model in figure 2 (version: October 2019), the team will (re)define the mission based on

research, develop new ideas and test those on mainly the desirability. By the end of this phase, concepts are being proposed to the board that decides together with the PX team on which concepts to proceed, based on the results of the Living Lab. In the second phase, Deployment, selected concepts will mostly be tested for their feasibility and viability. Stakeholders will be included more in this process to secure a good deployment, see appendix A for the Deployment Living Lab model. Due to time restrictions of the graduation project, one cycle of The Test Living Lab phase will be executed. This project will therefore mostly focus on the desirability of the ideas and the final concept proposal.

Giving every passenger a 9+ experience

It is the ambition of the PX platform to give every passenger a 9+ experience in each of their missions at every touchpoint in the passenger journey. The number 9 in this ambition is retrieved from the Net Promoter Score (NPS), a tool that indicates the loyalty of a firm's customer relationships (Medallia, 2015). Schiphol measures the success of their projects through NPS which is done by asking the user whether he/she would recommend the use of a product or service to their friends and family on a scale from 1 tot 10. The scores are divided in three groups: detractors (0-6), passives (7-8) and promoters (9-10). The NPS is calculated by subtracting the percentage of detractors from the percentage of promoters, resulting in a

score between 0 and 100. However, NPS is only useful for measuring improvements of complete projects, where multiple concepts work together. This means that the 9 in the ambition of PX does not literally mean that each concept must score a 9 on the NPS question. It means that each single concept should contribute to the 9+ experience of the passenger. The PX ambition is important for this project, as the concept that will be proposed will seek to improve the passenger experience. It will therefore be the ambition of this graduation thesis to contribute to the 9+ experience of every passenger at Schiphol.

Test Living Lab

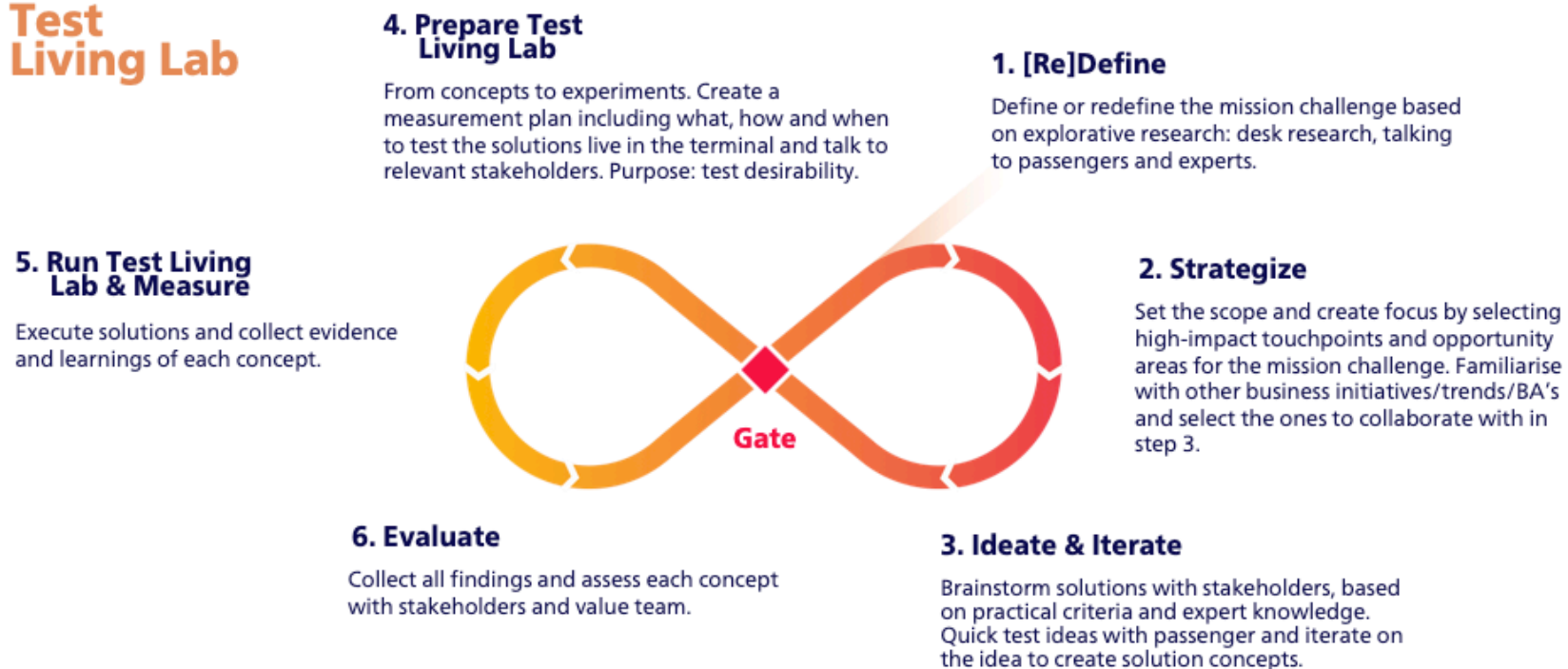


Fig. 2 – The PX way of working model for Test Living Lab (Schiphol, 2019)

1.2. PROJECT BACKGROUND

Explorative research has been done in order to create a clear scope for this project. This section will explain some background information that is needed to understand what is included in the scope and for what reason.

1.2.1. THE MISSION; HOSPITALITY

Due to the timing of this project, it will be executed under the mission Hospitality. The first two steps of the PX way of working model (figure 2) are executed by Schiphol but also by the researcher to create a better focus for starting the project.

The first step was to redefine the mission challenge of Hospitality at Schiphol. To be able to redefine this challenge, a better understanding of Hospitality was needed. Therefore, research has been executed to its definition according to students of the TU Delft and to literature. The complete results of this research can be found in appendix B. The reframed definition of Hospitality is; “Fulfilling the needs of the passengers who should feel welcome, at ease, seen and well-helped while spending their time at Schiphol.” The main take away of this study is that it is the objective of Hospitality to enhance passenger satisfaction (C. King, 1999). This also played an important role in selecting high-impactful touchpoints and opportunity areas for Hospitality. This is the second step of the PX model that leads towards the problem that this project will aim to solve. According to the PX team, these impactful touchpoints are almost everywhere because Hos-

pitality has the same objective as every PX concept; improving passenger satisfaction. Therefore, the PX platform identified four opportunity areas to design new concepts for; 1) making memorable experiences at the gates & reclaim, 2) creating 9+ experiences in the lounges, 3) hospitality blind spots and 4) the human to human hospitality. For this project the first opportunity area is selected for one specific touchpoint; making memorable hospitality experiences at the gates. This opportunity area contributes to the 9+ experience of the passengers by improving passenger satisfaction there where hospitality is experienced the least, and where it can achieve the most impact.

1.2.2. IMPROVING PASSENGER SATISFACTION AT THE GATES

An important point of improvement

When looking at the bimonthly CI report in figure 1, it can be seen that the “comfort at the gates” scores relatively low on passenger satisfaction scores. It is even below target. Waiting at the gates of an airport is currently an inevitable part of the passengers’ journey. It is the last impression that passengers have with Schiphol before boarding the aircraft. According to the Peak-End rule, improving this ‘last mile experience’ could not only improve the passenger satisfaction of waiting at the gates; it could even improve the overall passenger satisfaction of Schiphol (Kahneman, 1993). The Recency effect, that is identified more than a century ago, even addresses that the last experience will be remembered the best (Ebbinghaus, 1913). This explains the importance of improving the Passenger Experience at the gates. In the plot in figure 3 it can be seen that the indicated “comfort at



the gate” indeed has a high impact on the overall satisfaction score and is deemed as a high priority by passengers, but still has a large backlog to the Best in Class of other European airports. This positive effect of improving the waiting comfort at the gates is proven in reality by Zurich Airport (ZRH) in 2011, who redesigned their gate area and ended up being Best in Class for this service item and immediately saw an increase in their overall satisfaction. Amongst others they improved their ambient conditions, spatial layout and amount of services offered. All of the above mentioned together, makes it a great opportunity for Schiphol to improve the passenger experience at their gates and to improve on the item “comfort at the gate”.

Perception of waiting time

Explorative research is executed to find out what “comfort at the Gates” actually means in order to create a better scope for this project. The complete results of the research can be found in appendix C, and the key findings are summarized here.

The “comfort at the gates” actually means the comfort of the waiting time, because the primary function of the gate is a waiting area. People evaluate their waiting experience mostly on their perception of waiting time, that gets influenced by their emotional and physical state. The literature background in section 2.1 will further explain this principle. According to Pine and Gilmore (1998), reducing the perceived waiting time can be

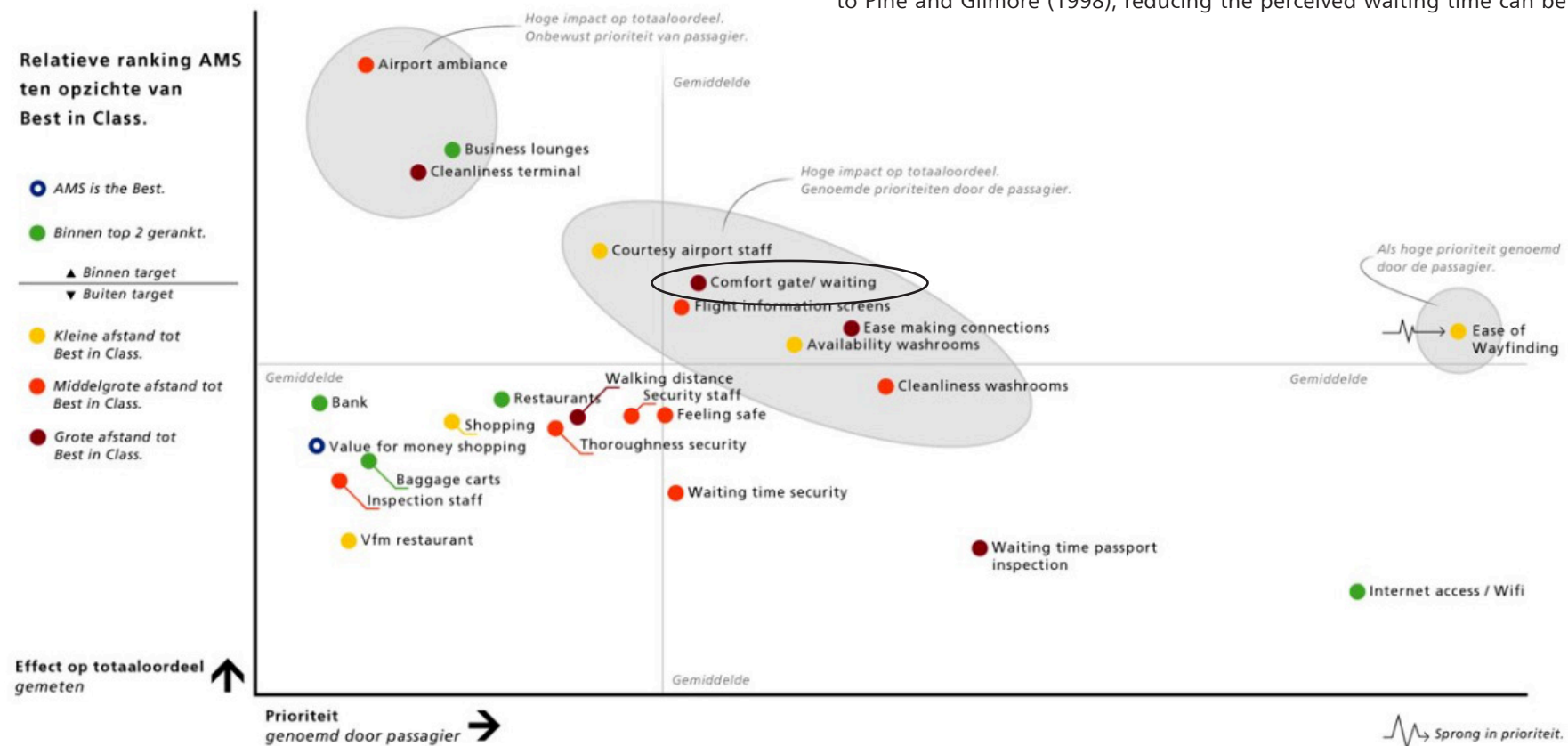


Fig. 3 - All service items set out against two axes; effect on overall satisfaction and passengers' priority (CI Schiphol, 2015)

done by designing tangible and intangible aspects in the airport environment. These aspects can improve the emotional and physical state of the passenger. Studies show that the ambient conditions, aesthetics, spatial layout and functionality are aspects that have an impact on satisfaction in a waiting room context (Han, 2013). These two studies say the same, as ambient conditions as lighting, noise and odor are mostly intangible elements. Functionality like power outlets, Wi-Fi and entertainment are more tangible elements. There is also aesthetics like plants and artworks, and spatial lay-out like seating design, that include both tangible and intangible elements. All these aspects of a 'comfortable' waiting environment improve the emotional and physical state of the passengers that both influence the perception of waiting time. In other words, when aiming to improve the "comfort at the gate" one actually improves the perception of waiting time. It is therefore the main goal of this project is to improve the perception of waiting time.

1.2.3. THE G-GATES OF SCHIPHOL

The need for improving the perception of waiting time is bigger for non-Schengen flights. These are flights that are departing to countries for which passport checks are needed, mostly to countries other than the European Union. The non-Schengen passenger journey could take up to an hour longer than Schengen flights if they follow the advice of Schiphol to arrive three hours before departure. The non-Schengen flights depart from the E-, F-, and G-pier and most of the time have bigger airplanes and therefore longer boarding times. Next to that, these passengers have a longer flight ahead so they could be more worried and feel more need to spend their time useful. The need for a better waiting experience increases as well when the Gate is far away from the Lounge, because passengers are not able to go back easily to this 'fun area' with restaurants and shops. Since the G-pier is the most far away, this project will focus on the waiting area of the G-gates.

The G-gates are redesigned very recently (2019) to improve the passenger satisfaction. The Passenger Experience monitor indeed shows an increase in the average score of the waiting comfort at the Gates of the G-pier since

April 2019 (figure 4) which is very likely the direct result of the redesign. However, one measurement in august is still lower than the moving average and the average itself is still below target. This could mean that there are still opportunities for improving the waiting comfort. The Best Practice report (2018) emphasizes that there are never enough initiatives to improve the comfort, as they all work together as a whole: "Customer satisfaction is not achieved by improving a single item". This means that all the comfort initiatives that are already implemented in the G-pier redesign, can only benefit from even more efforts as they work together to make the gates a more comfortable place and to reduce the perceived length of waiting time as much as possible. Therefore, explorative research has been done to find out what aspects of comfort could still be improved in the G-pier, as can be found in appendix C. The results show that all aspects that specifically improve the physical state of the passengers have already improved, like comfortable and varied seating and working places with more power outlets, modern sanitary facilities and more open space. Two elements that seem to need improvement are distraction and ambient conditions. These two play an important role in improving the emotional state of the passengers. Therefore, this project will focus on creating a more positive state of mind for the passengers instead of the physical state, leaving out subjects as ergonomics and physical comfort.

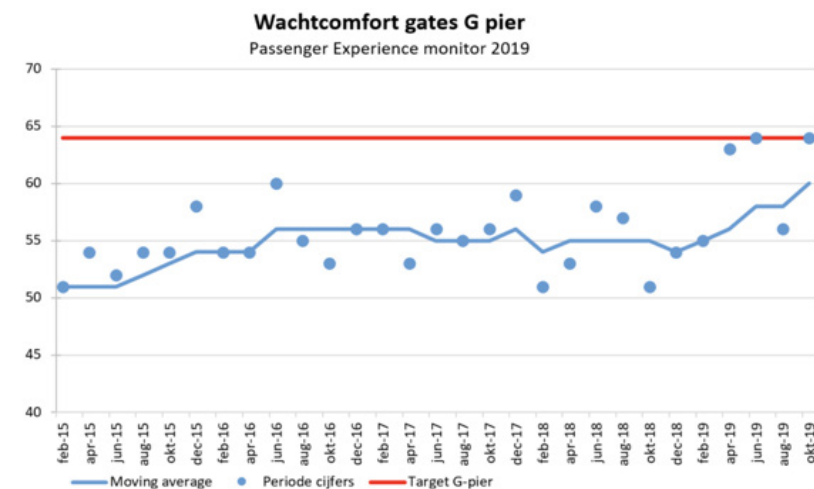


Fig. 4 - Passenger experience monitor measuring the comfort at the G-pier from 2015 until 2019 (Schiphol, 2019).

1.2.4. PROJECT SCOPE

A project scope can be set by summarizing the decisions that were made in the project background:

- This project falls under the mission Hospitality in the opportunity area: making memorable experiences at the gates of Schiphol where hospitality is experienced the least. The reframed definition of hospitality is scoped even more to align with what seems to lack at the gates: “comfort” (appendix B). The most important hospitality value seems to be “fulfilling needs of the passengers to make them feel at ease”.
- Improving the passenger experience at the gates into a positive and memorable experience, means to improve the waiting experience and can be done by reducing the perceived length of waiting time.
- The G-gates of Schiphol could benefit from a shorter perception of waiting time the most, because they are far away from the Lounges and have longer waiting times. The passenger satisfaction rates of the waiting comfort at the G-gates have increased, but the average is not yet on target. Early observations show that the G-gates could still use improvement on two initiatives; distraction and ambient conditions. Therefore, this project will focus on improving the emotional state of the passengers to influence their perceived waiting time at the gates.



Fig. 5 – A photo of early observations at the Gates of Schiphol.

1.3. PROBLEM DEFINITION

During early observations at the G-Gates of Schiphol, it became clear that passengers have to wait in an uninspiring environment with little distraction, as can be seen in figure 5. This problem only gets bigger when comparing the gate area with other areas such as the Lounges where lots of comfort and eating facilities are offered, which contrast is clearly seen on a map of AAS showing a part of the Lounge and the G-Pier, see figure 6. In the Lounges there are all sorts of initiatives to satisfy passengers and fulfill their needs, such as a miniature version of the Rijksmuseum, relaxing chairs, kids’ zones and a library. When walking to the gate, passengers leave this ‘fun’ area and enter a completely different environment which serves the main function of a waiting area. At the G-gates there is currently not much offered to satisfy the needs of the passengers and make this experience positive and memorable.

The same problem is clearly indicated in a passenger journey for departing passengers (figure 7), mapping out the most-common activities and experienced emotion-flow of an average passenger at each touchpoint, based on earlier field research of Beautiful Lives (2016). It is clearly shown that the Passenger Experience at the Gates is currently very low as indicated

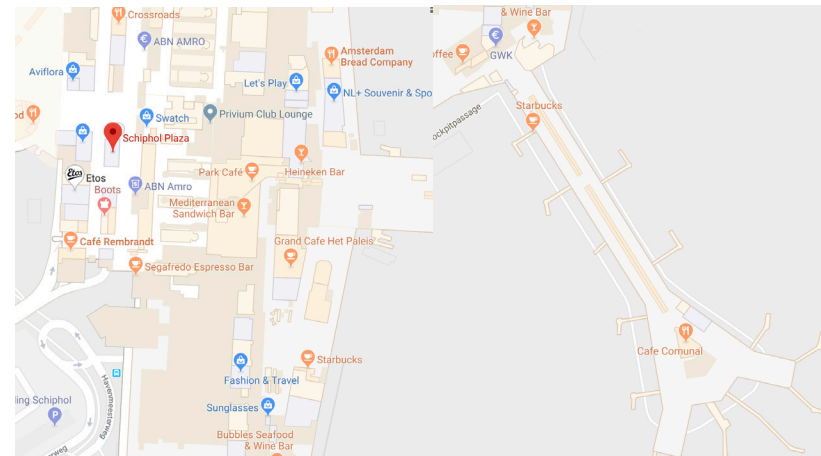


Fig. 6 - a map of a part of the Lounge of AAS (left) and the G- pier (right).

by the red line. However, the Peak-end Rule and the Recency Effect both indicate the importance of having a positive last experience with Schiphol. The blue line in the passenger journey represents the emotion-flow in the desired situation, which could improve the overall satisfaction.

The journey is divided over seven phases of which only phase 6, at the Gate and boarding, is interesting for this project as it covers the final experience at Schiphol. In the research of Beautiful Lives (2016), each phase is studied by interviews and observations.

The activities placed in this phase are; buying food and drinks, waiting, walking around, going to the toilet and lastly boarding. Explanations for the passenger experience at this touchpoint are;

- This is a boring phase and unpleasant area of the departure process at Schiphol.
- The way of waiting feels as a temporarily storage area: not at ease and not cozy.
- People experience the waiting and boarding as one phase; this is mainly because it is both very boring and uncomfortable.

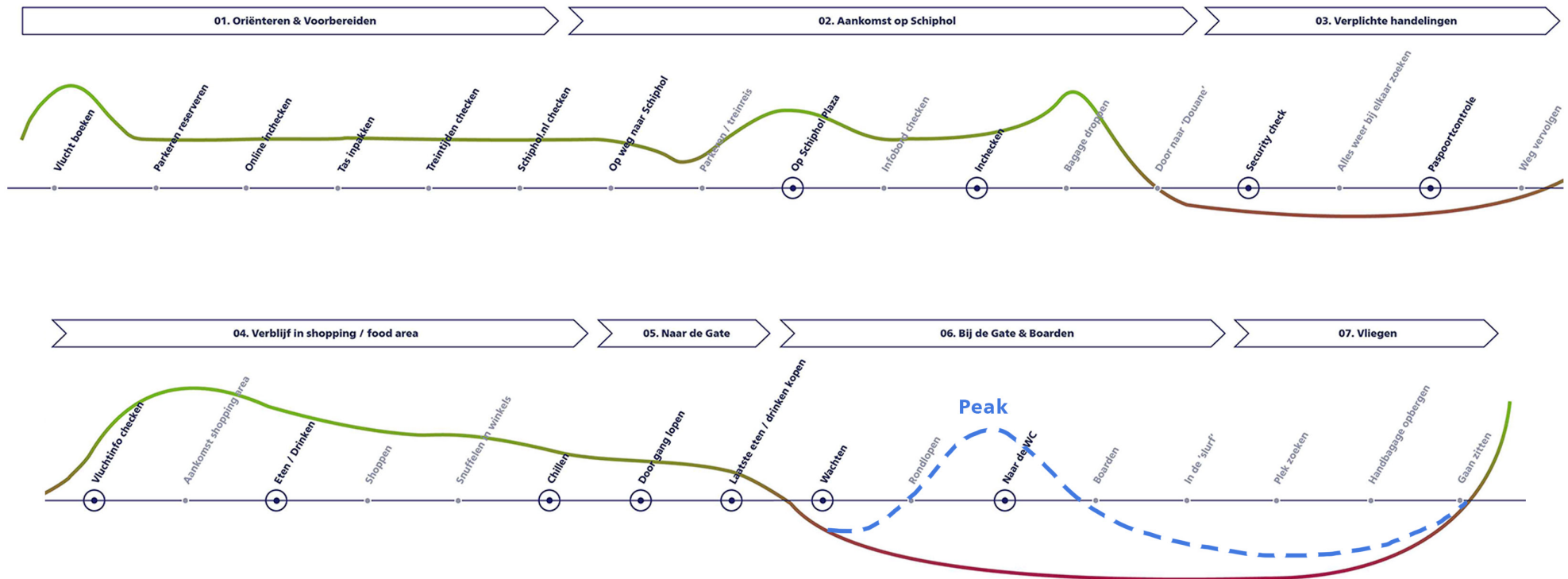


Fig. 7 - The passenger journey with an indication of the desired situation (Beautiful Lives, 2016)

1.4. ASSIGNMENT

1.4.1. PROJECT AIM

The goal of this project is to propose a concept to Schiphol that reduces the perceived length of waiting time for all passengers who are departing from the G-gates of Schiphol. To reach this goal, it needs to be discovered how the emotional state of the passengers can be improved. Therefore, the deeper emotional context of the passengers should be explored to identify the current and desired interactions at the gates. It should be discovered how these desired interactions can be achieved most effectively and whether the improved situation with desired interactions actually reduces the perceived waiting time for passengers departing from the G-gates.

1.4.2. ASSIGNMENT

As a starting point of the project, the assignment of this graduation thesis is formulated as follows: *Design a concept that improves the perception of waiting time for passengers departing from the G-gates of Schiphol.*

The concept will enhance the waiting experience at the gates that improves passenger satisfaction. The expected result will be a proof of concept under the mission Hospitality of the PX team, who can use the proposal as starting point for further experiments and eventually for deployment.

1.4.3. RESEARCH QUESTIONS

The main research question that needs to be answered over the course of the project, is:

1. *How can the perceived waiting time be reduced for passengers departing from the G-gates of Schiphol?*

Sub-questions that need to be answered in order to answer the main research question, are:

2. *What influences the perception of waiting time?*
3. *What are the current interactions in the context?*

4. *What are desired interactions in the context?*
5. *How can these desired interactions be created?*
6. *Do the desired interactions reduce the perceived length of waiting time?*

1.4.4. APPROACH

The project is divided in four phases; discover, define, ideate & iterate and demonstrate. This is a combination of the process of the Exploring Interactions course, the PX way of working model (page 12) and the Double Diamond model as described by the British Design Council (Stickdorn & Schneider, 2014). All three are used as inspiration for the final approach of this project, shown in figure 8. In this visual it is also indicated what chapters belong to each phase and where in the project the sub-questions will be answered.

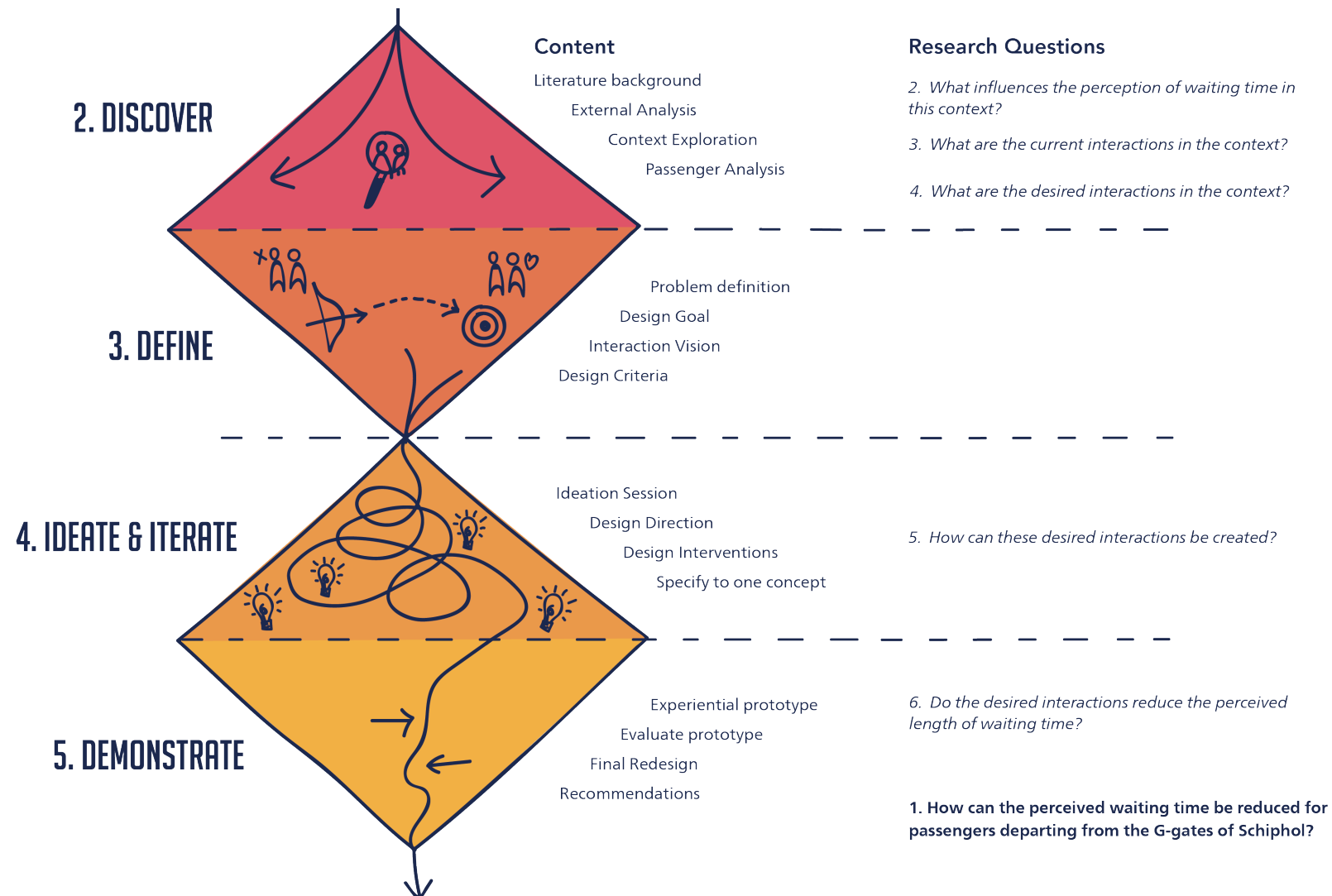
The **Discover** phase and second chapter includes the Method part with literature research, a trend and benchmarking analysis, early explorations and generative sessions. In this phase the goal is to find out what influences the perception of waiting time at the G-gates of Schiphol. Next to that, it is important to discover the passengers' behavior and their latent and tacit thoughts and feelings in order to define the current interactions and address certain aspects to improve. Based on these findings, desired interactions will be proposed. When looking at the PX way of working model, figure 2, this phase covers step 1 (re)define; getting to know the challenge. This can be seen by the corresponding colors of both visuals in figure 2 and 8.

In the second phase and third chapter, **Define**, conclusions are drawn about the desired interactions of the target group, shaped into an interaction vision and a design goal. In this phase the main goal is to define what the desired situation should feel like in order to reach the design goal. This phase covers step 2 strategize of the PX way of working model; creating a focus.

Based on these decisions the third phase can start with the fourth chapter **Ideate & Iterate**. An ideation session will be held to find possibilities for creating the desired situation. A design direction can be shaped based on the results of the idea generation. The main goal of this phase is to find a way

to create the desired interactions. This is done by testing and evaluating the effect of small design interventions on the current interactions. The results of these design interventions that create the desired interactions are shaped into one concept by the end of this chapter. Compared to the PX model, this phase covers step 3 and 4; quick test and conceptualize.

Fig. 8 – Visual of the approach with belonging chapters and research questions



In the final phase and chapter **Demonstrate** the main goal is to prove the effect of the concept by making an experiential prototype and by testing and evaluating the results. A final concept can be proposed after the evaluation of the user test. It will be shown how the final design creates the desired interactions and thereby improves the state of mind of departing leisure passengers to reduce their perceived length of waiting time at the G-gates of Schiphol



**“GENERATIVE OR EXPLORATORY RESEARCH IS THE
RESEARCH YOU DO BEFORE YOU EVEN KNOW WHAT YOU’RE DOING.
IT LEADS TO IDEAS AND HELPS DEFINE THE PROBLEM”**

- E. HALL

2. DISCOVER

This chapter includes extensive research to identify the problems at the G-gates of Schiphol according to the perception of waiting time and emotional state of the passengers. The research starts with providing literature background about the Peak-end rule and the perception of waiting time to answer the first research question in this chapter is: what influences the perception of waiting time? Thereafter, a benchmarking analysis is conducted to identify ways of influencing the perception of waiting time in practice. Together with a trend analysis these results will be used as inspiration for opportunity areas on improving the perception of waiting time of the passenger. The findings from both literature theory and practice examples will be compared with the actual context; the G-pier of Schiphol. Lastly, interviews and observations, generative sessions and a problem finding session are conducted to provide insights about the passengers and answer the research question: what are the current and desired interactions in the G-Gates? This information is needed to define how the perception of waiting time can be improved especially for the G-gates of Schiphol.

This chapter includes:

- 2.1 Literature background
- 2.2 External analysis
- 2.3 G-pier exploration
- 2.4 Passenger analysis

2.1. LITERATURE BACKGROUND

This section includes the theory behind the importance of a positive passenger experience at the end of a passenger's journey, which is referred to as the Peak-end Rule. It will also explain more about how people experience and judge waiting and what role the perception of the length of the waiting time plays in this judgement. Different options are discussed of influencing this perception of time.

2.1.1. PEAK-END RULE AND RECENCY EFFECT

Peak-End rule

When people think back of an experience, they normally don't think about the complete experience from beginning until the end. An experience is mostly remembered based on specific moments and details: the peak and the end. The peak-end rule is a psychological phenomenon in evaluating an experience, discovered by Kahneman and Fredrickson (1993). They found that the evaluation of pain is based on both peak pain and final pain. Follow-up research found that people judge a good life that ends all of the sudden better than living a few mildly happy years longer

(Diener, Wirtz, & Oishi, 2001). The same effect is applicable to evaluations of pleasurable experiences (Do and Rupert, 2007). The most emotionally intense points of an experience (peak) and the final moments of an experience (end) are more easily remembered and impact the judgement of the overall experience more than the average of the experience does, as visualized in figure 9. According to D. Norman (2008) it is more important to have a positive memory of an experience than the experience itself and that this memory is indeed influenced by emotions.

Kahneman and Fredrickson (1993) also showed the existence of duration neglect; which is explained in figure 8 by the lower graph. The judgement of experiences does not depend much on the duration of the experiences. The weight of the very pleasant or unpleasant and the final experience is more important in the judgement and memory. For example, a one-week vacation with a few peak moments and a great ending is evaluated more positively than a three-week vacation without a clear peak experience and ending with a disappointment.

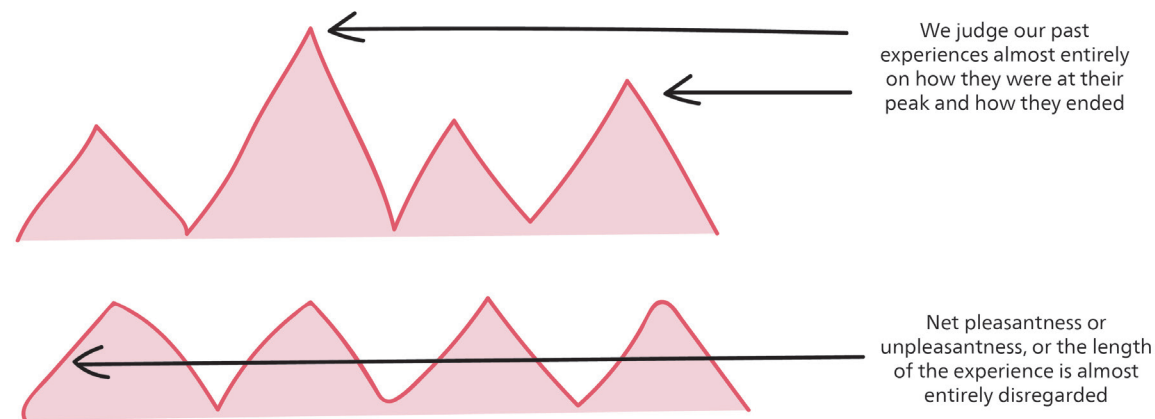


Fig. 9 - Peak-end rule explained in a graph of emotional experience (Kahneman, 1993)

Recency effect

The phenomenon that makes the end of an experience better memorable, is referred to as the Recency Effect. This is a psychological theory identified by H. Ebbinghaus (1913) who proved that the first (primacy) and last (recency) items from a long list of items are remembered the best; he called it the serial-position effect, see figure 10. Multiple theories explain why the last items in a list are remembered the best. The first theory is a dual-store (memory) model that states that the last items are saved in the short-term memory which is easier accessible than long-term memory. These are literally fresh in the mind of the person; they are the most recent words a person just read. However, short-term complies 10 to 30 seconds and this is not what you want to achieve with an experience at Schiphol. Another theory is a single-store model that explains that for each new item studied, the earlier remembered items become less distinctive. Meaning that the last words in the list are more distinct and can therefore be easily retrieved (Bjork & Whitten, 1974). Also, the context of the study seems to be important in remembering the last items better (Howard & Kahana, 1999). Both models are even combined by Davelaar et al. (2005) who argue that two memory components are needed to explain Recency Effects; short-term

memory explains immediate recency and a contextual drift mechanism explains long-term recency. However, for this project it is not very important to know why the last experience is remembered better, it is important to know that the Recency Effect exists.

Conclusion Peak-End rule and Recency effect

For the airport context the Peak-end rule and the Recency Effect address the importance of creating high peaks of positive experiences during the passengers' journey and at the end; it will increase the overall passenger satisfaction and make the experience be remembered better. At Schiphol this last experience is currently not a positive peak, as the Gate areas provide a relatively uninspiring and uncomfortable experience compared to the lounges. It is a great opportunity to transform this 'boring' waiting time into a positive emotional experience, to be the peaking end of the passenger journey. This project could add to the comfortable experience with more positive emotions; a concept that makes passengers smile one last time before they leave Schiphol, being satisfied and taking home good memories.

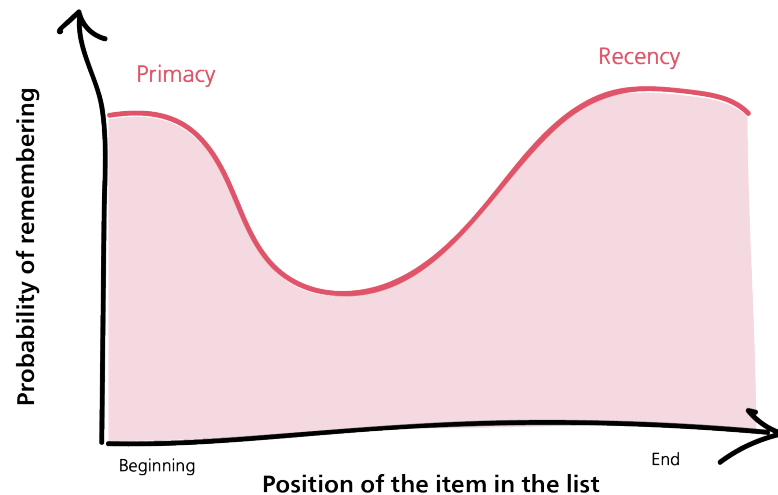


Fig. 10 - The serial position effect visualized (Ebbinghaus, 1913)

2.1.2. PERCEPTION OF WAITING TIME

Waiting is an inevitable part of the passenger journey at Schiphol that can vary from one to three hours in the gate context. To understand the waiting experience, waiting time must first be defined. It refers to the time from which a passenger is ready to receive the service until the time the service starts being delivered (Taylor, 1994). Research shows that an increase of the length of the waiting time results in a decrease in satisfaction (Davis and Volmann, 1990). Luckily, people don't only judge the waiting on its exact time, but also on the perceived length of the waiting time. According to a research for patient satisfaction in the Emergency department, managing waiting time perceptions could even be a better strategy for improving the customer satisfaction than decreasing the actual waiting time (Thompson and Yarnold, 1995). It even seems to be a better predictor of customer satisfaction (Davis and Heineke, 1998). Therefore, a better understanding needs to be created of what variables influence the perception of waiting time at an airport.

Positive emotions

During the airport journey passengers experience three types of wait: pre-process, in-process and post-process (Dube-Rioux et al, 1988). All three types are related to having stress and worries about the process of receiving something that you are waiting for. At the gates of an airport an in-process wait is experienced, because the passenger is close to receiving the service he or she is waiting for; boarding the aircraft. At this moment the worries about the waiting have eased a little compared to the pre-process wait, where more negative emotions are elicited (Friman, 2010). Although both the pre- and post-process wait feel longer and more inconvenient (Dube-Rioux et al, 1989), airports should still try to reduce the stress of its passengers during the in-process as much as possible. The fact that these waiting types are subjected to the level of stress of the people who are waiting, indicates the importance of the emotional state.

D. Norman (2008) has proposed some principles for waiting lines that affect consumers' perception of waiting, as a follow-up on Maister's work *the Psychology of waiting line* (1985). The first and most important

principle is that 'emotions dominate while waiting', supplemented with the fact that emotions are contagious. The emotional state of the passenger is therefore one of the most critical aspects affecting waiting time perception. Time goes by quicker for passengers who are in a positive mood. The emotional state of a passenger could even affect its overall satisfaction (Soremekun et al., 2011; Norman, 2008), which is already shown in the Peak-end Rule. This means that when creating a positive emotion at the end of the airport experience, the emotional state of the passengers will be improved and not only will they perceive the waiting time as shorter, they will also remember this experience better and be more satisfied about the overall experience. For example, making the passengers experience joy and confidence will reduce their perceived length of waiting time. Specific interactions between product and human can evoke such positive emotions, as described by Desmet (2012). Positive emotions can be experienced in response to a certain product design or environment with affective qualities. These design qualities are essentially aesthetic elements that are capable of eliciting positive emotions or positive interactions. An example of a quality of interaction that evokes a positive emotion is that someone can experience joy (emotion) because a product is pleasurable to use (interaction), or confidence because a product is easy to use.

For the design qualities of the gate area it should be taken into account that they may benefit from a low-load environment because it includes tasks that are complex or difficult, such as keeping an eye on gate changes and departure times (Bitner, 1992). A low-load environment helps in making people feel calm and relaxed; it reduces stress and anxiety and at the same time provides distraction. For example, warm light colors are a good choice because they help to relax and to get along with others (Wessolowski et al., 2014). Also, curved elements are more calming and beautiful than rectilinear one (Dazkir and Read, 2012). In order to fit the low-load category, the gate area should feel familiar, simple and unsurprising. However, the liking of an environment can be predicted by the perception of coherence and complexity (Kaplan & Kaplan, 1989). Coherence is related to concepts such as order and unity, and complexity is represented by variety and mystery with for example visual richness and ornamentation. The

last one seems to increase arousal, although too much arousal works aversive (Berlyne, 1971). An environment should therefore only implement a little complexity and mystery to increase the liking of the environment. It was also found that using unique colors and delightful decoration creates interiors that stimulate positive feelings and enhances passenger satisfaction (Han, 2013). Designing something familiar, simple and unsurprising seems therefore not to be a strict requirement when designing a waiting area. Adding some elements in the concept that are unique, complex and novel in a limited amount, could be beneficial for eliciting positive feelings and thereby for reducing the perceived waiting time.

Positive Utility

Waiting is often psychologically painful, because it makes someone think about more productive and rewarding ways of using his time. Waiting might feel as an investment that someone has to make to receive the product or service he is waiting for. This makes sense, because the ultimate goal of traveling is usually the destination itself instead of the travel experience (Ben-Akiva and Lerman, 1985). If it were a passengers' choice, he would not have to wait nor travel at all and arrive as soon as possible on the destination. This feeling of disutility includes discomfort, anxiety, impatience and frustration (Transportation Research Board, 1999) which makes it important to offer the passengers a feeling of utility.

Filling up time useful could be done by for example engaging passengers sufficiently in activities to distract them from feelings of discomfort (Richards et al., 1978). It may be that passengers are also less likely to notice disutility when distracted, as this is also a sense of discomfort. This is reinforced by another principle of D. Norman (2014) that states: 'Keep people occupied, because filled time passes more quickly than unfilled time'. He gives examples of theme parks that design their waiting lines to be quickly moving so a lot of things happen around the visitors. The waiting line should also offer entertainment to make sure the visitors are enjoying themselves and are not thinking about the waiting. Maister (1985) stated that looking at eye-catching and beautiful objects can also fill time effectively; like looking at artworks, sculptures and beautiful outside views. Baker

& Cameron (1996) also state that a service environment can influence the feeling of filled time by providing distraction. They suggest this could be done by the form of entertaining furnishings, engaging passengers in distracting tasks and through stimulating social interaction. It is shown that distractions decrease customer's perception of the waiting time (Pruyn & Smidts, 1998). However, discomfort may also be experienced when passengers are distracted from activities they want to perform (Osborne, 1978). A distraction or entertainment should therefore be carefully designed.

Conclusion Perception of waiting time

The perception of waiting time plays an important role in the evaluation of a waiting experience. The positive emotional state of the passengers should be enhanced in order to improve their perception of time and eventually also their level of satisfaction. This could be done by making passengers experience positive emotions through a certain human-product interaction or affective quality of an environment, and by distracting them from negative emotions. It would be interesting to combine these two; distracting passengers of the wait while experiencing positive emotions. It should be taken into account that the gate environment must be familiar and simple to reduce stress, but it must be unique and richly decorated in order to be liked and to stimulate positive feelings. While this seems to contradict each other, both improve the emotional state of the passenger. Keeping up with the model of coherence and complexity (Kaplan & Kaplan, 1989) seems to be a good way to meet in the middle and have both.

2.1.3. CONCLUSION LITERATURE BACKGROUND

According to the Peak-end rule and the Recency effect it is important to create a peak of positive experience at the end of the passengers' journey. This will increase the overall passenger satisfaction and make the experience be remembered better. This project could add to the current waiting experience with evoking more positive emotions of the passengers at the gates, being satisfied and taking home good memories.

Improving passengers' waiting experience can be done by reducing their perceived length of waiting time. Because emotions dominate while waiting, the emotional state of the passengers impacts their perception of time a lot. This section is summarized in the visual structure shown in figure 11, answering the question; what influences the perception of waiting time at the G-gates of Schiphol?

The emotional state can be improved by evoking positive emotions that in itself can be evoked by positive product-human interactions. Another way to evoke positive emotions is to add some complexity or uniqueness to the coherent whole of a familiar and simple low-load environment.

Schiphol should also offer distraction in the gate environment to improve the emotional state of the passengers, because this distracts from feelings of discomfort. However, it should be a moderate distraction as passengers should not be distracted from activities they want and need to perform. The function of a distraction is to fill up the waiting time of the passengers effectively, this could be done by offering one or more of the following:

- Tasks that require attention
- Entertaining furnishings / objects / people
- Beautiful and eye-catching furnishings / objects
- A vibrant environment (where a lot happens)

Offering a distraction that elicits positive emotions could be the ultimate combination of forgetting negative emotions and experiencing the posi-

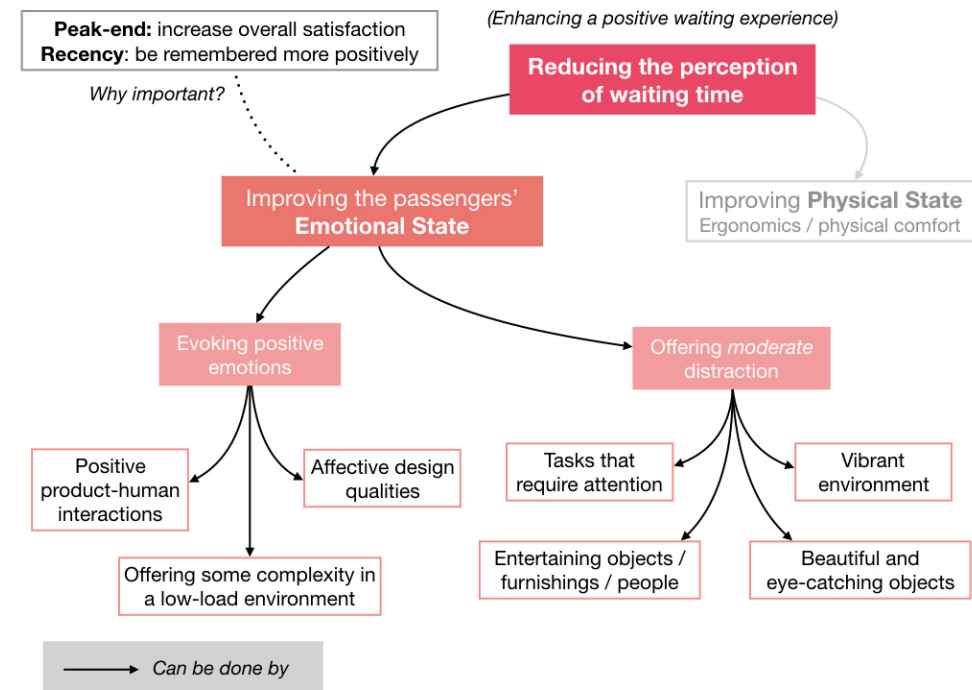


Fig. 11 - A visualized summary of what influences the perception of waiting time

tive ones. In short, this project could improve the waiting experience through evoking positive emotions at the G-gates of Schiphol that distract the passengers from the wait and makes the waiting time seem to be shorter; a concept makes them smile one last time before they leave Schiphol.

2.2. EXTERNAL ANALYSIS

This section will discuss examples of different instances and other airports, that try to improve the emotional state of their guests and customers to improve the perceived waiting time. It is interesting to look at how offering distraction and eliciting positive emotions in a waiting area can, in practice, contribute to a positive emotional state. These results are combined with key findings of a trend analysis to identify opportunity areas.

2.2.1. BENCHMARKING

Other public places

It is interesting to look at initiatives and designs in different settings that improve the emotional state by offering distraction and creating positive emotions. This section shows how other instances than airports cope with this challenge. The public places are selected because they were the first waiting areas that popped into the mind of the researcher when thinking about long waiting times and the need for improving the perception of waiting time.

Hospitals offer magazines and books to read while patients have to wait, see figure 12. Taylor (1995) proved the effect of this initiative to fill consumers' time. For children there are always some toys or puzzles. In hospital waiting rooms the stress and anxiety of patients can run high while this is of bad influence on their pain threshold and length of recovery (Biddiss, 2014). For them it is of high importance to design a patient waiting room carefully so it improves the emotional state of their patients, in this case it should mostly reduce their anxiety and stress. One research even proved the effect of adding Feng Shui elements in the waiting room to improve the comfort (Bazley et al., 2016). These elements work according to an ancient Chinese holistic approach to build an environment; there must be a balance in energy. Feng Shui emphasizes harmony with nature and cycles of time; it literally means "wind" and "water". An example of a waiting room with Feng Shui elements is shown in figure 13. As this theory has very complicated rules to follow, it can merely be used as inspiration to implement balance and natural energy into the concept. A difference between a patient room and the gates are the purpose of visit, which in the airport context is most often more positive as people go on holiday instead of seeing a doctor.



Fig. 12 - Magazines offered in a hospital waiting room (Twitter, 2018)



Figure 13 - A hospital waiting room designed with Feng Shui elements (Hyder, 2019)

Theme Parks were already mentioned by D. Norman (2014) as an interesting example of altering visitors' perceived waiting time. They offer multiple types of distraction during and in the waiting lines and actively seek to make the visitors experience joy and happiness. An important aspect of these waiting lines is that they are mostly moving quickly, with a thematized surrounding so visitors can see a lot happening around them. The Efteling for example assigns mascots in lavish costumes to walk around the queue to talk to visitors and pose for pictures. Their main function is to entertain people to create positive emotions such as joy, wonder and excitement. They also show short movies in their waiting lines.

Another important type of distraction is that they make the waiting line to be a part of the attraction itself, by making use of different areas and starting a show already, see the right image in figure 14. This gives visitors the feeling that the attraction has already started, while they are actually still waiting. They refer to this on their website as 'waiting is an experience'. A difference between theme parks and the gate context is that the airport surrounding should not be suspended reality and quickly moving; it could offer some mystery but according to the literature backing in section 2.1.2 it should also comply to a low-load environment.



Fig. 14 - Examples of theme park distractions in a waiting line (Efteling, 2019)

Restaurants offer some bread with butter to fill up the time until the service gets delivered. Most of the time the ambience of a restaurant is thought through very well and feels warm and cozy. Looking around in the restaurant, to other customers and to artworks functions as a distraction; see figure 15. In the restaurant context people keep themselves busy with finding something on the menu and there is always a host that makes you feel good. A difference between this setting and the Gates of an airport is that a restaurant is the goal of the visit, while the Gates are not.

Hotels do not specifically have waiting time to overcome, but there is an interesting example of high-rise hotels in America that placed long mirrors in and near their elevators to get people distracted by looking at themselves and to fix their hair and clothing. As a result, these hotels got less complaints about elevator delays than hotels that did not implement mirrors (Ackoff, 1987). Something similarly is also mentioned in the literature backing as Maister (1985) suggested that looking at interesting and eye-catching objects could also function as a distraction, for example memorabilia in the Hard Rock café or a beautiful outside view. This type of distraction might also work for Schiphol as they have big windows in the gate environment.



Fig. 15 - Restaurant setting with a warm and cozy ambience and an artwork on the wall

Fig. 16 – Distraction in the shape of looking to something you like to look at

Other Airports

Two field trips are conducted to Rotterdam The Hague (RTH) and Eindhoven (EH) airport, both a part of Royal Schiphol Group, in order to experience their initiatives and improvements for a better passenger experience. The findings result from observations of the environment conducted by the researcher only which are supported by explanations given by the host during the visit. See appendix D for the complete results of these field trips, as this section only describes the key findings. Also, desk research is executed to find examples of how foreign airports aim to reduce the perceived waiting time.

Rotterdam The Hague Airport (RTH)

The Terminal of RTH is currently under construction for a year at least, so their main focus lays on keeping the passenger experience positive,

despite the construction nuisance. As can be seen in figure 17, they offer a few facilities that seem to improve the passenger's state of mind.

Eindhoven Airport

Eindhoven Airport is also a very interesting airport to look at, because they have just finished a big construction at their Gates to improve the "comfort at the Gate". Their main objective is to make the Gates a place where people really want to spend their time, because their Lounge does not offer enough seating for all passengers. The main findings are as shown in figure 18.

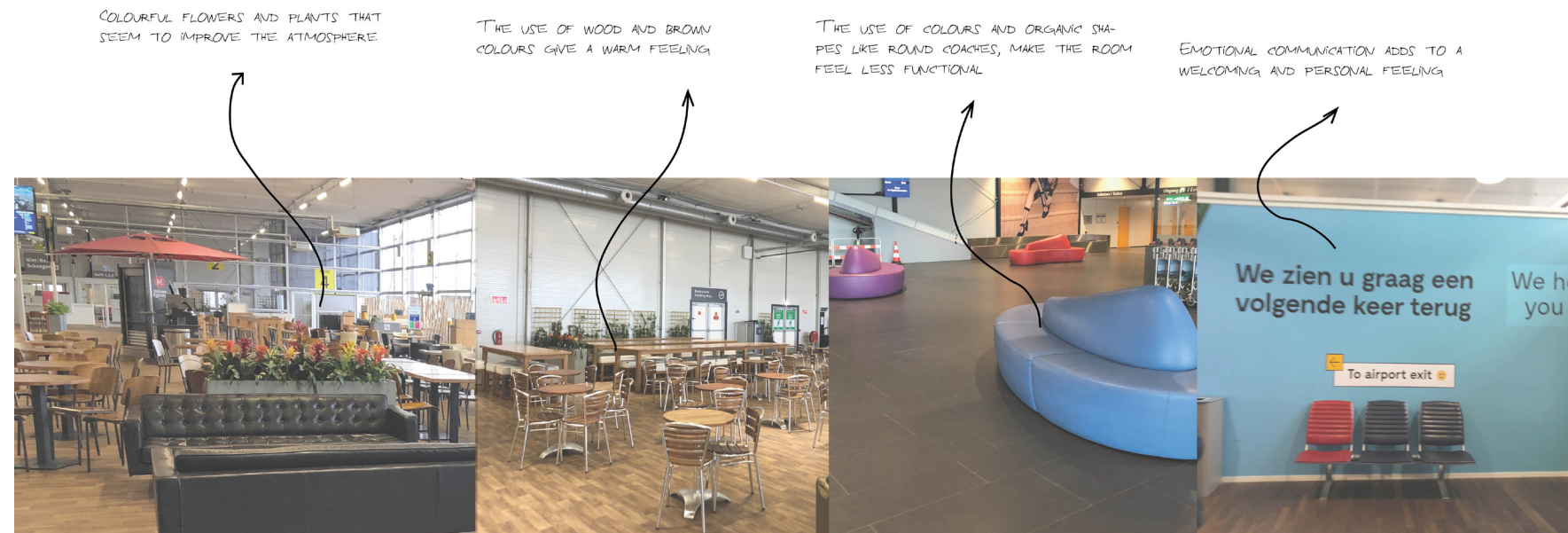


Fig. 17 - Rotterdam The Hague Airport field trip results

DIFFERENT COLOURS OF CHAIRS AND
ROUNDED FURNITURE GIVE A POSITIVE
FEELING

A MIRRORRED WALL MAKES THE ROOM FEEL
MORE SPACIOUS AND IT OFFERS DISTRACTION

INTERACTIVE BEAMER IN THE CHILD-
REN'S CORNER TO PLAY WITH

HAVING A KIDS CORNER NEARBY THE
GATES, MAKES PARENTS RELAXED AND
CHILDREN DISTRACTED / HAPPY.



LETTING PEOPLE SIT TOWARDS THE WINDOW
(BEHIND A TABLE) DISTRACTS AND GIVES THEM
SPACE TO THINK AND PREPARE. MORE LIKE
SITTING IN A BAR!

LOW HANGING LAMPS FEEL COSY AND EMIT A
WARM LIGHT, ALSO ADD TO THE LIVING ROOM VIBE

THESE GLASS SHELDS PROVIDE PEOPLE
WITH A 'PERSONAL SPACE' LIKE PROTECTION
BUT STILL OPEN BY TRANSPARENCY

HAVING DIFFERENT COLOURS PER GATE
ALSO ADDS TO MAKING IT 'YOUR SPACE'
AND CREATES VARIATION / DISTINCTION.

Fig. 18 - Eindhoven Airport field trip results

Making or experiencing art

In the winter, flights from Devi Ahilya Bai Holkar Airport are often delayed due to fog around the city. During the delay, passengers are invited to do art. The airport provides passengers with canvas, brushes and paint. To motivate the passengers, art students assist the passengers. This is an interesting finding, as passengers need extra motivation from a human to join the experience; only offering the distraction seems not enough.

Other airports offer a museum in their Terminal, like Shanghai Pudong airport. This initiative is taken over by Schiphol; a miniature Rijksmuseum and NEMO for children. Unfortunately, they are situated on the Holland Boulevard, which is relatively far away from the gates, especially from the G-gates. Also, quick observation shows that half of the interactive games are out of service. Whether this is temporarily or often, must be checked.

Reading stories

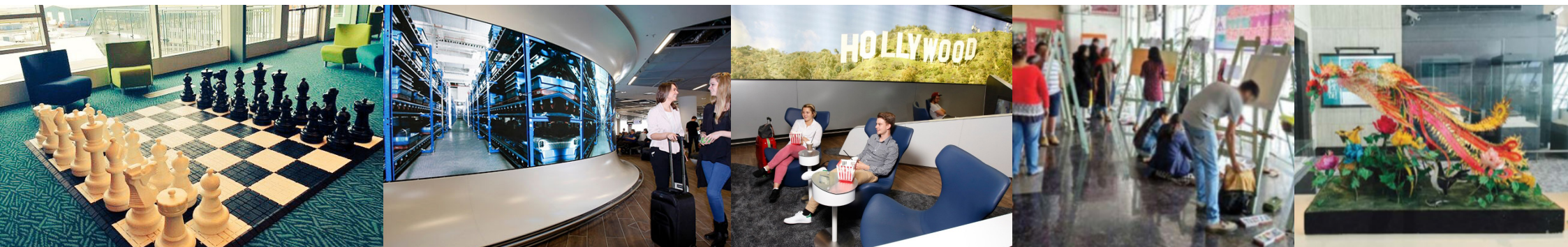
Edmonton Airport has installed a 'short story dispenser kiosk' at the Gate to make waiting at the Gate more enjoyable. Users select either a one, three, or five-minute story that the machine prints on a small piece of paper, and they can enjoy a story while waiting.

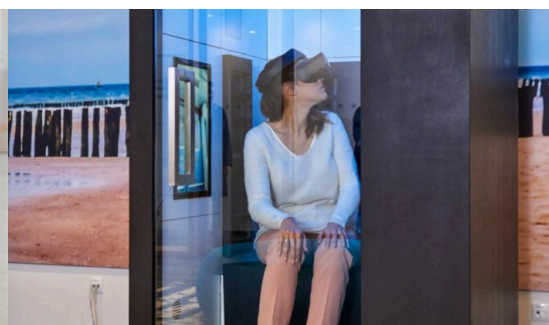
Playing a game

At Prague Airport passengers can play a game of chess and another board games of humanlike sizes at the airport while waiting for check-in or arrival of their friends and family. The Lubbock International Airport also placed 2 permanent giant chess sets inside the passenger terminal. Travelers can move the chess mat to whatever place they liked. In Taoyuan International airport there is even a gaming room with multiple gaming sets.

Watch movies

At Frankfurt Airport passengers can watch movies and series in the "Movie Worlds" area inside their Terminal. The cinema rooms entertain passengers while they are waiting for their flights. These rooms have a relaxed and cozy ambiance to look and feel like a living room; there are comfortable couches and carpet on the floor. Recently, Frankfurt Airport has also introduced a huge LED screen in their Gate area, showing fascinating moving pictures and movies about the aviation industry behind the scenes, e.g. the journey of a piece of luggage. "The spectacular installation creates a genuine 'wow effect' and turns the time that travelers spend waiting in the gate area into an experience to write home about."





Bringing nature inside

Changi Airport offers multiple gardens and even a huge waterfall; making the airport a destination on itself. London Heathrow Airport has installed a 'Garden Gate' in Terminal 3 to provide passengers with a feeling of comfort and relaxation before they fly. Both airports offer their passengers the feeling of being outside as an attempt to reduce the perceived length of waiting time; there is enough to look at in their gardens.

Immersive experience

Multiple airports and especially airlines, offer entertainment by an immersive VR headset. This offers passengers the possibility to "escape in another world" and relax. Srilankan Airlines shows films on their sets in 360°, but KLM immerses the passengers in nature sites like swimming with dolphins in special Virtual Reality boxes that use smells, wind, light and temperature synced with audio-visual content.

Being entertained

Just as theme parks entertain their visitors, some airports try to do the same. Incheon airport offers cultural shows in the terminal that take around half an hour and mini classical concerts. They also have entertainers or hosts walking around in classical costumes.

Discussion benchmarking

This section provided with good examples of how to improve the emotional state of the passengers through offering distraction and stimulating

positivity, however some of these examples might not work as intended or might not fit in the gate context. The learnings are placed in a set of design criteria that will be discussed further in chapter 3.4.

Actively entertaining passengers and offer a vibrant environment like done at theme parks and some airports is not easy to combine with offering a low-load environment. Passengers might not have a choice anymore in listening to it or reacting on it, while they might actually be looking for a calm and quiet area. The distraction offered should not easily become 'out of service' like NEMO at Schiphol. Also, passengers should not need extra stimulation by employees to actually interact with the distraction, since hiring extra employees to host at each gate might become very expensive. It seems not viable to always hire employees to stimulate the use of a distraction, unless it is a part of the distraction. Most of the distractions offered are situated somewhere in the terminal, like the game hall, but not at the gates, let alone at each gate. Also, the gate environment should be completely redesigned for some initiatives, for example when implementing carpet or lounge seats to create a living room vibe, or when implementing a garden. The distraction should be easy to implement at multiple gates, like loose artworks and small games. Watching full-length movies and 'escaping in another world' might have a negative effect that passengers might become too distracted and forget their flight. Implementing nature and other moderately distracting activities like offering short stories to read, seem to be better options because they do not lose the passengers' attention for boarding.

2.2.2. TRENDS ANALYSIS

This section shows trends that might have an impact on any type of positive distraction offered at the gates. Trends are changes in society that occur over time (Boeijen et al., 2014). Together with the earlier mentioned positive distraction possibilities, these trends in the aviation industry uncover opportunity areas that will be used as inspiration for the idea generation. The complete results of the trend analysis can be found in appendix E, because this section only covers the trends that are useful for this project.

"For the next decade gate experience marketing is an important trend, and the possibilities are endless."
- Schiphol (2019)

Sharing experiences and travel inspiration

According to a Harris Poll study of Eventbrite (2014) the experience industry is growing enormously, especially for Millennials: "For this generation, living a meaningful, happy life is about creating, sharing and capturing memories earned through experiences that span the spectrum of life's opportunities." This research shows that 78% of millennials would rather spend money on a desirable experience than on buying a desirable product. More importantly, people value to document and post about their experiences as can be seen in figure 19 (Eventbrite, 2014). The percentage of sharing experiences runs up to 97% for Millennials when they are on vacation (Chase Card Services, 2014).

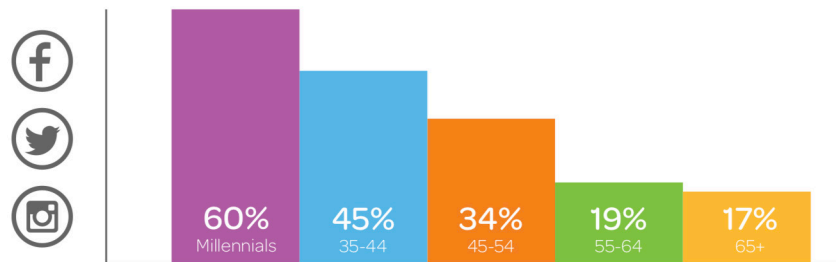


Fig. 19 - percentage of people who shared something about events and experiences in 2014 (Eventbrite, 2014)

It is therefore that their phones and social media are the most important elements in planning a vacation. Research shows that 87% of Millennials use Facebook and more than 20% use Twitter or Pinterest as travel inspiration as they see where friends and influencers go on vacation (Internet Marketing Inc., 2016). A good example is La Plancha, a famous bar on Bali that is very often shared online, most likely because it looks so cute (figure 20). This results in a completely loaded beach each day and copy-cat bars next door that also have colored beanbags and umbrellas, hoping to increase their sales (own holiday experience, 2015).



Fig. 19 - percentage of people who shared something about events and experiences in 2014 (Eventbrite, 2014)

This is an interesting trend for Schiphol as passengers are promoting Schiphol online, although unconsciously, when sharing pictures and using hashtags. This could lead to an increase in number of passengers and to strong and free advertising on social media. It is interesting for this project specifically as 28% of all Schiphol travelers are Millennials and they have at least half an hour to spend at the Gates, where there is nothing else to do and where a positive experience could function as a distraction. On the website of Schiphol, it is even mentioned that "the gates are boring for Millennials".

A field trip is been conducted to WONDR, an experiential museum in Amsterdam, in order to get to know more about what attracts Millennials and what type of experiences are 'cool' enough to post online. The museum markets itself as "the art of play; an immersive pop-up experience that blends visual magic with boundless creativity". The whole museum is arranged for making these 'cool' pictures to post on social media, with

rooms that have different styles, objects and lighting; see figure 21. It became clear that using a lot of bright colors and shiny or soft material can easily create a wonderful setting. Also, the objects or design must be over the top in terms of numbers and size. The museum did not offer a lot of interactive pieces reacting on sounds, movements and touch, as the functions of all objects was merely to be the background for a photo.

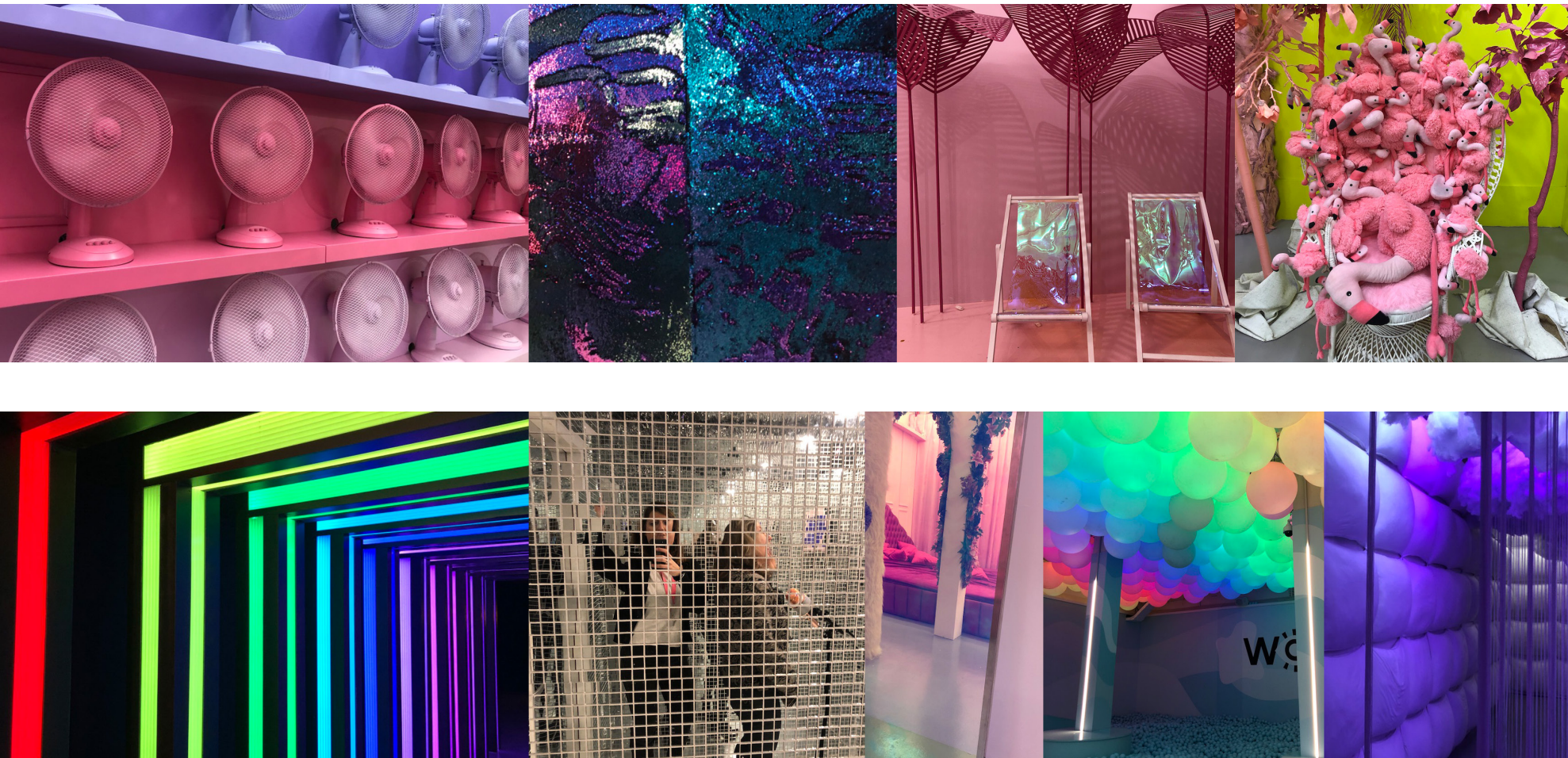


Fig. 21 - Photos from the field trip to WONDR experience museum

Sense of place

Passengers that come from different time zones and regions, different cultures and climates, might feel displaced at an airport. Although unconsciously, they have the need to connect with their environment. Knowing and experiencing where they are exactly and experiencing something typical and local, helps in making these passengers feel better and more connected (Schiphol internal trend research, 2015). This is referred to as giving passengers a 'Sense of Place' and makes a place more personal and authentic. Within the relatively boring airport context, a sense of place design can stand out, see figure 22. Together with the growing trend of wanting to experience meaningful and memorable places, offering the passengers a sense of place experience seems an interesting possibility of improving the emotional state of the passengers and influencing the perceived waiting time. This can be done by including Dutch elements or offering a Dutch experience.

Discussion Trend analysis

Passengers might increasingly prefer to have an experience instead of buying a product, but they also want to share their experiences as their friends also share their experiences. This is an interesting trend for this project because by offering a distraction at the gate, not only the waiting experience improves, but the online marketing improves as well. Designs that are over the top with bright colors, big sizes, repetition and shiny and soft material, invite to make pictures and post online. Implementing more interactive elements could make the experience even more interesting. For the gate environment, however, the design should not be too much over the top with 'crazy' aesthetics as it should still fit a low-load area and it should not evoke too much arousal as that could work aversive (Berlyne, 1971). Implementing a sense of place element in the experience can be something unique in the coherent gate environment and it can also evoke positive emotions like 'connected' and 'personal'.



Fig 22 - Dutch stores with sense of place elements at Schiphol

2.2.3. CONCLUSION EXTERNAL ANALYSIS

The field trips to other airports and examples of other public instances show different possibilities of enhancing the perception of waiting time through offering distraction and evoking positive emotions. The examples found in this section that are deemed useful and appropriate for this project are summarized here:

Different ways of offering distraction

- Tasks that require attention (Board games, short stories, magazines, making art).
- Entertaining objects or people (Mascots in costumes, watch TV/short movies)
- Beautiful and eye-catching objects (Memorabilia, mirrors, artworks, beautiful outside view, aquarium).
- A special experience (that invites to make pictures with and 'share' these online).

Design qualities that evoke positive emotions

- The concept could include different and unique colors and material (glass) to the coherent gate environment, because it seems to add variety and give a positive feeling. This aligns with the coherence and complexity model from Kaplan & Kaplan (1989).
- The concept could include warm colors and material, like wood, because it seems to add to the felt environment and create a living room feeling. This can be confirmed by literature that argues that warm light colors help to relax and to get along with others (Wessolowski et al., 2014).
- The concept could make use of personal communication, because this seems to evoke positivity. This however needs more research.
- A concept design should not be over the top but could offer some mystery with for example; bright colors, repetition, shiny material and interactive elements to give a 'wonderous' feeling and positive experience that people want to share online.
- A concept design with a sense of place element, can stand out and make passengers feel more positive and connected to the personal environment.

2.3. G-PIER EXPLORATION

This section will explore the project context, to gain better insights in the current situation with certain conditions and circumstances that are relevant for this design project (Kistemaker, 2017). In the beginning of this project it was already mentioned that two aspects in the redesign seem to lack or might be wrongly designed; distraction and ambient conditions. This section will take a closer look to the G-pier and its stakeholders; what are the facilities offered? What is needed for a smooth departing process?

“What do people do at the airport? They maybe take a walk through the shops, grab a cup of coffee or a bite to eat, and after that they are heading towards the gate. There, they sit, they wait, for at least half an hour. What they do to kill time? They stare at their phones.”
- Frank Quix, Managing director of Q&A

2.3.1. STAKEHOLDERS G-PIER

In order to identify who is involved in the waiting process at the G-pier and to discover what important aspects or requirements should be taken into account for the design of a concept, a stakeholder analysis has been done. The three most important stakeholders of the G-Gates are Schiphol Airport, the operating airlines and the passengers. They all have different roles and responsibilities in the waiting and boarding process that will be discussed in this section for both Schiphol and the airlines. The passengers will be discussed more extensively in chapter 2.4.

Schiphol

Schiphol is responsible for the facilities and the building, but also for the services offered and for the people who work there. They have a facilitating role for other parties, like the small cafes and the Kiosk at the Gate but also the toilet groups. Schiphol must make sure that the Gate Agents from the operating airlines are able to execute the boarding process and that their working environment feels comfortable and clean. The Passenger Experience platform specifically focuses on improving the Passenger Experience in this area, while Operations specifically focus on the passen-

ger flows and a smooth process. The Gates are owned by Schiphol itself, so there is no need for permission of external parties to change anything (Schiphol intern report, 2015).

A short interview with the project manager of the Upgrade Pieren project (Klaver, 2019) provides with requirements for a design at the G-gates, supplemented by insights gathered from the Passenger Experience platform. These requirements are placed in a set of design criteria and can be found in appendix F.

- An intervention in the waiting area must not obstruct passenger flows, since these are carefully designed for the safety and smooth process of moving people. In general, it is best to make optimal use of the scarce square meters in the increasingly crowded terminal.
- Not too many people can be held in or attracted to one place for crowd safety and control.
- An intervention in the waiting area must not obstruct the passenger sights, since passengers need to be able to see the Gate desk and boarding activities at all time. The maximum height of a product in sight is 1.4 meter.
- Sustainability is an important aspect of the strategic values of Schiphol. A concept must exist of sustainable materials and preferably be sustainable as a whole. For example, by being energy neutral or enhance sustainable behavior of the passengers.
- Passengers' senses must not be over stimulated, as 'Schiphol is not a theme park'.
- Furnishings must be stuck and not have loose parts, as passengers should not be able to take them with them.
- An intervention in the waiting area should preferably not deliver the cleaning crew extra hours.
- A concept must match with the identity of Schiphol, as this is all carefully designed.
- For the department Consumers it is desirable to not attract passengers to the Gates, to make sure that they will spend their time and money in the Lounge.

Airlines

Airlines are responsible for on-time boarding and an efficient flow of this process. While each airline follows different boarding procedures, with for example a specific boarding order, the process seems to be very similar. An interview is conducted with Gate Agents of KLM to gain insights in their boarding procedure, their Gate Experience and their needs for a smooth boarding, see appendix G for the complete results. The key findings are summarized here;

- Achieving the departure time is the main goal of the Service and Gate Agents. To achieve this, they have to execute some preparatory tasks, with which they will start 90 minutes in advance. They need to speak to some passengers before take-off, so it is convenient for them to gather the passengers in the Gate long before boarding instead of last-minute.
- At times, they cannot start preparing directly because passengers are already waiting in line with questions about the departure, the flight and their luggage. Most of them are just looking for confirmation. Bringing the passengers to a more positive state of mind will also help them in executing their tasks.
- The Gate Agents enjoy working on the G-pier because it is more quiet and bigger than other Piers. However, the G-Gates don't feel cozy or warm, and although this is not obstructing them in their tasks, they would appreciate a more comfortable working environment.
- Passengers sometimes need to pay attention to announcements or look at the screens. Anything that influences the waiting phase and area, must not obstruct the boarding procedure of the airlines or lead to more questions for the Agents.

Passengers

Passengers are the people that travel and perform the journey from arriving at the airport to finally leave the gate to board the aircraft. There are multiple ways of segmenting these passengers in groups and to identify the target group for the concept proposal. That will be further described in chapter 2.4 as part of the passenger analysis.



1. Go to correct pier



2. Looking for the appointed gate



3. Waiting until arriving at the gate



4. Arriving at the gate



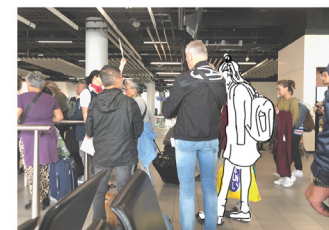
5. Finding a place to sit



6. Waiting until boarding starts



7. Waiting until it's your turn



8. Waiting in the line to board



9. Boarding

Fig. 23 - a timeline of activities from going to the gate until boarding

this opportunity to redesign them. As from September 2019, the renovations in pier G and F are almost finished, only some minor changes must still be made.

Facilities of the G-pier

At the beginning of the pier there are two shops and one bar. Halfway the pier there is a small Kiosk to buy some food and beverages. Toilets are situated at four places divided over the pier, of which the third one is a SPA

concept; a luxury toilet group with fancy design, see figure 25. At the end of the pier there are two massage chairs and an aquarium with real fish inside. Each gate has two or three TV boxes (see figure 26) showing the news, the weather forecast of the destination and holiday commercials. These are the only distraction initiatives and they are not used frequently, especially not the massage chairs. It might be that passengers do not want to do anything anymore at this point, or that the chairs are located at the wrong place.

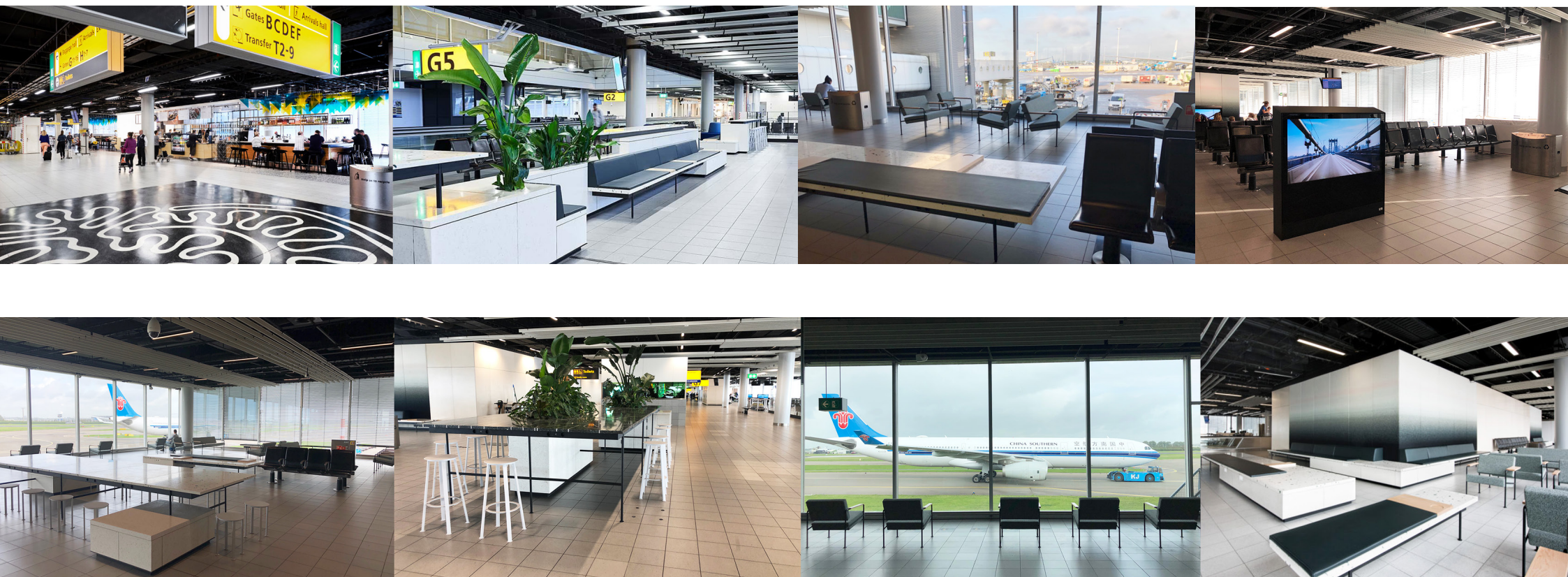


Fig. 26 - Pictures of the G-pier showing its style and comfort initiatives

The redesign implemented several aspects to improve the passenger satisfaction at the gates, like functionality, aesthetics, spatial lay-out and ambient conditions (Han, 2013). How these redesign initiatives came to practice can be seen in figure 25. The G-Gates have varied seating and working places with a lot of power outlets. There are some plants throughout the pier and one artwork of Terrazzo in the floor at the beginning of the pier. As is clearly seen on the photos, the pier is arranged according to the 'open space concept' which brings a lot of space and daylight. The architecture style includes sturdy concrete tones and modern white walls with black contrasts, making the lighting atmosphere cold and bright.

It is clearly seen in section 2.2.1 that other airports like RTH and EH offer a more colorful environment with a 'Living room vibe'. Other foreign airports offer more entertainment and distraction possibilities. A design could improve on these two elements and use the practical examples as inspiration.

2.3.3. CONCLUSION G-PIER EXPLORATION

The interviews with stakeholders revealed some requirements that are placed in a set of design criteria, that can be found in appendix F. The most important design criteria are that interventions in the gate area:

- must not obstruct the passenger flows and sights
- should not have loose parts
- should not over stimulate the passengers.
- should not hinder boarding activities
- should not distract passengers from paying attention to announcements.

It was already stated in the introduction of this project that the ambient conditions and entertainment and distraction options seem limited. This section confirms; the G-pier lacks distraction and ambience, especially when it gets compared with initiatives at other airports and public spaces that are identified in section 2.2.1.

More research will be done in the next section to discover the passengers' true needs in this phase at the G-gates.

2.4. PASSENGER ANALYSIS

Reducing the perceived length of waiting time requires knowledge of the passengers' experience, the interactions and the problems in the current situation. The aim of this chapter is to answer the research question what are the current and desired interactions in the G-Gates? Through interviews and observations, it is discovered how passengers behave, what they think and feel and what the interactions are in the current situation. The problems indicate what desired interactions should be like. More importantly, the deeper emotional context of the passengers is explored through generative sessions. This is needed to identify true needs and motivations of the passengers, resulting in desired interactions and design criteria that enhance the passengers' emotional state and reduce their perceived waiting time.

"By understanding people's motivations, facts come to life and solutions become meaningful."

– N. Kistemaker (2017), lecturer Industrial Design

2.4.1. G-PIER PASSENGER PROFILES

This section introduces who the passengers actually are that depart from the G-gates. There are multiple ways of segmenting passengers in groups and to identify the target group for the concept proposal. Figure 27 shows some facts of Schiphol about the profile of the passengers departing from the G-pier. It includes type of traveler (OD / TRF), purpose of travel, age, domicile and gender. As can be seen, Millennials (21 – 30 years) are the biggest target group with 23%. Compared to other gates, the G-pier has a high percentage of leisure travelers and Dutch travelers.

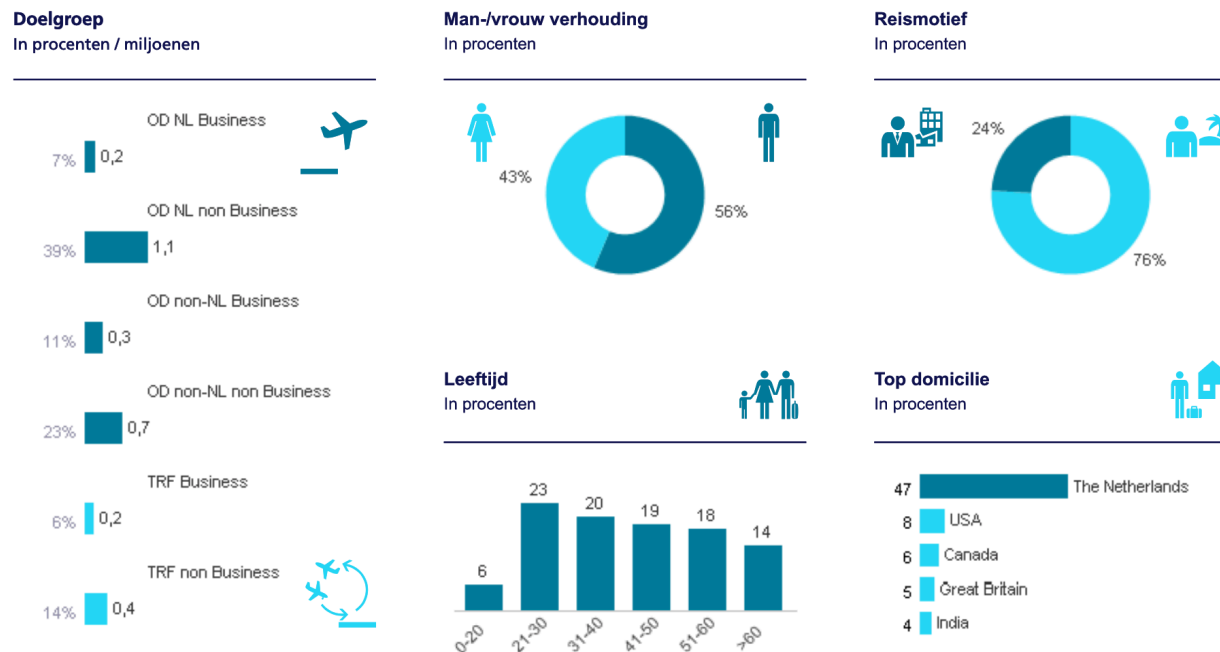


Fig. 27 - Passenger profile of the G-pier (CI Schiphol, 2018)

Next to these characteristics, passengers can also be distinguished by their group composition, for example; families, solo travelers, groups and couples, as they might also differ in behavior and needs. In the research from Beautiful lives (2016), passengers get segmented based on their motivations of 'spending time optimally'. They created a motivational frame of reference to describe the passengers' behavior and needs in order to make motivational strategies for each phase of the passenger journey. The dimensions are divided over two axes; focus on the individual versus focus on the atmosphere and making fun versus control time. Passengers are segmented into four categories as can be seen in figure 28, which only addresses their findings within the Gate area:

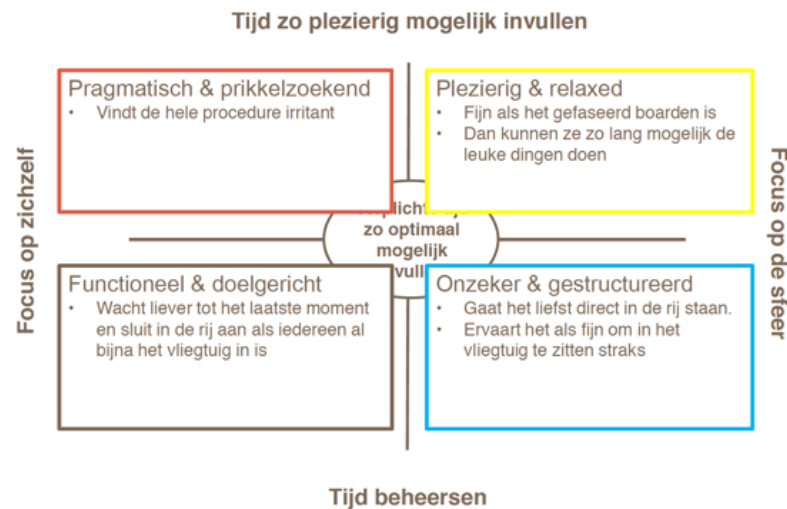


Fig. 28 - Motivational framework of passenger behavior at the Gates (Beautiful Lives, 2016)

For the context of this project it also seems interesting to divide the passengers on a more emotional basis, for example whether someone is going on holiday or has just been on holiday. A passenger going on holiday might be more cheerful and happy, while someone going home could be sad because holiday is over. Another example of a more physical characteristic is whether a passenger already had a flight and is waiting for a transfer, most likely being tired and uninterested.

These are all different ways to segment the type of passengers, but they do

not provide enough information or make assumptions about their needs and wishes for a desired gate experience. Therefore, a field research has been conducted to find out more about their behavior, thoughts and feelings. After this research, a decision can be made about the target group and what that type of passenger exactly needs.

2.4.2. INTERVIEWS & OBSERVATIONS

This section provides with insights of the behavior of the passengers before, after and during they are waiting at the gates, as this might influence their emotional state. The complete results of the interviews and observations can be found in appendix H.

Method

Procedure

During the first part of this passenger analysis the behavior of the passengers was observed to find out what they were doing. Spending time within the real context and observe the passengers' behavior and facial expressions is a good way to carefully understand their issues. Observations are a good method for documenting and analyzing issues as they occur (Stickdorn & Schneider, 2014). Notes, drawings and pictures were made during the observations in order to reconstruct the situation afterwards.

Interviews were being held to find out why people behaved like this and what their thoughts and feelings are. Questions were asked about their experiences with the Gate, their reason for being there and in what way they felt at ease. Their opinion is also asked about desired experiences. Each interview took around 10 minutes. The answers were submitted in an online survey tool by the researcher during the interview and supplemented afterwards as the conversation was still fresh in mind. The interviews were not recorded due to time and privacy restrictions. Both researches were conducted during the waiting time of the passengers until their boarding started. All participants were interviewed while at their seats. Analyzing the interviews and observations (IO) led to the creation of some interesting clusters based on corresponding 'themes' about the current

and desired situation; these themes are the headings of the results.

Participants

In total ten participants were interviewed of all different backgrounds, with holiday as travel purpose. They were randomly selected. More people were observed than interviewed and they were not always the same participants, as boarding sometimes started after observing and the passengers were not available anymore for participating in interviews.

Results

How passengers spend their time while waiting when being at the Gates is discovered during the observations. The results are visualized in figure 29. Most common activities are:

- Being on their phone (calling, texting, downloading videos, listening to music, reading articles/books)

- Prepare for the flight (toileting, eating, stretching legs)
- Looking around (out of the window, to other people)
- Chat with travel partners
- Keeping an eye on the boarding activities

Eight themes resulted from the data analysis and are discussed and supported by interesting quotes. They are not prioritized.

IO-1. Passengers want to reduce feelings of distress

The reason for most passengers to already be in the Gate is to reduce their level of stress or that from their travel partner. By being at the Gate they can keep an eye on the boarding activities and make they are on time for boarding. Although boarding is the last required step in their journey, passengers can still experience stress in advance especially about the things



Fig. 29 - a context sketch with most common activities and behavior

they are unsure about. This is referred to as having pre-flight concerns; these are concerns mentioned by the passengers about whether their luggage is aboard, who their neighbors will be and whether the plane will not leave without them.

"We just want to be here in time to make sure the plane won't leave without us. Now that we are here, we know that it will be alright."

IO-2. Most passengers behave restless

A lot of passengers are constantly looking to the gate agents and to the already shaped waiting line, even if boarding has not started yet; they behave restless. Boarding feels as a chaotic procedure to which passengers have to pay attention. It is important that passengers can keep an eye on the gate during the wait and during activities.

Observation 1: most people that are in the Gate, seated or not, keep on looking to the Gate Desk to see what is happening. During the interview people want to keep an eye on the Gate.

Observation 2: When boarding starts, there are people waiting next to the Gate Agents until it is their turn to board.

IO-3. Different needs in being active

A lot of people are looking for distraction from their boredom and worries, but there is not much to do at this point. They take a walk, go see a little shop and visit the toilet to kill their time, together with the other observed activities as shown in figure 29. Everybody mentioned to keep themselves busy on their phone; some appreciate this, and others would like to do something else. Half of the passengers appreciate the rest and quietness in this area and prefer to read and relax.

"I need more shops here! I want to have something to do that kills time or anything."

"I want to be able to charge myself, to just sit and relax"

Observation: most people are busy on their phone. Others are staring around, looking outside to the airplanes, chatting with friends or fellow travelers and stretching their legs.

IO-4. The environment feels clinical

Some people mentioned that the building and furniture feel clinical, cold

and impersonal. They associate the ambiance with mass usage and production, as everything is made for a lot of passengers.

"Everything feels a little impersonal, it's massive almost like a city."

"The place is not 'gezellig' it feels like a waiting room for the doctor"

IO-5. Not really a holiday feeling

The current situation makes people forget their excitement about their holiday and the journey. Passengers mention to miss a positive, holiday vibe.

"There are no colors and not a positive vibe. It would be nice if that would be different, this is not my holiday feeling!"

IO-6. Needing their own personal zone

Passengers prefer to take their distance from other travelers and sit together with their travel partner(s); they want their 'own zone'. This is currently created by placing luggage around themselves to shield from others. It seems to feel a little awkward to sit that close to a lot of strangers.

"We are happy we can sit next to each other on this couch, normally the chairs are occupied by individuals and then there is no place left for two."

IO-7. Already well-helped before

Most passengers mentioned to appreciate the friendly staff earlier in their journey, for example the kind check-in agents and security staff. If passengers need help, they say to know where to find it. There seems to be no need for more friendliness or active help. However, people do not specifically feel welcomed into the gate area.

"We don't really need any help at this point, the ladies at the check-in have been very nice to us!"

"Everything until this moment is where you can be helped, but at this place it is just waiting for boarding."

"I don't necessarily feel welcomed in this gate..."

IO-8. People expect waiting or not

Some passengers stay away as long as possible, while others are already at the Gate for an hour. People who arrive as late as possible are disappointed to have to wait. Other passengers already expected to have to wait and

mention not to mind the waiting. However, most of them look very bored and uncomfortable.

Observation: passengers are obviously bored and trying to kill their time. However, some of them mention not to mind the waiting.

"I am tired and am killing my time here, but I don't want to be anywhere else."

"Waiting here is just part of the airport process."

Discussion Interviews & Observations

In IO-1 it becomes clear that passengers actually want to be at the gate to keep an eye on boarding activities. Only being there relieves stress already. It suggests that when they are physically at the gate, they should be free of worries which opens up time for fun. However, passengers should see the gate to stay relaxed. This is proven by the fact that they constantly check out the waiting line during a conversation (IO-2). It could also be a reason for the massage chairs in section 2.3.1 to not be used frequently because they distract too much and are therefore not relaxing. These findings contribute to Osborne (1978) who stated that discomfort may occur when passengers get too distracted from activities that they want to perform. Besides, the airline personnel sometimes need the attention of certain passengers so a solution must not distract too much from the boarding procedure, as explained in section 2.3.2. To enhance a positive state of mind and improve the perception of waiting time, the situation should feel relaxed. This can be achieved by letting them 'keep an eye on the boarding activities' for example by warning when boarding starts, or as already mentioned before only offering a moderate distraction.

Passengers find ways to fill up their time with. Not because this is what they really want to do, but because there is nothing else to do (IO-3). That passengers experience the gates as boring, is also indicated by the research from Beautiful Lives (2016) that is shown in the introduction of the project. However, these interviews also uncover that some passengers are fine with doing nothing and use their time to relax. This could mean that it is not always a bad thing that people are bored. Passengers that expect a boring area (IO-8) could be surprised by an unexpected distraction. This could be negatively or positively surprised depending on their needs for

being active or not. Both needs should be taken into account, because people should not be forced into a distraction if they want to do something themselves. In a relaxed atmosphere everybody can do what they want.

Because the environment feels so clinical, people do not get a 'holiday feeling'. This does not mean that the gate should transform into a beach; looking and feeling more colorful and positive could already improve the ambient conditions as is done at for example RTH and EH airport and in restaurants as seen in section 2.2.1. This can fulfill the extra aspect of complexity in the coherent gate that is designed to be low-load and not 'over stimulating' (Kaplan & Kaplan, 1989; Han, 2013) to stimulate positive feelings and thereby improve the perception of waiting time.

Conclusion Interviews & Observations

The key findings of the interviews and observations are summarized here:

- To enhance a positive state of mind and improve the perception of waiting time, the situation should feel relaxed. Passengers are restless to miss boarding, but by being at the gate and seeing the gate desk their worries have already reduced. To feel relaxed passengers should be able to keep an eye on the boarding activities during interacting with the concept.
- Passengers have different needs in being active or not. A distraction should be relaxed and not force people to be active or to interact when they want to do something themselves. This is also stated in the literature backing as a moderate distraction.
- The environment and its ambience feel clinical while passengers need more positive holiday vibe. The concept should improve the ambient conditions by implementing unique elements, to stimulate positive feelings and improve the perception of waiting time.
- A design must not force people to sit or stand close to each other, because passengers need some personal space in the relatively small area to feel at ease.
- As people expect to have to wait at the gates, the concept should offer something unexpected.

2.4.3. GENERATIVE SESSIONS

During observations it can only be seen what passengers do (Sanders & Stappers, 2012). During interviews participants only say what they think that covers knowledge that they can easily recall and explain, as visualized in figure 30. The book Convivial Toolbox introduces make tools that can be used to create a deeper understanding about the passengers and their motivations, feelings and dreams. These tools help them to easily reach tacit and latent knowledge. Generative sessions are conducted with passengers at the G-pier to create this deeper understanding about their current and desired Gate experience.

Method

Procedure

The focus of the Generative research sessions was to understand passengers' current experiences with the G-gates and their desired experiences. The sessions were held in the real context, to get the most realistic results as the environment and situation have an enormous impact on the experience. In order to get participants to easily think about future desires, the set-up of these sessions followed the path of expression recommended by

Sanders and Stappers (2012) as shown in figure 31. Due to time restrictions of the passengers, the sessions had a maximum length of around 30 minutes.

Participants were 'sensitized' before starting a session to immerse in the topic and their current experiences. For this purpose, they were asked to fill in a worksheet with drawings about themselves and their travel experiences on one side and a timeline of their journey so far on the other side, see figure 32. After 10 minutes they were asked to present their results. Passengers were then asked to make a photocollage of photos and words about their current experience with the G-gate and present this one as well to access their underlying needs and values which are important for the last step; thinking about the future. Participants were asked to make another photo collage of their desired future experience of the Gate and to present this as well. The set-up of the working materials looked like the photo in figure 33. Notes were made during the sessions that were later analyzed together with the created collages. This resulted in the creation of different themes about the current and desired situation and interactions, that are the headings of the key findings stated below. Some of these themes align with the themes from the interviews & observations.

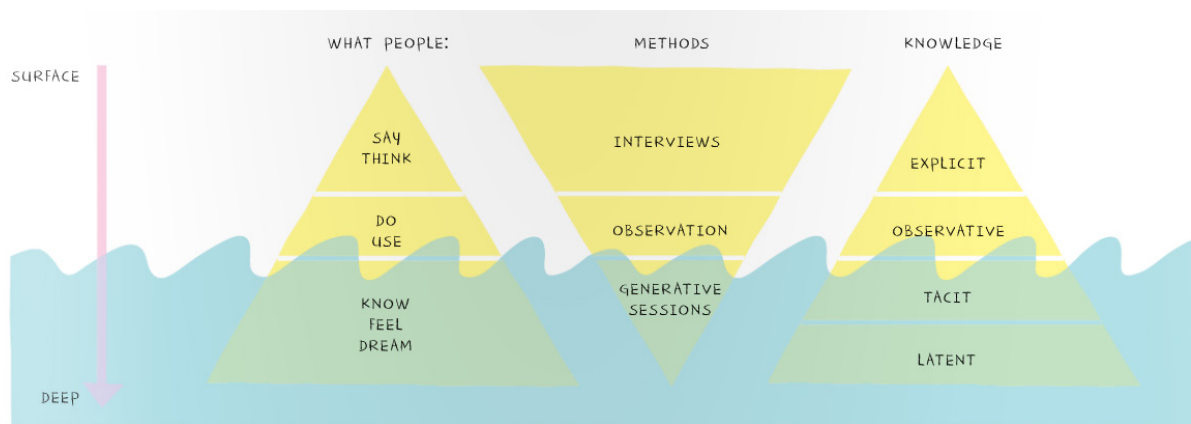


Fig. 30 - How different tools and methods help access different levels of knowledge (Sanders & Stappers, 2012)

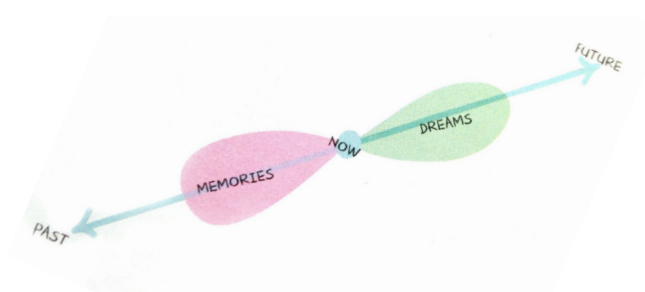


Fig. 31 - Path of expression (Sanders & Stappers, 2012)

Participants

The sessions were held with one or two passengers at the same time with in total 8 participants with different backgrounds, ages, gender, flying experience and destinations. Each session took around 30 minutes, including the sensitizing. For a more extensive description of the participants and the session plan, see appendix I.

Me and my travel!

Before the mini-session starts I need you to think about your "travel" of today! Please carry out the three steps indicated below to fill out the timeline of your travel from the Lounge (duty free area) to departing.



Who am I ?

Please make drawings and describe them on the polaroids on this sheet. You can do this exercise to your likings, nothing is wrong!

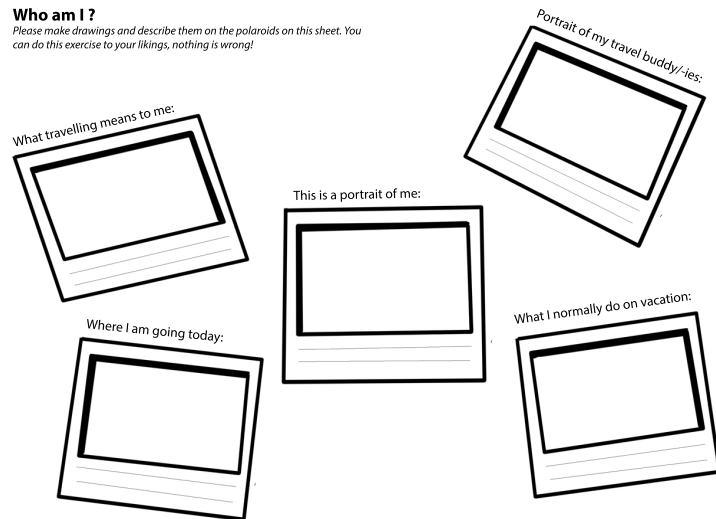


Fig. 32 -Sensitizing tools; Who am I (left) and Me and my travel (right)



Fig. 33 - Set-up of a generative session at the G-pier of Schiphol

Results

The following are the insights resulting from the Context Mapping (CM) analysis. Some themes are similar to the themes of the observations and interviews, as the findings were similar as well.

CM-1. People have different needs in being active or not

The sessions showed clearly that there are different passengers with different needs over time, as was already seen in the first part of the passenger research. These passengers will from now on be distinguished as stimulus seekers and avoiders. Stimulus seekers are in an active mood; they want to do something. Stimulus avoiders are in a non-active mood; they want to do nothing. However, this depends a little on the time they are already doing something or nothing; after a while a stimulus avoider might become bored and become more likely to change its behavior into stimulus seeking.

Observation 1: when asking people to participate in a session, a lot of them react negatively; they wanted to stay seated and do nothing, even if

they are there for the coming two hours. Others were delighted that they were asked to help and that they got distracted from the wait.

"It is nice to chat with my friends who I am travelling with, I enjoy travelling" said a stimulus seeker.

"For now, I'm good. I am just looking to people and looking outside the window. Maybe later I will get bored." said a stimulus avoider.

"I would want to use the building more to relax, lay down a little bit to prepare for the flight and to reduce my anxiety."

CM-2. The environment feels functional and impersonal

The building feels functional with functional furniture and cold colors. Even the process feels functional because of the mandatory actions. The gate environment is associated with mass production and that gives an impersonal feeling.

"All products and services are functional. If they have a color it is because of its function."

"The building could be more open-minded, more creative"

CM-3. A need for warmth and 'gezelligheid'

A warm and excited environment could give a cozier feeling (gezelligheid) and can evoke positive emotions. The architecture style seems to miss personality that is needed to evoke positive feelings.

"We want to see more colors, more warmth in the environment."

"The building should feel more excited with colors and make happy."

CM-4. Missing a holiday excitement

During the sessions it became clear that people feel like they can't complain because they are going on holiday. However, these people miss the holiday vibe in the gate area and want their excitement to be triggered in the desired situation. A holiday feeling is often related to relaxation and discovering new cultures.

"I am going to fly because I am going on holiday, those two are linked together. I would want to see more pictures or something to trigger my holiday feelings."

"You have to enjoy life, especially when you're going on holiday! Don't worry, be happy should be the vibe!"

"Happy people make people happy, that's what we need even more in the Gate."

CM-5. People are restless and need a relaxed distraction

People are restless because they still have to do some mandatory steps and need to make sure they get on the plane. They would however want to relax some more. Being distracted by something at the gates, like entertainment possibilities or music, is suggested as being a good reliever of anxiety.

"At an airport everyone is restless and hurried because they have to go somewhere."

"I would like to see distraction and relaxation possibilities like a gaming room." Said a participant with fear of flying.

"I would love to hear music here, that's really the most important. A piano or anything distracting but relaxed."

CM-6. Friendly personnel earlier in the journey

It is mentioned that the personnel are very friendly and kind, although they have not interacted with someone at the gates.

"I have not talked to people, but they all look kind and friendly."

"The personnel at the airport are all friendly and relaxed."

Discussion Context Mapping

CM-1 addresses the difference between needs of passengers in doing something, the stimulus seekers, or doing nothing, the stimulus avoiders. This was also addressed in IO-3. It was also seen in the observations (IO-1) and in CM-5, that people are restless because they still have to get on the plane, and they might have pre-flight concerns. Distracting them from these worries could improve the emotional state of some passengers, but for some others a distraction could be too distracting. This depends on their level of stress and need for activity. A solution must work for all passengers; it should not force the stimulus avoiders to become stimulus seekers or make the stressed more stressed. In a relaxed atmosphere with a moderate distraction all passengers can fulfil their needs which enhances their emotional state.

CM-2 made clear that the current environment feels functional and impersonal, which aligns with IO-4. On top of that, CM-3 identifies the passengers' desire to experience a warmer and cozier environment, which is an opposite of clinical and cold. Literature already addressed the importance of using warm light and unique colors because they help to relax and stimulate positivity (Wessolowski et al., 2014; Han, 2013). Other desired interactions and emotions are excitement and happiness, especially mentioned by the passengers that miss a positive holiday vibe (IO-5). Like the field trip to WONDR already uncovered, these emotions can be evoked by amongst others bright colors and special effects in a complete experience. All these positive interactions and emotions are needed to improve the passengers' perception of waiting time and to create a peak of positive experiences at the gates that enhance overall passenger satisfaction (Kahneman, 1993).

There is not much contact with employees at the Gates which is seen in CM-6 and IO-7. Although there is no need for more contact or help, the lack of a personal approach and a personality in the environment could increase the impersonal feeling which was experienced as negative. A more personal approach and embodiment in the available services and products can help in reducing the perceived length of waiting time as it can evoke positive feelings (CM-3). This is not yet described in earlier literature but was also seen at RTH airport as personal and emotional communication to enhance a positive experience. Also, a sense of place element contributes to this as this gives an environment more personality and thereby makes visitors feel more connected and at ease. Therefore, 'personal' can be seen as an important quality of interaction that is able to improve the emotional state and thereby also reduce the perception of time.

Conclusion Generative sessions

The key findings of the generative sessions are summarized here:

- The concept should offer a relaxed and moderate distraction, as all passengers should be able to fulfill their needs in order to feel good.
- The concept should evoke warm and excited interactions to make the environment less clinical and cold and eventually enhance of positive state of mind of the passengers.

- A more personal approach and embodiment in the available services and products reduce the perceived length of waiting time as it can evoke positive feelings such as connected and ease but also prevents negative feelings like impersonal and functional.

2.4.4. PROBLEM FINDING SESSION

During the last phase of the passenger analysis at the gate, a group of 8 experts from different aviation departments (KLM, Schiphol PX and TU Delft) were invited to discuss problems they experienced themselves.

Method

Procedure

This session was conducted in the real context in order to carefully immerse into the passenger perspective. The participants of the ideation session were introduced to the surroundings of the G-pier and walked around for 5 minutes to immerse in the perspective of a passenger. The problem finding diamond started with techniques to stimulate the divergent mindsets of the participants. They were asked to write down all the problems they saw and experienced in the Gate to then discuss these with each other; comparable findings were clustered by the participants themselves. This session took around 20 minutes.

Participants

The participants were asked in advance to join this session and were chosen because of their expertise in the field. More elaborate information about the session outline and the participants can be found in appendix K.

Results

During the problem finding, results were written on flip overs and post-its. These results are used as input for the analysis of themes but cannot be supported by quotes as these were not noted down during the session and the session was not recorded. In figure 34 a snapshot is shown of the session and some results on the table.

P-1. The environment feels functional and impersonal

The mostly mentioned problem is the clinical atmosphere of the building; it feels functional and impersonal. The colorless furniture does not look and feel comfortable. Because the building is very open and light, there seems to be no sense of privacy, and this does not feel cozy. The ambience lacks a personality. Next to that, there is an outspoken need for a better connection to nature with for example natural materials and more greenery.



Fig. 34 - Snapshot of the problem finding session

P-2. No connection with employees and passengers

The group states that there is no Schiphol employee around; no point of contact and no one welcoming you at the Gate. They would want to get more personal attention and recognition. There seems to be no connection between all the passengers as well.

P-3. Need for boarding information

People feel the urge to sit near their own gate to check for any activities or changes, because this cannot be seen from a distance or when faced the other way while seated. There is a need for more clear information about

the boarding process and about the activities inside the airplane.

P-4. Need for more positivity

Next to the need for more information, participants also mentioned to have the need for more positive information. Especially when they are going on holiday, they would like to see more about the destination, instead of negative news about the Netherlands.

P-5. Most people behave restless

Another important character of the situation is that people are restless and that this works contagious, without even having contact with other travelers. The participants mention to worry about other passengers; why are they already in line? What are they doing?

P-6. High chances of being bored

There is not much to do around the Gate besides waiting and people don't know what to do or talk about anymore; the gates are boring. If passengers are looking for distraction, they will have a hard time finding something in this area.

Discussion Problem Finding

The mostly mentioned problem in this research, but also in the Interviews & Observations and the Context Mapping sessions, is the clinical atmosphere of the building; it feels functional and impersonal because of its tough furniture, the lack of colors and the lack of a warm, cozy ambience. This does not enhance a positive state of mind but rather the opposite. Improving the gate experience on these elements is beneficial for the perception of time of the passengers and therefore highly needed.

Just as found in IO-1 and CM-5, restless passengers want to sit near their own Gate to check for any activities or changes to become more relaxed and they do not want to become too distracted from this. However, there seems too little distraction offered for the passengers who are looking for something to do; the gates are being called boring in their current situation and that most certainly does not enhance the perception of waiting time. A distraction is needed but should be moderate and relaxed.

It seems that there is a need for a better connection with nature, the employees and fellow travelers; participants want more personal attention and recognition. The need for more help and recognition have not been uncovered in the other sessions, in fact the contrary (IO-6 & CM-7) and are therefore deemed less valuable. The need for a more personal approach though, is also identified in the generative sessions and might be able to lower the impersonal feeling that is currently associated with the gates. Evoking interactions that feel personal can elicit positive emotions that are needed for improving the perception of waiting time on the long term.

Another problem that is not yet addressed in the other sessions and is therefore deemed less important, is the lack of information about the boarding process and the activities inside the plane. There also seems a lack of positive information on the TV-screens, but this seems to align with the need for more excitement and is therefore already taken into account.

Conclusion Problem Finding

The key findings of the problem finding session are summarized here:

- The gates should offer a warmer and cozier ambience instead of functional and impersonal, to enhance a positive state of mind of the passengers.
- Passengers are restless and the gates are boring. A distraction is highly needed for both but should be relaxed and moderate to fulfill the needs of different passengers, as already explained in the previous section.
- Evoking interactions that feel personal can elicit positive emotions that are needed for improving the perception of waiting time.

2.4.5. CONCLUSION PASSENGER ANALYSIS

Improving the emotional state of the passengers and reducing the perceived length of waiting time, asks for specific qualities of an environment and design. What some specific qualities can be like is explained in literature and shown in examples of other airports and public spaces, but what

is needed for the real context and its passengers was not yet defined. Therefore, the aim of this section was to discover current and desired interactions, to be able to set up a design goal and strategy. The research question that needed to be answered was: what are the current and desired interactions in the Gate? In all three passenger analyses, current interactions are discovered that are mostly experienced as being negative. Different problems, but also desires and needs, are being raised that passengers and experts experienced at the G-pier.

Current and desired interactions

In all three researches it was most frequently mentioned that the Gate could use more color and **warmth**, which is the counterpart of the **functional** and **impersonal** feeling it currently has. The need for a more positive ambience is linked to the need for a positive vibe; as most passengers are travelling for holiday and they should be **excited** at this point about being on Schiphol. After all, their journey starts here! A new concept for the G-pier should therefore make use of this potential, as it is a positive emotion which is needed to enhance a positive state of mind and improve the perception of waiting of time of the passengers. Experiencing these positive emotions at the gates can even influence the overall passenger satisfaction of Schiphol, as stated by the Peak-end rule.

Passengers mentioned to appreciate their **personal** space and to desire a more personal approach and personality in the ambience. These all seem reactions to spending time in an impersonal waiting area with little space. Both external analyses and all passenger analyses unraveled: 'personal' is an important interaction that improves the emotional state and thereby also reduce the perception of time. This adds to the known literature, as no information was found on the importance of personal as quality for an airport environment, neither as influencer of the perception of time.

In all three researches the current situation feels restless because a lot of passengers behave **restless**. To make them feel relaxed, the concept should offer a **relaxed** and moderate distraction that allows for keeping an eye on boarding activities and for fulfilling own needs. These needs differ per passenger as some are **bored** and seeking stimuli, while others

are fine and avoiding stimuli. A concept should offer a moderate distraction of which passengers can choose to interact with or not, and that helps in letting go of boarding concerns. This way a positive state of mind gets enhanced and the perception of waiting time improved.

Passenger focus

When looking at the results of the passenger analyses, it can be concluded that there are two important characteristics to distinguish passengers from each other. These are their need for activity and their level of stress. An overview of the behavior of different type of passengers is shown in appendix J. For this project, the most important characteristic of a passenger is his need for activity. This seems to have the most impact on their behavior during waiting compared to all the other characteristics described in section 2.4.1. This characteristic can change over time due to external influences like the time spend in the gate. A stimulus avoider could become stimulus seeker after spending half an hour on his phone.

The focus of this project will be on providing a distraction with excited, warm, relaxed and personal interactions for the stimulus seekers, as they actually want to do something in the gate. The stimulus avoiders rather stay seated but can also experience the desired interactions by looking to the interaction that others have with the concept. The distraction for the stimulus seekers becomes a distraction for the stimulus avoiders. In the end this will improve the emotional state of all passengers and reduce their perceived waiting time. Figure 35 gives a visual representation of how the desired situation in the gates could look like, including an undefined shape as concept.

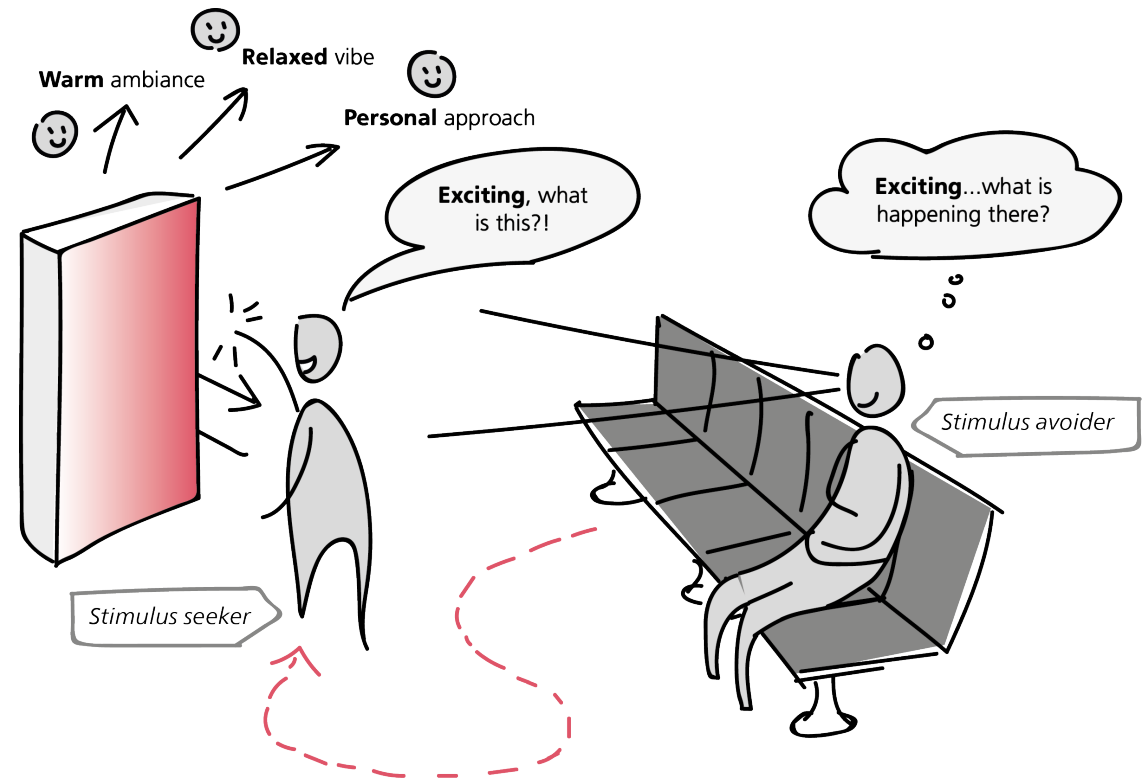


Fig. 35 - A visual representation of how the desired situation with interactions could look like

CONCLUSION DISCOVER

Improving passengers' waiting experience at the G-gates can be done by enhancing the emotional state of the passengers, because that improves their perception of waiting time. A positive experience at the gates may even improve the overall passenger satisfaction (Kahneman, 1993). Making a passengers' state of mind more positive can be done by offering a moderate distraction and by evoking positive emotions through certain qualities of design and product-human interactions. Offering a distraction that evokes positive emotions is the ultimate combination of enhancing the emotional state of the passengers. It should be a moderate distraction as passengers should not be distracted from activities they want to perform (Osborne, 1978).

The external analysis shows different types of distraction and different ways of evoking positive emotions. When comparing this analysis with the literature research, new opportunities are set on how to offer distraction for this context:

- Tasks that require attention (Board games, short stories, magazines, making art).
- Entertaining objects or people (Mascots in costumes, watch short movies)
- Beautiful and eye-catching objects (Mirrors, artworks, beautiful outside view, aquarium).
- A special experience (that invites to make pictures with and 'share' these online).

Also, opportunities are identified on how to evoke positive emotions in an airport context:

- Unique, warm colors and material (glass & wood)
- Personal communication.
- Offer some mystery or complexity to give a 'wonderous' experience that people want to share online.
- A concept design with a sense of place element makes passengers feel connected and at ease.

After comparing the external analysis with the real context, it is confirmed

that the distraction possibilities are indeed limited and that the G-pier could use improvement on the ambient conditions. All passenger analyses have shown the same need. The current and desired situation are;

Current situation

- Passengers easily become **bored** in the gates, whether they like it or not.
- The building and furniture feel **functional** with a cold and clinical style.
- This makes the ambiance and process **impersonal**; it's you and the mass.
- Passengers are **restless** about boarding and want to keep an eye on the gate

Desired situation

- People should be more **excited** about their travel and about being at Schiphol.
- The ambiance should be **warm** to create a cozier and more positive vibe.
- People need a **relaxed** vibe to reduce their level of stress and to be able to do what they want, when they want.
- People want a more **personal** approach and embodiment in the building and its products.

The stimulus seekers are the target group of the concept; they want to do something and will directly interact with the concept. The stimulus avoiders will be taken into account; they prefer to stay seated and will indirectly interact with the concept.

Table 1 provides with an overview of the design qualities that are found throughout the Discover phase, and that can be linked to the desired characters of interaction. This table will evolve throughout the project, as more and more qualities will be identified and proven.

Table 1 – Design qualities and characters of interaction resulting from the Discover phase

Design qualities	Character of Interaction
Some complexity & mystery ¹ , delightful ² , unique (colors) ² , bright colors ¹⁰ , special effect ¹⁰	Excited
Warm light colors ³ , cozy ⁴ , wood ⁵	Warm
Curved elements ⁶ , moderate ⁷	Relaxed
Personal(ity) ⁸ , sense of place elements ⁹	Personal

¹ Kaplan & Kaplan (1989)

² Han (2013)

³ Wessolowski (2014)

⁴ Passenger analysis

⁵ Field trip to RTH & EH airport

⁶ Dazkir and Read (2012)

⁷ Osborne (1978) & Passenger analysis

⁸ Passenger analysis

⁹ Schiphol (2015)

¹⁰ Field trip to WONDR



**“DESIGN SOMETHING THAT HAS A SPECIFIC EFFECT
IN A CERTAIN WAY”.**

– EXPLORING INTERACTIONS

3. DEFINE

In the previous chapter, research has been done to find out how the waiting time can be reduced according to theory and examples in practice. The deeper context of this project is discovered from the perspective of passengers, Schiphol and experts to be able to identify problems and opportunities. The aim of chapter 3 is to define the design goal of this project. The design goal is the effect that the concept should have on the long-term. The desired interactions are defined and translated into an interaction vision that defines in what way the design goal should be reached. In order to make the design goal and vision, the problem will be defined once more.

This chapter includes:

- 3.1 Defined problem statement
- 3.2 Design Goal
- 3.3 Interaction Vision
- 3.4 Design Criteria

3.1. DEFINED PROBLEM STATEMENT

Improving the perception of waiting time at the G-Pier can be done by offering distraction and eliciting positive emotions during the wait. Passengers experience the atmosphere of the gates as being functional and impersonal. Most of them are restless while waiting and often quickly bored because there is not much to do at the G-gates. This gate experience does not enhance the emotional state of the passengers and their perception of time. Improving on the field of distraction and ambient conditions is needed to increase the passenger satisfaction of the waiting experience.

Departing passengers who experience this lack of distraction the most are stimulus seekers; these are passengers who feel the need for doing something. These could be families with little children, but also couples and businessmen. The stimulus seekers will be the target group for the further course of the project. The stimulus avoiders will be taken into account as well, because they could also benefit from a distraction and positive ambience. They prefer to stay seated and look around. The distraction should be moderate, because it should not distract them too much from boarding activities and from activities that they want to perform themselves.

3.2. DESIGN GOAL

The design goal is the effect that the concept should have on the long-term (Exploring Interactions manual, 2017). The design goal is to create a positive state of mind for leisure passengers who are waiting for boarding at the G-gates of Schiphol and thereby reduce their perceived length of waiting time.

The strategy to reach this goal is to design a moderate distraction that elicits positive emotions for the stimulus seekers and has the same effect on the stimulus avoiders who are looking at the interaction. A well-designed distraction that enhances a more positive ambience could improve the emotional state of all passengers who are directly and indirectly interacting with the concept.

3.3. INTERACTION VISION

Throughout the Discover chapter it became clear that there is a need for distraction and a more positive ambience and that this can be done in different ways. Passengers at the G-gates feel the need to experience more positive interactions while waiting. The characters of the interactions that the concept should evoke are;

- An excited feeling; the concept should bring excitement and more positivity.
- A warm ambience; the concept should make the gates feel warm and cozy.
- A relaxed vibe; the concept should be relaxing and moderately distracting.
- A personal approach; the concept should be personal and add personality in the ambience.

These desired interactions are translated into an interaction vision that defines in what way the design goal should be reached. The interaction vision is a representation of how the situation should feel like and provides a unified idea of the character of the intended interactions by means of an analogy and visual (Exploring Interactions manual, 2017). The desired situation should feel like:

The warm ambience is seen back in the visual as the ambience of autumn with a colored forest and a low hanging sun. The child gets excited from (potentially) finding something beautiful; an extraordinary leave with a unique pattern. Next to that, it is a relaxing activity for the child to do and a relaxing happening to look at for others, for example his parents or babysitter who is not per se joining the activity. Lastly, he collects the leaves he likes the most to take home, which makes it personal.

Later in the process, interaction qualities will be defined that are needed for detailing the concept, as specific product qualities can enhance the desired interactions.

3.4. DESIGN CRITERIA

Based on the findings in the Discover chapter, requirements can be set about what the concept should include, do or comply to. In this section the most important requirements and wishes are described. The complete list of requirements and wishes can be found in appendix F.

Design requirements

The concept:

1. Should elicit positive emotions through its interactions and ambience that should feel excited, warm, relaxed and personal.
2. Should be a moderate distraction for stimulus seekers who will interact with the concept directly, and have an effect that is a moderate distraction for stimulus avoiders as well; they will interact with the concept indirectly
3. Should not force anyone to do something; it should be a passenger's choice to interact with the concept
4. Should make sure the passengers can 'keep an eye' on boarding activities during the interaction
5. Should not interfere in passengers' personal space or force people to stand or sit close to each other.
6. Should comply to a low-load environment and the current design of the G-pier, but also offer some mystery and / or complexity in order to stimulate positivity.
7. Should not hinder the boarding procedure of the airline personnel
8. Should require a minimal amount of (extra) cleaning hours
9. Should make optimal use of the available, scarce m2 in the increasingly crowded terminal.
10. Should not obstruct passenger flows and sights, since these are carefully designed for the safety and smooth process of moving people.
11. Should be installed fixed and not have loose parts, as passengers should not be able to take them with them.

Design wishes

The concept:

1. Could implement warm light colors and curved elements in the design.
2. Could require attention, be entertaining or be eye-catching and beautiful.



Fig. 36 - Interaction Vision for this project

3. Could be an experience in itself that stimulates passengers to 'share' the experience they had with the concept.
4. Could include 'sense of place' elements in the design.
5. Preferably should have a low risk on being 'out of service'
6. Preferably should be scaled easily across other gates
7. Preferably should work without needing extra employees to stimulate usage
8. Should preferably exist out of sustainable materials or enhance sustainability



**“IDEATION WITHOUT EXECUTION IS NOTHING
MORE THAN DELUSION”**

-R. SHARMA

4. IDEATE & ITERATE

The main goal of this phase is to create ideas and find out how the desired interactions can be evoked. This is done by evaluating the effect of small design interventions on the current interactions and iterate on the developed ideas. In the previous chapter, decisions are made about the design goal and interaction vision that shape the starting point for the ideation. This section will start with an ideation session to discover multiple possibilities and directions for solving the problem. When a design direction is developed, experiment questions are set up that shape the foundation of the iterative process that follows. Multiple design interventions will be tested in experiments in order to be able to answer the experiment questions. The aspects of the design interventions that created the desired interactions are shaped into one concept. Conceptualization will lead to the first concept proposal by the end of this chapter. In the following chapter, Demonstrate, an experiential prototype will be built and tested to prove the effect it has on the passengers in the G-gates and to propose a final concept.

This chapter includes:

- 4.1 Idea Generation
- 4.2 Design Direction
- 4.3 Experiments with Design Interventions
- 4.4 Conceptualization
- 4.5 FLIP

4.1. IDEA GENERATION

This cycle starts with an idea generation split up in two sessions; a group session and an individual session. The first session focused on finding as many ideas that could solve the problem, without taking into account design criteria or other limitations. These ideas are used as input and inspiration for the second session; a follow-up ideation that focused on deepening the ideas into more realistic solutions.

4.1.1. IDEATION SESSION

On the 6th of November, a creative session was organized with eight experts in the field of aviation and design to enhance different perspectives on the situation. Two gate agents of KLM were invited to join and share their own experiences, together with three team members of the Passenger Experience Platform of Schiphol. Also, three Industrial Designers joined the session and contributed with their innovative mindset and design thinking experience. The first part of this session is already discussed in chapter 2.4.4. The session is conducted in the real context in order to carefully immerse into the passengers' perspective and also to create a better understanding of the improved situation at the G-gates (Upgrade Pieren project). See figure 37 for a photo of the session set up.



Fig. 37 - Set-up of the ideation session at the end of the G-pier



Method

The session focused on how to improve the perception of waiting time of the passengers departing from the G-gates. The goal of the session was to identify a design direction that has most potential of creating the desired situation. The techniques and some materials that are used during the session are retrieved from the book Road Map for Creative Problem-solving Techniques (Heijne & van der Meer, 2019). The complete session plan and reflection can be found in appendix K. The session followed the structure of the three diamonds, as proposed in the same book, with problem finding, idea finding and solution finding. The focus was mainly on the idea finding, to end up with as many ideas as possible.

After an immersive introduction at the G-pier and its problems, the participants started the idea finding diamond with brainwriting to enhance the fluency of the passengers. The fluency during a creative session means the ability to come up with as many ideas as possible (Heijne & van der Meer, 2019). After enough ideas were generated, the participants had to become more flexible during an excursion. They were sent to the gates and had to force fit ideas around an object they had come up with. All ideas were



Fig. 38 - Clustering ideas on the windows of Schiphol

clustered on the windows and the clusters were given titles, see figure 38 for a snapshot of the clustering. Participants received stickers to conduct the Hits & Dots method on clusters they thought were most relevant (2x brown) and original (3x blue). They also received three emoticon stickers to place on the ideas that they liked the most.

Results

The complete results of the idea finding diamond can be found in appendix K, but the clusters that were selected are explained with some corresponding ideas in figure 39. The clusters are mapped out based on the amount of relevancy- and originality-stickers they received. The ideas that

received emoticon stickers are used in the follow-up ideation and are explained in the next section.

Conclusion

The clusters that resulted from this ideation session were not substantive enough to already decide upon a design direction. This was mainly because the generated ideas were only the ideas written down rapidly on post-its instead of real solutions, due to lack of time to execute the solution finding diamond. Therefore, a follow-up ideation was done to create more substantive solutions for the created design directions from this session.

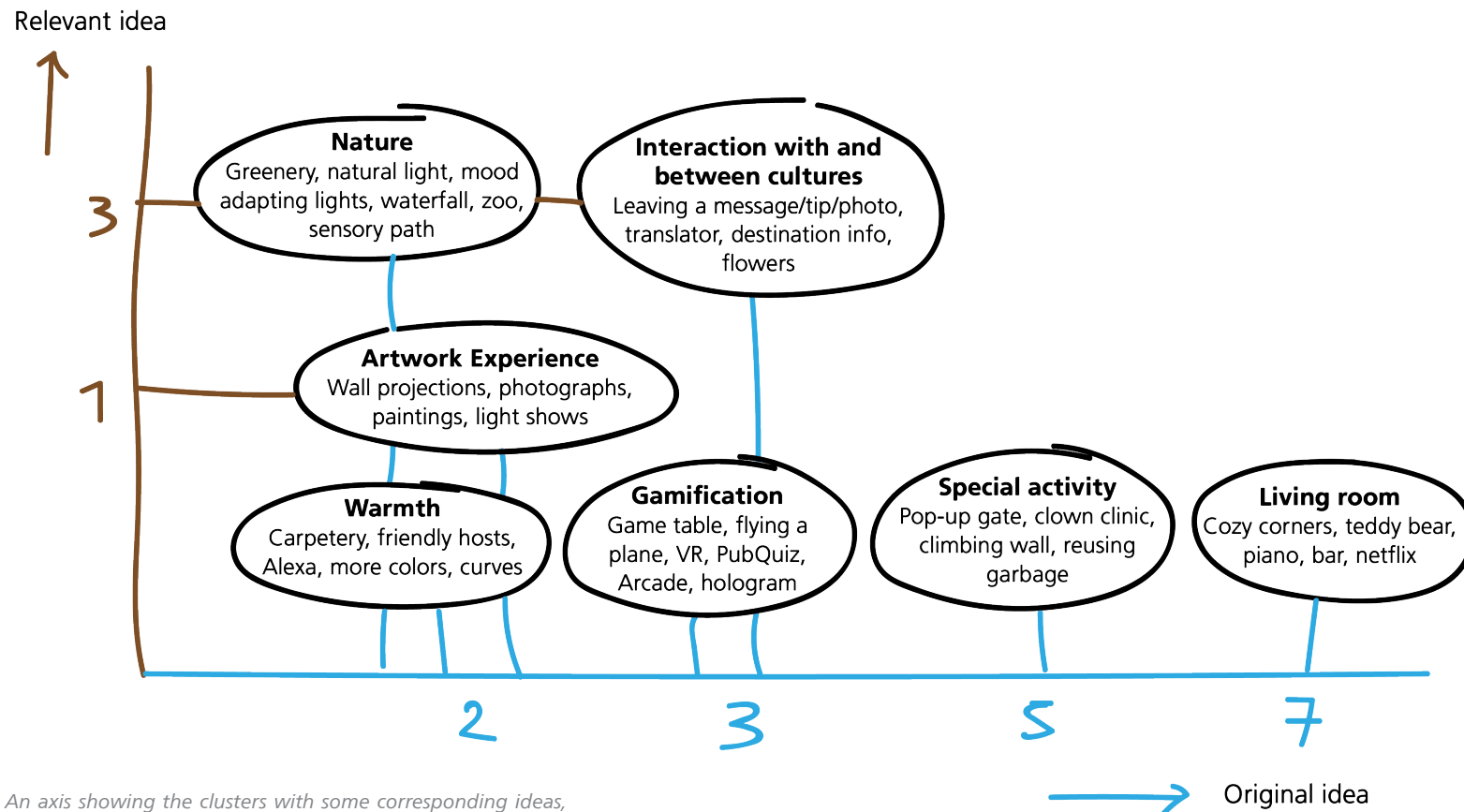


Fig. 39 - An axis showing the clusters with some corresponding ideas, mapped out on relevancy and originality

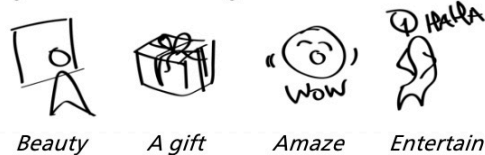
4.1.2. FOLLOW-UP IDEATION

The aim of the follow-up ideation is to gain more depth in the ideas from the idea generation, but also to create more ideas and eventually a design direction filled with rich ideas. The clusters and ideas from the ideation session were first carefully analyzed. During the analysis, ideas that popped up in mind were written down or visualized to not lose any potential. During this phase a lot of sketches were made to support creative thoughts and a diverging mindset. The follow-up ideation is split up in multiple sessions with different ideation tools.

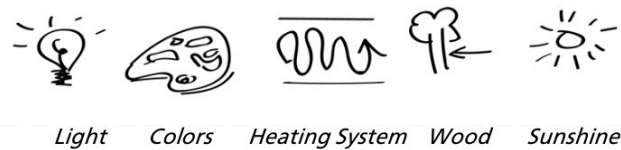
How to's

The follow-up ideation started with a short problem finding technique: How to's. This question was put in front of every desired interaction, resulting in the following questions and some of the answers:

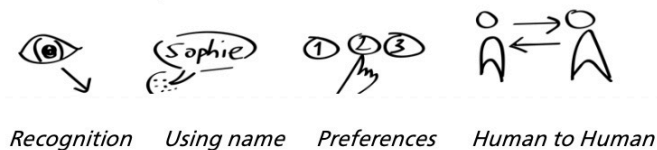
How to give an **excited** feeling?



How to create a **warm** ambiance?



How to make something **personal**?



How to create a **relaxed** vibe?



Relaxing chair Pillows Background Music

Emotion cards

The concept should give an excited feeling and relaxed vibe, but during the How-to brainstorm it became clear that the interactions excited and relaxed are still two relatively broad definitions that can be interpreted differently and can even be each other's opposite. The Design for Happiness card Deck is used to define what emotions should be experienced by using the concept with excited and relaxed interactions (Delft Institute of Positive Design, 2017). All the emotions in this card deck contribute to pleasure, meaning; 'the feeling of happiness resulting from enjoying the moment' (Desmet & Pohlmeier, 2013). This proves that these emotions are positive and enhance the state of mind of the passengers and thereby improve the perception of waiting time. The positive emotions were intuitively chosen based on how well they fit the interaction vision and the project. The chosen emotions can be found in figure 40.

Enchantment and amusement

The excited interactions should lead to experiencing enchantment and amusement. The definition of enchantment, as shown in figure 40, is seen before in the literature background in section 2.1.2. It was given as distraction possibility to capture passengers' attention with a beautiful and eye-catching object. Being motivated to savor the moment is seen back in the field trip to WONDR museum that stimulated to make pictures. Encountering something mysterious, aligns with implementing a sense of complexity and mystery to the low-load environment of the gates. Feeling enchanted resembles the feeling one gets when 'finding a beautiful autumn leaf'.

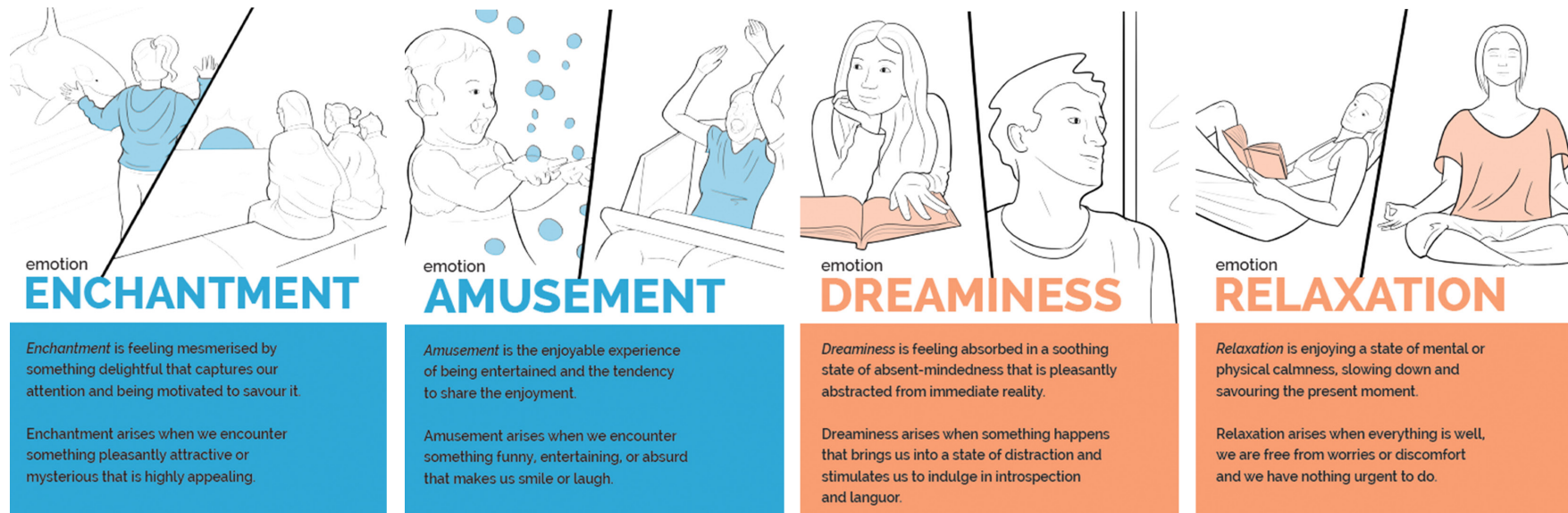


Fig. 40 - Emotion cards of the chosen and desired positive emotions (Delft Institute of Positive Design, 2017)

The definition of amusement can also be seen back in the literature as the effect of an entertaining furniture, object or person. Having the tendency to share the enjoyment is also seen back at WONDR, where visitors not only wanted to make the picture but also wanted to share it.

Relaxation and Dreaminess

The relaxed interactions should lead to experiencing relaxation and dreaminess. The emotion card of relaxation shows that the definition of the interaction is approximately the same as the definition of the emotion that it evokes. The concept enhances relaxation by distracting from feelings of discomfort, and by reducing the worries about boarding activities. The concept offers a moderate distraction with relaxed interactions that evoke relaxation as an emotion. The emotion dreaminess should also be experienced moderately as it is undesired that passengers' minds are completely lost from immediate reality.

Table 2 shows the overview of design qualities and characters of interactions, that are now followed by the emotions that should be evoked as a result of these qualities and interactions. These are not only retrieved from the emotion cards, but also from earlier research throughout this project. The design qualities will be supplemented and proven through testing design interventions that include such qualities. Therefore, this table will be further elaborated in section 4.3.

Table 2 – Identified design qualities, characters of interaction and emotions

Design qualities	Characters of Interaction	Emotions
Some complexity & mystery ¹ , delightful ² , unique (colors) ² , bright colors ¹⁰ , special effect ¹⁰	Excited	Enchanted & amused ¹¹
Warm light colors ³ , cozy ⁴ , wood ⁵	Warm	Relaxation ³
Curved elements ⁶ , moderate ⁷	Relaxed	Relaxation & dreaminess ¹¹
Personal(ity) ⁸ , sense of place elements ⁹	Personal	At ease & connected ⁹

¹ Kaplan & Kaplan (1989)

² Han (2013)

³ Wessolowski (2014)

⁴ Passenger analysis

⁵ RTH & EH airports

⁶ Dazkir and Read (2012)

⁷ Osborne (1978) & Passenger analysis

⁸ Passenger analysis

⁹ Schiphol (2015)

¹⁰ Field trip to WONDR

¹¹ Desmet & Pohlmeier (2013)

Bolster the Design Directions

During the last phase of the follow-up ideation, ideas were sketched freely, and no rules were set. The results of the trend- and benchmarking analysis and the ideation session are used as inspiration while brainstorming ideas to bolster the design directions that directly resulted from the first creative session. The clusters warmth and gamification did not become a design direction due to lack of inspiration they gave, but interesting ideas from these clusters were implemented in the other directions. A snapshot of these sketching sessions is shown in figure 41. The complete visual ideation on design directions can be found in appendix L, and the result will be discussed in the next chapter.

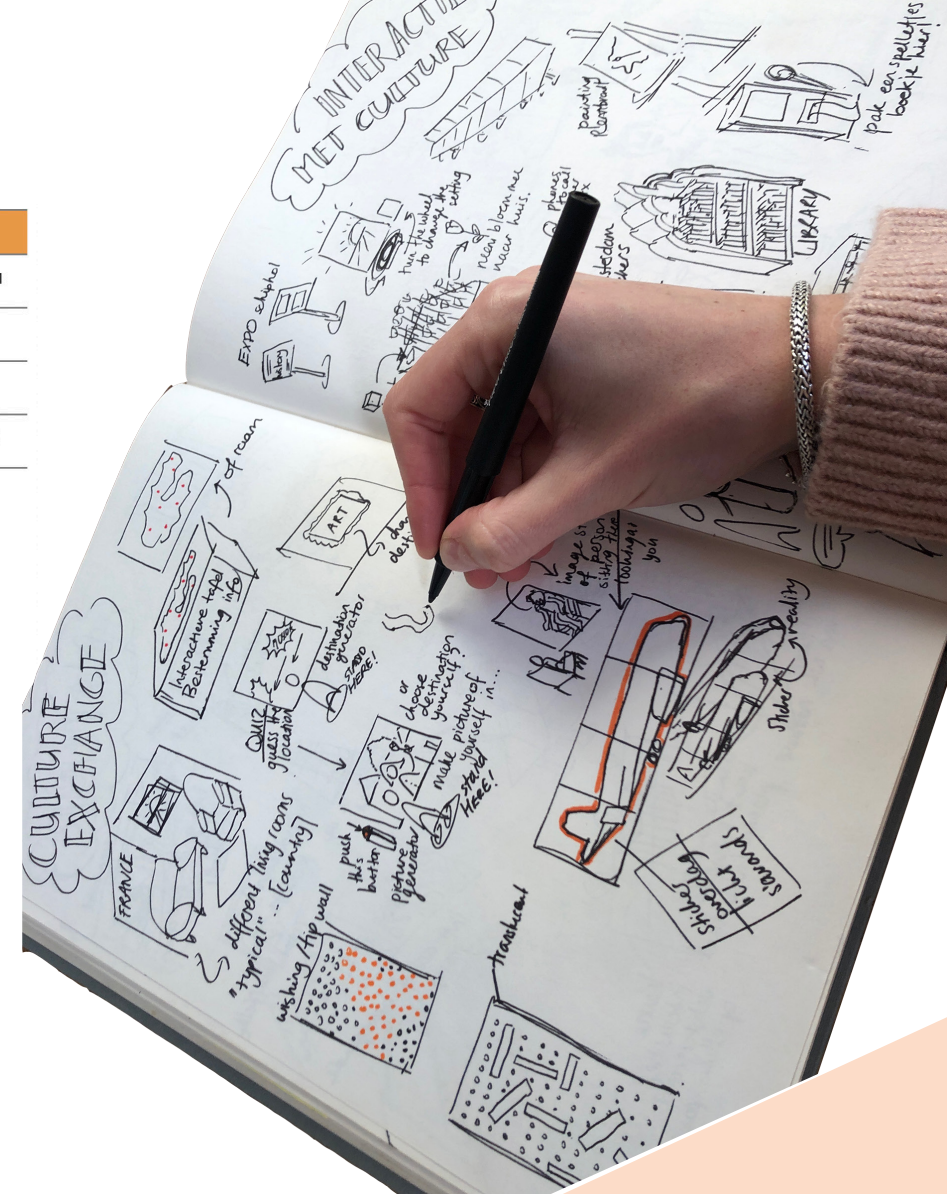


Fig. 41 - Snapshot of sketching sessions during follow-up ideation

4.2. DESIGN DIRECTION

During the creative session and the follow-up ideation, hundreds of ideas have been generated. After clustering these ideas in potential design directions and embodying them with sketches, the final design direction was discovered. This direction coincidentally got shape while analyzing the other directions and ideas. At the same time, the researcher found inspiration in three situations, shown in figure 42. It was noticed that a lot of ideas had to do with the windows and the lighting at the Gates and all these ideas together seemed to have the most potential in creating the desired interactions; warm, excited, relaxed and personal. All of the sudden, the design direction came to existence that intuitively felt to be the most promising: Interaction with Light. Light is associated with warmth, because of the sun and its light. Light can be excited and evoke enchantment, like a beautiful sunset does, but it can also amuse with for example lightshows at concerts or parties. Light can offer relaxation, like sunbathing, and light can be adapted to personal preference. It is a logical result for improving the ambience and can offer a distraction because it is a natural phenomenon. The perfect example is that you can watch to a beautiful sunset or campfire for 'hours' without getting bored.

Interaction with Light

In the design direction "Interaction with Light" in figure 43, the ideas are put that were initially scattered across the results of the idea generation. Ideas in this direction make it possible that passengers create their own ambience by making, changing or adding different aspects of light:

- Colors
- Shadows
- Brightness
- Movement

The ideas in this direction can either make use of the existing daylight coming through the big windows, and of external light sources if they are needed. Further explorative desk research was conducted on this direction to discover interesting possibilities of working with light objects and filters, but also on 'making' activities and games that require interaction to adapt something. A visual is made to support the sketches and to give examples of how the ideas can take shape, this is shown in figure 44.



Fig. 42 - Inspirational sources for interaction with light (left to right: 6, 8 and 11 November)

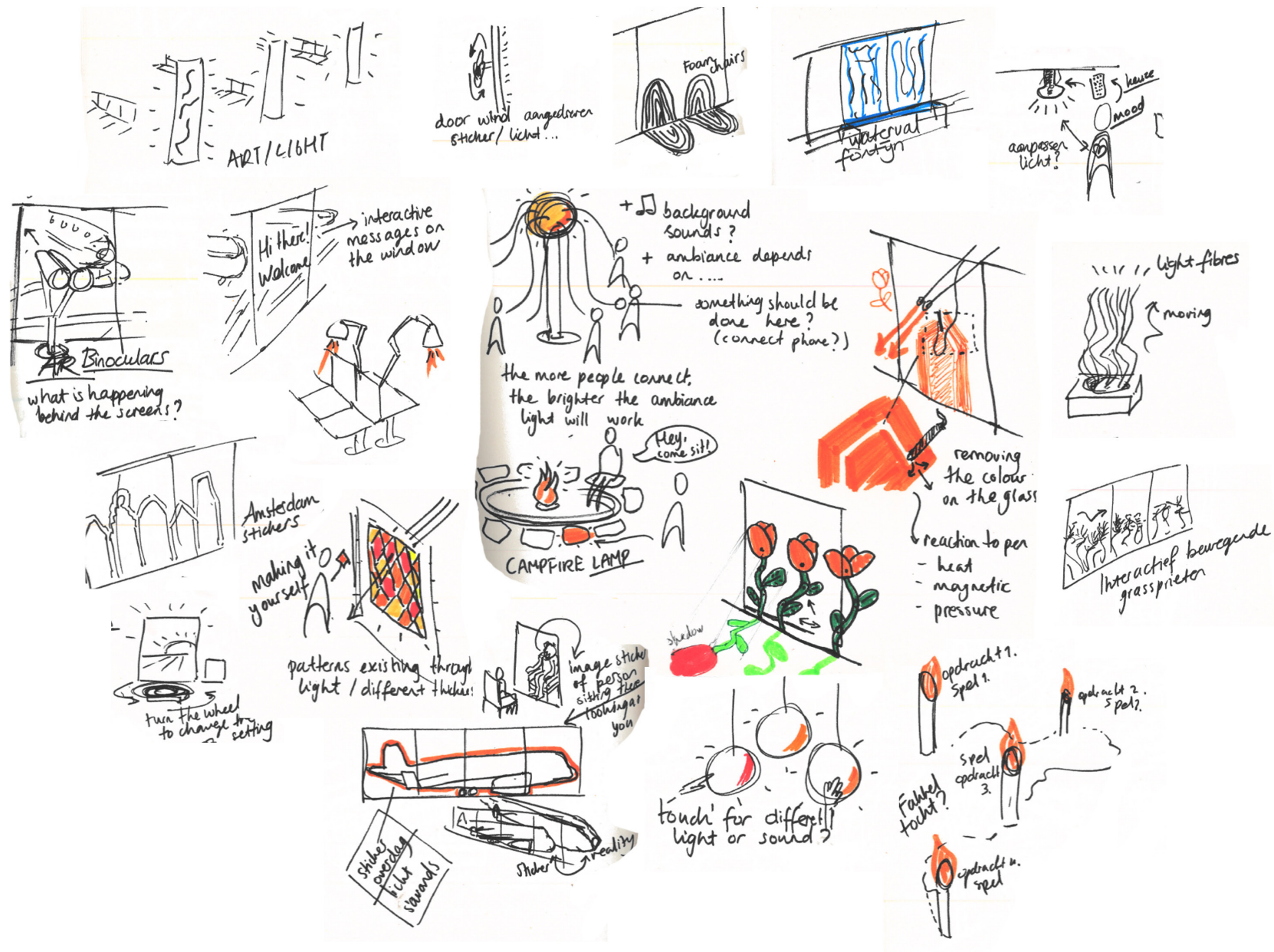


Fig. 43 - Idea cluster of the final design direction 'Interaction with Light'

4.3. EXPERIMENTS WITH DESIGN INTERVENTIONS

The main goal of this section is to explore the effect that small design interventions have on the current situation. To do this and to be able to answer the experiment questions, some ideas from the design direction were intuitively chosen to further develop into a design intervention. These design interventions are not yet a complete concept, but an element of what could become the concept. The results of the explorations influenced the focus of the following intervention. Throughout this chapter, the experiment questions will be answered partially, and by the end of this chapter all experiment questions are answered. This will allow the researcher to specify to one concept, taking into account the best working elements of the interventions. The structure that is followed throughout this section is visualized in figure 45.

Method of all experiments

During the experiments observations and interviews were being held in order to carefully understand the behavior and motivations of the participants. Observation allowed the researcher to analyze passengers' behavior, facial expressions and interactions with the intervention (Stickdorn & Schneider, 2014). During the experiments on Schiphol, no video or audio fragments were made based on a few limitations that will be discussed in section 6.1.1. Therefore, notes were made during the observations in order to carefully document the findings after each experiment. Each experiment tried to answer all research questions. Other questions or explicit focus will be explained in each method part. The results of all experiments are analyzed following the DIKW model (data-information-knowledge-wisdom) as described in the book of Sanders & Stappers (2012). The complete results of the experiments can be found in appendix M.

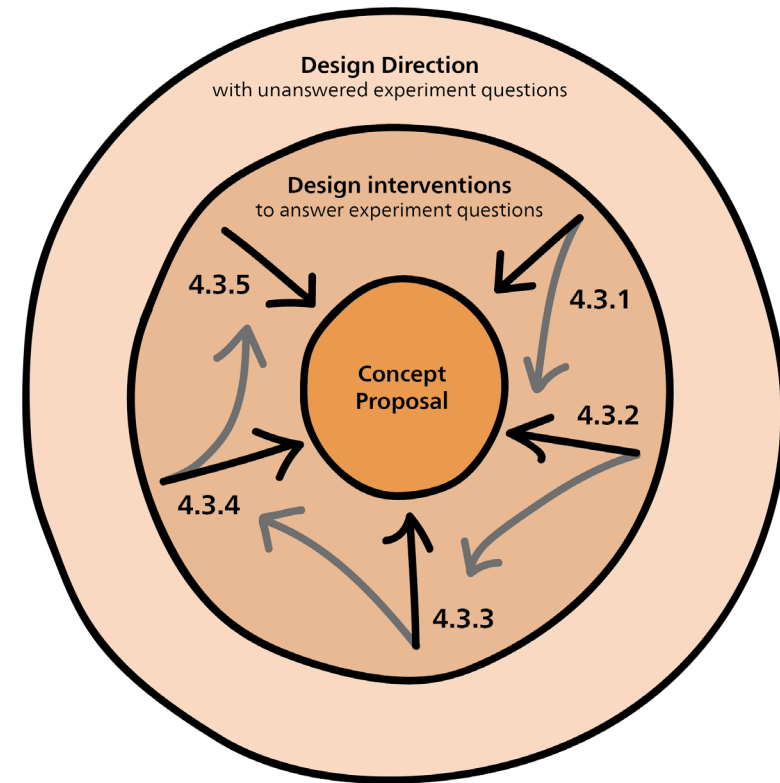


Fig. 45 - Structure of design interventions

4.3.1. COLORED TRIANGLES

The intervention 'colored triangles' is a set of yellow transparent and silver opaque window filters in triangular shapes. With these window stickers passengers can make different kind of shapes and figures to keep themselves busy and kill their time. Also, the daylight will color yellowish when shining through the stickers which will improve the ambience.

Method

This experiment seeks to find input to answer all research questions. The type of activity that is tested with this is 'making (animal) shapes' and the

ambience influencer is light filter. The test set-up included 30 triangles of lamp filters and cardboard that could stick to the window by means of a transparent rubber sticker. Each triangle could be displaced multiple times. The set-up included an explanatory poster with examples. The test is executed at two different G-gates with two passengers who were directly interacting with the intervention. Two other passengers who were looking to the intervention (indirect interaction) were also interviewed and more were observed. During the interviews, questions were asked about their experiences with and opinion of the intervention.



Results

- Only children want to play with it, no adult interacted directly. Children approached the intervention while it was not yet set up completely; the window draws attention. They also posed on a picture their parents made. *"Adults need distraction in type of a challenge, we want something to think about."*
- Other children looking at the intervention seemed not to dare to play with the playing children, but there were also not enough stickers. Later on, they did not play because they were afraid to break the creation of the girl before.
- Most passengers looking at the intervention smiled when seeing the children play and kept on looking to them interacting and creating. *"It is very cute, nice to see how they enjoy themselves"*. Other passengers could easily turn their heads away.
- The interactions seen were excited, because the children had fun, warm because of the colors and the view of children playing, and personal because of the making activity. *"It is a very personal game; she can make her own stuff!"*
- The window stickers did not color the floor or gate surrounding. The small triangles almost seem to disappear when placed on the big windows, because of the difference in size. But the colors on the window *"look nice and cheerful"* and immediately triggered children to start interacting. The color got brighter when placed on the window in contrast to the poster that completely faded.

Discussion & Conclusion

Only children have played with this intervention. They experienced joy when playing with the triangles but were not enchanted (1.1). The relatively childish poster with animal shaped examples could be a reason for the intervention to be especially attractive for children. Adults prefer another intervention to interact with, something that challenges them or makes them wonder how it works (2). A making activity feels personal (1.4), because passengers can create their own thing. Relaxed interactions are indicated by the parents enjoying their rest when the children were busy, and bystanders having the choice not to look at it (1.3). The warm effect of the interaction was felt by surrounding passengers, but mainly because of seeing children play instead of a changing ambience (1.2). The stickers should cover more window to have a clearer effect on the ambience (7), but the filter worked well (6) because the bright colors were appreciated and worked as a trigger for children (4). There should be more stickers for multiple passengers to play with or create multiple shapes. The window is a good location to place the intervention as it draws attention (5). A specific question that arose during this test that needs to be answered in the following intervention, is: What is needed to let adults interact with the concept? Do people want to make something?



4.3.2. AMSTERDAM HOUSES

The intervention 'Amsterdam houses' offers passengers the possibility to design and create houses with blue translucent sticker. These houses create a sense of place because they are typically canal houses of Amsterdam. People can also choose to make their own house, typically from their own origin. Their creation will add to the appearance of the gate and will offer them and others a distraction at the same time.

Method

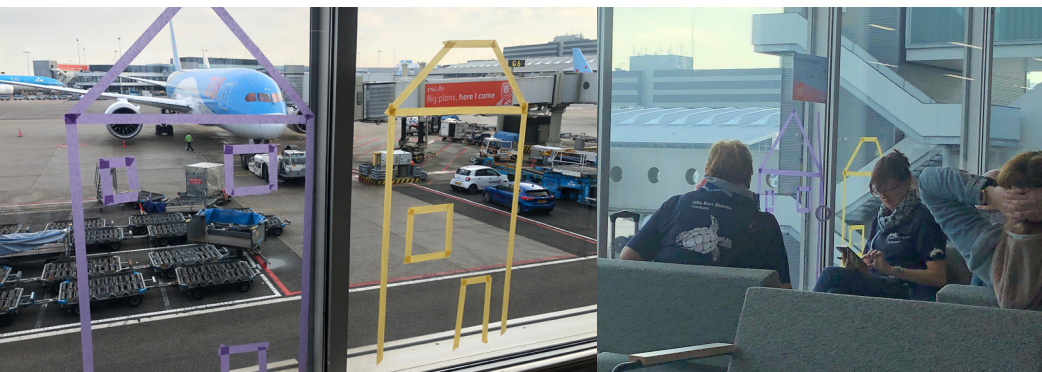
This experiment sought to find out specifically what the effects are of including a sense of place element and if this is more interesting for adults

than the triangle shapes. The test set-up included two examples of canal houses with colored tape and an explanatory poster. The test is executed once at only one G-gate. Six passengers were looking to the intervention and were invited to play with the intervention but rejected this proposal, thus this experiment solely includes interviews from indirect users. During the interviews, questions were asked about their opinion of the intervention and their reason for not interacting with it.



Results

- Nobody wanted to interact with this intervention. Passengers mentioned to not want to get on their knees, that the activity was too intense or time consuming. Also, most answered that they were not creative enough. *"I don't like having to bend, that feels too intensive."* *"Building a house would take too long and besides mine would look ugly!"*
- It was not very clear for passengers what they had to do with it. *"So, what should I have to do then?"*
- Passengers liked to see how I created houses and were all smiling at me while I was setting up the experiment. They mentioned that the window draws attention, but that was also a reason for one passenger to not want to interact with it. *"I don't want to get the attention."*
- They liked the effect that the houses had, because they looked nice and added colors. Also, it reminded them of both Amsterdam and Curacao, which was the destination of their flight. *"It's nice to look at, I like the colors and something playful in the room."*
- Only people who sat closely could see the houses and experience the effect they had in the room.
- People associated it with a game for children, because of the messy look and height of the stickers. There were no children at this gate that could be invited to play with it and gain more insights.



Discussion & Conclusion

This design intervention did not evoke much of the desired interactions, because none of the interviewees wanted to play with it (1). This might be, because the activity felt too intense and time consuming, but also because it required creativity of people (2). Another reason could be that the 'assignment' was not clear for people or that it was associated with a game for children. The houses did not draw much attention because they are situated low at the window and the saturation of the tape faded because of the backlight (4). The colors, although not bright, and sense of place element (canal houses) were appreciated by everyone; it looked playful (1.1 and 1.2). The place of interaction, at the window, seems to be a good place as it draws attention. However, this could have a negative effect as it might draw too much attention for passengers that do not want to stand out (5). These passengers could be as well stimulus seekers as avoiders. The question that arose for next experiments was: What type of activity requires less effort and creativity of the passengers?

Reflection

Because of personal and family issues on the day of experimenting, the researcher was not in optimal state and especially very down. This could have contributed to the fact that no one wanted to play with the game. It is a requirement that the concept should work without an extra employee to stimulate interaction, therefore this lack of a cheerful host was merely an interesting learning point. Nobody wanted to interact with this intervention spontaneously.

4.3.3. DRAWING DOODLES

The intervention 'Drawing Doodles' is a distraction that gives passengers the opportunity to relieve stress. Drawing doodles and looking at someone drawing doodles is a popular activity for both children and adults to relieve the mind and let go of thoughts (Brown, 2015) as you can just draw whatever comes up. There are no rules or standard. A sense of place element is hidden insight the activity as passengers contribute all together to the creation of the letters of Schiphol.

Method

The goal of this test was to find out whether drawing is a better activity

that requires less effort and less creativity than the Amsterdam houses. The test was made with erasable window markers on wires at the windows, accompanied by an explanatory poster with examples. Also, the frame of the letter S was already made to be filled in by participants. During the first part of this experiment, seven people were asked to join a prototype test. Two other passengers who were looking to the intervention (indirect interaction) were also interviewed and more were observed. During the interviews, questions were asked about their experiences with and opinion of the intervention. The second part of the experiment was set up to find out if passengers would be triggered to play with it on their own, without the researcher asking them to. The test is executed at one G-gate together with the experiment 'leaving a must see' that will be discussed hereafter.

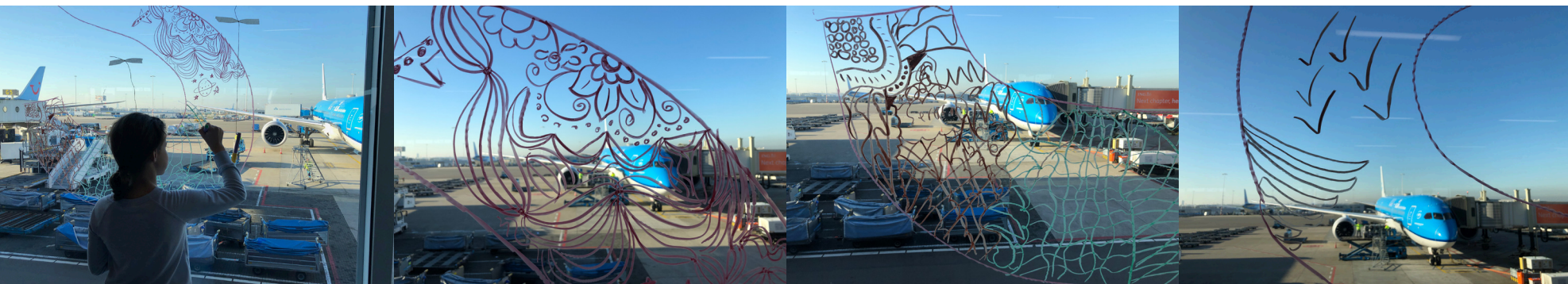


Results

- Passengers were excited about the intervention if they were creative or did not mind about the result. Children are a good examples of such passengers. Adults really had to think about what to draw and then drew a square or heart (see right picture). Especially solo travelers had no inspiration or did not dare to draw something. Girl: *"I like the drawing because I do this all the time!"*
- For passengers who mentioned to 'not be a good drawer' it was too challenging to create something. *"Drawing is too easy because I can't draw so I'll just make a square, that makes it less interesting."*
- All children who joined the experiment posed on pictures for their parents, who spontaneously joined and made pictures.
- All passengers that were asked to join but did not want to, kept on looking to the continuation of the experiment and the passengers drawing. They mentioned to appreciate to be able to 'just look whenever they feel like it' and smiled while observing from their seats.
- The effect of the interaction was that passengers look at others interacting and enjoy seeing them doing something. There was no effect experienced of the colors or the creation, as both were not clearly visible anymore from more than two-meter distance.
- Nobody interacted with the intervention spontaneously, which was the second part of the test. A few passengers looked at it, but no one was triggered to actually start playing themselves. *"It didn't look like something that I was allowed to do, writing on the window..."*

Discussion & Conclusion

The intervention required creativity in order to be experienced as fun and relaxing (1.1 and 1.3). Other people got more stress of it, because they did not know what to make. The beauty of the result should therefore not depend on the creativity of the passenger (2). This is also important for children, who care less about the result and therefore draw more easily. Their result is often uninspiring and messy which is less pleasant to look at. They did like this intervention more than adults, probably because they are more used to drawing and because they do not feel pressure to make something beautiful (2). When traveling with others, there seems less of a 'shame' to play with the intervention. Again, a making activity feels personal because people can contribute something from themselves to the surroundings (1.4). It also stimulates taking pictures together with the creation. The window is a relaxed place for people to just look at from their seats (1.3), without the activity being in their zone or distracting them too much from what they were doing. The effect on the ambiance was minimal, as the colors of the pencils completely faded away by the sun (1.2 and 3). Nobody interacted with the intervention out of themselves, probably because the creations were vague and because it was not clear they were allowed to draw on the window (5), but perhaps also because drawing is not the right activity. This intervention required the presence of a host to stimulate the passengers to actually draw something and also to communicate to them that they are allowed to do so. This is not feasible in practice, when implementing the concept at multiple gates.



4.3.4. LEAVING A 'MUST SEE'

In the intervention 'Leaving a must see' the window functions as a memo wall where passengers can leave a travel tip behind from where they come from. It is a distracting activity for passengers that they can learn from and where they can inspire others with their own knowledge. It also very well fits the context of an airport.

Method

This test is executed at one G-gate together with the experiment 'Drawing Doodles' that is already discussed. The test set-up was exactly the same.

An extra goal of this test was to find out whether creating and reading information would be more interesting to interact with than the earlier interventions.

Results

- Passengers liked to write down and share information. They had to think about it for a couple of minutes, but thought it was interesting to leave something personal. Coming up with something was easier for groups, they also liked the intervention better than solo travelers.

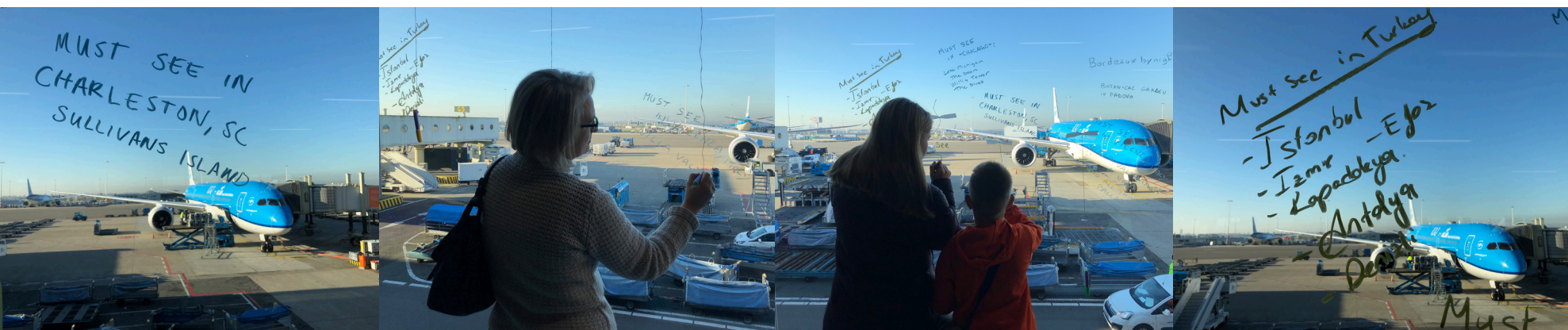


- They liked more to read what others had written even though this was a very general must see (read; the red square in Moscow). It seems to indirectly connect people. *"I liked about the concept that it connects you to other people".*
- This activity made more sense to people as it had to do with travelling. *"It makes sense in this environment!"*
- Also, passengers who did not join the tests, wanted to read what others wrote. It did not actually give them more knowledge, as the tips were all "very standard", but reading it filled their time. *"Nice to read what others like, although it's very standard."*
- The window draws attention and is called *"a good place to do something"* *"My sister was very intrigued by you being busy at the window. 'What would she be doing' is what she asked me".*
- The last three points in the results from the 'Drawing Doodles' experiment also account for this test, because they were situated next to each other the interviewees answered about both. In this situation, the tips were not even readable from two meter because the letters got smaller and people's handwriting was hard sometimes.

Discussion & Conclusion

This intervention is more liked by adults than by children and seemed more interesting for groups than for solo travelers (2). The desired interactions seen back in this experiment are excitement and personal. Respectively because it was fun to write and read information about the world at Schiphol (1.1) and because people were able to leave something from themselves (1.4), even though this was very likely a standard tip and not per se a personal message. They did have to think hard about what to write down. The warm interaction can slightly be seen in the fact that it indirectly connects people (1.2). The effect on the ambiance was minimal, as the colors of the pencils completely faded away by the sun (1.2 and 3).

The window draws attention positively and does not distract others too much (5). However, it was not clear they were allowed to write on the window when the researcher did not accompany the test. Nobody interacted with the intervention out of themselves, possibly because the travel tips were not inspiring and hard to read. Once again, this intervention required the presence of a host to stimulate the passengers to interact with it, which is not feasible in practice if the concept will be installed at multiple gates.



4.3.5. FLIPPING COLORS

The intervention 'Flipping colors' is a window game where passengers can make creations by changing the colors of the tiles. One tile has two colors and passengers can write their names or make a shape by flipping the tiles and thereby changing its color. It offers distraction for some passengers that want to interact with it, but also for others looking at it.

Method

In earlier experiments the passengers actually had to make something, to create the effect. However, it was found that they did not want to put too much effort or creativity in it. Therefore, the aim of this experiment

was to find out how people interact with an intervention that does not require making but only modifying. Also, a goal was to find out whether it was needed to give them an assignment or rather to let them be free to do what they want. This experiment is set up at the faculty of Industrial design with an interaction prototype existing from cardboard and post-its. Five participants were asked to join a prototype test and were then carefully immersed into the situation by showing pictures and explaining the problem. They were asked to think out loud during the interaction, without further explanation of what the intervention was. Afterwards they were interviewed to share their experiences and their opinion about



the intervention. The participants received a paper with fifteen interaction characters and were asked to choose the ones that they associated with the intervention, and to explain their choice. The list existed from the desired interactions supplemented with other interactions that were selected by the researcher based on having any relevance to the intervention, see figure 45 for the words.

Results

In general

- The participants did not know immediately what they could do with it but liked that they were free to experiment with it. *"It is obviously movable and inviting me to touch."* *"Do not add a screen or anything, that would ruin the interaction and freedom!"* *"Maybe I can make something with the color combinations by flipping the tiles."*
- Some touched it with a careful finger or with their whole hand, waving in front of the tiles and brushing against them. Only flipping one tile felt as a more detailed interaction in this experiment than flipping multiple by one movement. *"I would make a creation like you make on velvet; with one hand or finger sliding over multiple tiles."*
- Some participants saw the window filters from the first prototype and said that this would give an interesting effect when combined with this intervention. *"When looking outside you see the airplane, and you also want to see that, so you don't want it to block the sight"*

- They mentioned that if the contrast of the colors would be bigger, it would become clearer that you can create a certain shape or letter by changing the colors. *"If I would see the light coming through, I could make drawings on it, especially if it makes a shade on the ground."*
- Participants think that adults would be done quickly with actually playing with it, but that children would entertain themselves for a longer time. *"Children might make drawings with the squares, but I would be done earlier with it and prefer looking at the light coming through."*

Interactions

Table 3 shows the amount of times that an interaction is chosen. Some are better explained here:

- Participants said that adding this concept to the gate environment would increase the excitement; it is seen as distraction, amusement and fun. The colors seem to evoke excitement as well as that they add more warmth to the ambience *"Warm colors like the sunset... a warm evening sun, that's how it feels!"*
- The activity is referred to as being 'soothing' and therefore they often chose relaxed as an interacting. One participant spontaneously mentioned it to feel dreamy, because you can just easily touch it and feel what happens and that gives a relaxed feeling. *"Changing colors that move feels like I can stare at it like a campfire."*
- The concept feels inviting, as participants mention to want to play

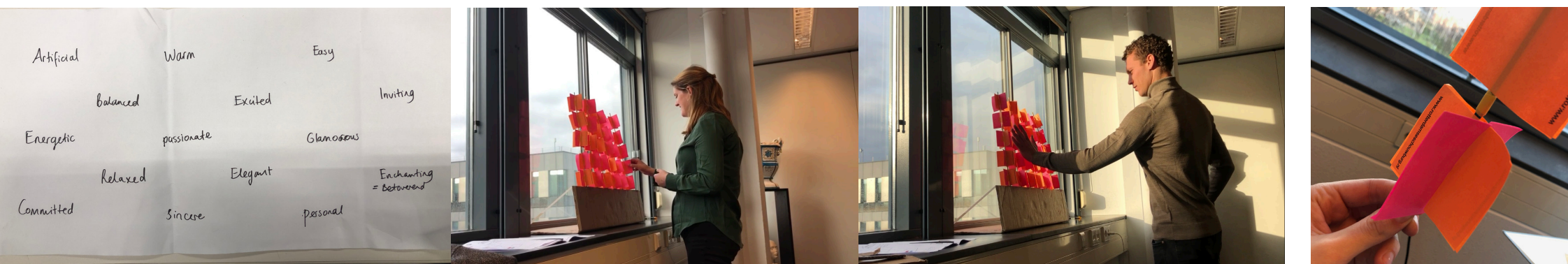


Fig. 46 - Sheet with examples of characters of interaction that participants could use

with and touch when you are looking at it. *“You want to play with it yourself when you’re looking at it!”*

- It is sometimes associated with enchanting, and it is mentioned that it has potential to be (more) enchanting depending on the effect of the filters.

Discussion & Conclusion

It was not clear for the participants what they could do with the concept at first sight, but that is what they liked about it; that they had the freedom to do with it what they wanted. This evoked an excited feeling (1.1) as they wanted to touch the tiles because of the inviting shape and bright colors (4). Therefore, it might not be needed to give passengers a specific assignment or to explain what to have to do with it. It should be taken into account though, that these participants were asked to interact with it, so they knew they were allowed to touch it. In another situation where no one guides the concept, especially at Schiphol, this might not be clear (4). Although, placing an explanatory poster next to it might help, as is done in the earlier experiments.

The colors are of great value to the warm and excited feeling that is evoked (1.1 and 1.2). It was however not directly clear that you could make shapes by changing the colors because the contrast between them was

not very big. It might be for this reason that participants did not mention it to feel personal; they failed with actually creating something with the concept because of the lack of contrast and not having enough tiles (1.4). Nevertheless, just touching the tiles and exploring the effect already felt as a relaxing activity that is also relaxing to only look at (1.3). It is compared with looking at a campfire or evening sun (1.2).

Adults need a more challenging game or enchanting effect to keep on interacting with the concept and to like it even more (4). They like to touch it and see the effect but would be done with this after a couple of minutes. It is not yet defined whether this is a problem because it could also feel like the interaction vision (collecting autumn leaves) for a couple of minutes or seconds maybe, as long as it will still improve the emotional state of the passengers and reduce the perception of waiting time. In this test, participants did experience the desired interactions and did not mind that it took only a short while. It is also mentioned that increasing an enchanting effect with window filters will very likely positively influence the ambiance of the gate environment (6). Lastly, the size seems to be important for the desired interactions because in this experiment multiple tiles were moved when brushing with one hand, which made the participants think that that was the intention. Most of them interacted like that, instead of flipping only one color with your finger. One person even used body and arms which made the interactions more energetic than relaxed.

Interactions & emotions	Times mentioned	Explanation
<i>Warm</i>	5/5	The colors add to the atmosphere.
<i>Inviting</i>	4/5	The shape and bright colors invite you to interact with it and touch it.
<i>Excited</i>	3/5	It is cheerful and fun to interact with, people smile when touching.
<i>Enchanting</i>	3/5	Depending on the effect and on what you can make with it
<i>Relaxed</i>	2/5	It is a soothing and satisfying activity that is also nice to look at.
<i>Committed</i>	1/5	When you’re very busy with a creation.
<i>Energetic</i>	1/5	It is playful especially for children.
<i>Personal</i>	0/5	No one mentioned personal.

Table 3 - Results from the interaction prototype test

4.3.6. EXTRA RESEARCH

In order to answer some questions that were still left open, some extra research has been conducted. The key findings are summarized in this section.

During a presentation of the results, it is mentioned by colleagues from the PX platform, that the windows are an important object for Schiphol. Their functions should be to bring the outside inside; this adds to the appearance of the gates, being 'open and light' and also adds a sense of nature. They thought it would be interesting to actually interact with something from outside, if the product is placed in front of the window (5). It is also seen in the experiments that the view from outside should not be ruined as passengers like to look outside. Another small observation test has been executed to prove this fact, at already existing window art of Danielle Kwaaitaal in Terminal 1, see figure 46. These images are translucent, meaning that they leave through light but not a view, which is different than transparent. These images seem to only make the area darker (6). Next to that, most passengers looked outside when there was normal window but when her artwork appeared, they turned their heads away from the window and focused straight forward again. Thus, combining these

findings led to the decision that the concept must be see-through (transparent) and should interact with 'the daylight' specifically. Anything else that happens outside must still be perceived inside.

A short feasibility test with transparent window filters showed that there can be a strong effect of the colored light coming through the filter. The biggest effect is measured when there is another object nearby on which the color gets projected (7). Filters near the ground project the effect on the ground as can be seen in figure 47. The surface that the filter covers on the window also has an influence on the perceived effect and should be at least 0,5 m². Lastly, the brightness of the sunlight makes a difference; on a cloudy grey day the effect is only seen on a white surface next to the filter and with less sharp shadows than on a sunny day.

In short, the concept should be transparent instead of translucent because passengers want to look outside, which is an important aspect of the current gate design and a Schiphol trademark. Special filters exist that can make a difference in the ambience, if big enough surface, by coloring the light that comes through and be very transparent at the same time.



Fig. 47 - 'Tracing Reality' from Danielle Kwaaitaal between Lounge 1 and the B-pier

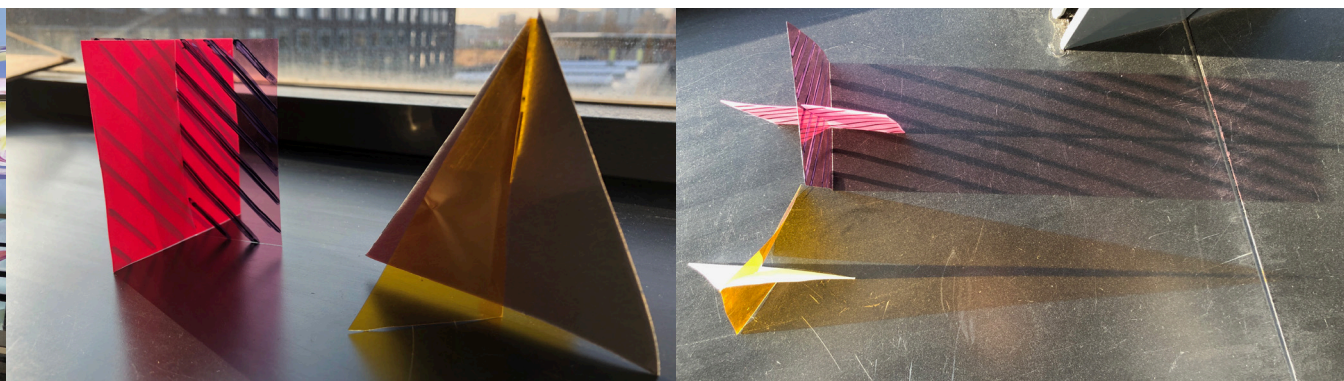


Fig. 48 - Window filters coloring their shadow on a sunny day

4.3.7. ANSWERING THE RESEARCH QUESTIONS

Multiple design interventions have been tested in order to find out what their effects were on the interactions and emotions of the passengers. The research questions from section 4.2.1 were answered with the findings of the experiments in each discussion and conclusion part, indicated by the numbers (e.g. 1.3). In this section the findings are being put together. Also, identified design qualities and types of distraction are proposed based on the findings and are implemented in the table of interactions and emotions on the next page (table 4).

1. *How are the desired interactions evoked?*

1.1 *How can the action and effect evoke excited interactions?*

Bright colors increase excitement, which is also seen in the field trip to WONDR in section 2.2.2. For children it is exciting to actually create something, while adults get more excited over a special effect, a challenge or sense of place element. For both it is exciting to touch something that moves; modifying. Being free in doing what you want with the concept also evokes excitement. This might be, because most of the time at Schiphol you have to comply to the rules and cannot touch things.

1.2 *How can the action and effect evoke warm interactions?*

The warm effect is mostly evoked by the use of warm colors that are perceived clearly. These warm colors are associated with natural phenomena like sunset and campfire. Seeing children play and have fun also gives a warm feeling that is closer to heartwarming. It could also enhance a warm feeling when it connects people, even though indirectly.

1.3 *How can the action and effect evoke relaxed interactions?*

Being able to join the interaction without too much effort and creativity contributes to a relaxed feeling. The final concept should be low-key and easy to use. Also, with the concept being at the window, other passengers can easily look at it when they want to, while staying seated. This seems to contribute to the relaxed vibe. Trying out something and exploring the effect it has, is experienced as a relaxed activity.

1.4 *How can the action and effect evoke personal interactions?*

A personal feeling is evoked when passengers can leave something personal in the shape of a creation (artwork) or information (travel tip). Passengers feel that they can contribute something from themselves to the environment. To do so, the concept must be adaptable to personal preferences or suited for creating, making. When something is a personal activity, passengers are more likely to make pictures of their activity or creation.

2. *What type of distraction activity do stimulus seekers want?*

Especially children like the 'making' element in creating shapes and drawing doodles. Adults prefer the 'modify' element in leaving a must see and flipping colors. They are more intrigued and less afraid or ashamed when touching and changing something than when actually 'playing'. The activity should be low-key, because adults quickly feel pressure to make something beautiful. Both the triangles and the flipping colors evoke the most desired interactions but both distraction types seem to lack an enchanting effect or challenge to attract adults and let them interact for a while. This last aspect needs more research, as it might not be needed to actually have adults interact for longer period of time. It was seen during all experiments that children are a major shareholder in the group of stimulus seekers. It could be possible that only children actually play with the concept for a while and that adults only explore the concept and modify some things.

3. *Do stimulus seekers want to change something to the lighting conditions of themselves and other passengers?*

The actual change that the interventions brought to the lighting conditions was not sufficient to let passengers experience how it would feel to create a change for other passengers as well. The effect to the ambiance was most clear with the 'colored triangles' and the 'flipping colors', but merely because of the bright colors. Therefore, this question needs further research during the user test with an experiential prototype.

Table 4 – Identified design qualities and type of activity that lead to certain characters of interaction and emotions

Design qualities	Type of activity ¹²	Characters of Interaction	Emotions
Some complexity & mystery ¹ , delightful ² , unique (colors) ² , bright colors ¹⁰ , special effect ¹⁰ , playful & touchable ¹²	Creating (children) Challenge (adults) Modifying (both) Having freedom	Excited	Enchanted & amused ¹¹
Warm light colors ³ , cozy ⁴ , wood ⁵ , clear ¹²	Looking at children having fun, connecting with others	Warm	Relaxation ³
Curved elements ⁶ , moderate ⁷ , easy to use ¹²	Low-key (not much effort or creativity). Looking and exploring	Relaxed	Relaxation & dreaminess ¹¹
Personal(ity) ⁸ , sense of place elements ⁹ , adaptable ¹²	Leaving something personal (creation / information)	Personal	At ease & connected ⁹

¹ Kaplan & Kaplan (1989)

² Han (2013)

³ Wessolowski (2014)

⁴ Passenger analysis

⁵ Field trip to RTH & EH

⁶ Dazkir and Read (2012)

⁷ Osborne (1978) & Passenger analysis

⁸ Passenger analysis

⁹ Schiphol (2015)

¹⁰ Field trip to WONDR

¹¹ Desmet & Pohlmeier (2013)

¹² Design Interventions

4. What triggers the attention of stimulus seekers and converts this into action?

Bright colors attract children and adults, but they are not yet an indication for people that they are allowed to interact with it or a trigger to actually start interacting. The effect of the concept could be more enchanting and inviting to trigger people. Next to that, the shape and size of a product could invite more to touch it, just as the material of which the concept will be made from. In the last experiment it was clear that the shape of the product actually invited to interact, as it was immediately associated with something that was 'movable'. However, in an airport context it is the norm to not touch anything which makes it a bigger challenge to trigger people. The explanatory poster might work better as a trigger if it is easier to read than it was in all experiments, where the print faded away by the sun. This needs further experimentation.

5. Is the window a good place and object to interact with?

The window seems to be a good place to position the concept because it draws the attention and it can be seen from the seats without interfering in passengers' own space. It is a less good place for stimulus seekers that are afraid to stand out as they don't want to draw the attention. The expected users are therefore the stimulus seekers who do not mind getting some attention or being noticed by other passengers. The window is a difficult object to interact with as passengers assume to not be allowed to do something with it, like drawing or writing on it. It should be made clear that passengers are allowed to interact with it, or the interaction should be with something in front of the window instead of the window itself, like with the Flipping Colors. It is also of importance that the window stays transparent in order to let passengers look outside and to bring the outside to the inside which is important for Schiphol.

6. *What influences the atmosphere around the gate positively?*

The light filter used in the Triangle Shapes had the best interaction with the daylight as it became brighter when placed at the window. The same filter was shown to participants of the 'flipping colors' test who all could imagine the enchanting and positive effect that such filters would have on the ambience of the gates. Special filters exist that can make a difference in the ambience by coloring the light that comes through and be highly transparent at the same time.

7. *How can the sun through the window make an effect on the floor and in the area?*

A feasibility test with transparent window filters showed that there can be a strong effect of the colored light coming through the filter when there is another object nearby, when the sun is bright and when the surface of the filter is more than 0,5 m2.

To both research questions 3 and 4 further research will be done during the conceptualization phase in the next chapter. Another unanswered question is how long passengers need to interact with the concept in order to improve their emotional state.

4.3.8. SPECIFY TO ONE CONCEPT

This section will provide a concluding overview of what aspects of each design intervention worked out well. Each intervention is evaluated by means of important selection criteria in order to specify into one concept. The criteria are made based upon the most important design criteria from section 3.4 and the answered research questions from the previous section.

Method

This assessment is done by using Harvey balls. Each intervention is assessed by dividing points (0-4) based on how well they can answer to the criteria. The researcher is the only assessor as she knows most about the passengers and the current and desired situation at the G-gates. The intervention with the highest score will be the foundation for the concept proposal, taking into account all the learnings from the other design interventions.

Assessment criteria

- How well does this intervention fit the interaction vision (including the desired interactions)?
- To what extent is this intervention a moderate distraction?
- To what extent does this intervention evoke positive emotions?
- How well does this intervention trigger people to interact?
- What is the ability of this intervention to influence the ambience?
- To what extent is the intervention realistic for Schiphol (e.g. no loose parts / little cleaning)?

Results

The results can be seen in figure 49. The motivation for the assigned points is explained in the section before where the research questions are answered.

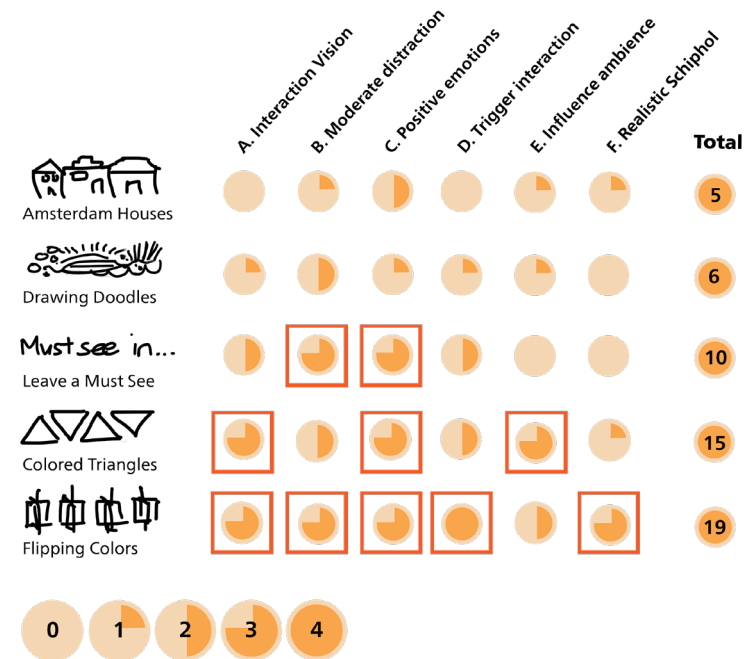


Fig. 49 - Harvey balls showing the results of concept evaluation

As can be seen, the intervention Flipping Colors ends highest in total points and will therefore be the basis for the concept proposal. This is expected already, as certain findings of earlier interventions have influenced the origin of this intervention. The Colored Triangles ends second and scores the same at some criteria and for one even better. The problem with this concept was that it was only used by children, so more information needed to be found in following experiments on what adults like to do. However, the learnings from this intervention can still be taken into account for the further development of the concept. The filter of the triangles worked better than the tiles from the flipping colors, which need to be more exciting and enchanting and have a better impact on the ambience. Also, the triangles were more personal, because someone could actually make something instead of only touching it. Other interventions got more positive reactions on the aspect 'personal' as well. Being able to adapt the ambience or create something personal will contribute to the Flipping colors concept. The 'sense of place' elements in both interventions Leaving a must see and the Amsterdam Houses, are appreciated clearly. Leaving a must see even connected passengers indirectly with each other, which none of the other interventions did. All of the above will be taken into account when detailing the concept idea. The next section will also find out what shape it should have and what different window filters align with the desired interactions.

4.4. CONCEPTUALIZATION

In this section the concept idea 'Flipping Colors' will be further developed into a concept proposal based on several small user tests. The effect that the filters have on the environment and its users is important to trigger attention and interaction, as was seen in the previous section. More importantly, this effect needs to align with the interaction vision, in order to actually create excited, warm, relaxed and personal interactions. It was also seen that shape can function as a trigger to touch and influence the evoked interactions. Therefore, user tests will be done to define the shape of the tiles.

4.4.1. INTERACTION QUALITIES

In this phase the interaction qualities play an important role. These are product features or characteristics that help to detail the design and to evoke the desired interactions. Diefenbach et. al (2013) proposed a set of

eleven dimensions for interaction qualities on the level of operation, meaning the 'how' of the interaction. For each character of interaction and the already found design qualities, a corresponding interaction quality is chosen. These qualities function as a guide throughout conceptualization;

4.4.2. SHAPE DESIGN

The first test was to find out what shape the tiles must have to trigger interaction. A small test is conducted with cardboard shapes and 8 participants who were asked to touch one of the figures to make it rotate around a stick. They had to explain their decision afterwards, see appendix N. Results show that the square tile with two rounded corners, see figure 50, got the most hits. Explanations given were that this shape looked like wind catchers and leaves. It has an organic, gentle shape with rounded

Design qualities	Interaction qualities ¹³	Type of activity ¹²	Characters of Interaction	Emotions
Some complexity & mystery ¹ , delightful ² , unique (colors) ² , bright colors ¹⁰ , special effect ¹⁰ , playful & touchable ¹²	Diverging	Creating (children) Challenge (adults) Modifying (both) Having freedom	Excited	Enchanted & amused ¹¹
Warm light colors ³ , cozy ⁴ , wood ⁵ , clear ¹²	Gentle	Looking at children having fun, connecting with others	Warm	Relaxation ³
Curved elements ⁶ , moderate ⁷ , easy to use ¹²	Fluent	Low-key (not much effort or creativity). Looking and exploring	Relaxed	Relaxation & dreaminess ¹¹
Personal(ity) ⁸ , sense of place elements ⁹ , adaptable ¹²	Inconstant	Leaving something personal (creation / information)	Personal	At ease & connected ⁹

¹ Kaplan & Kaplan (1989)

² Han (2013)

³ Wessolowski (2014)

⁴ Passenger analysis

⁵ Field trip to RTH & EH

⁶ Dazkir and Read (2012)

⁷ Osborne (1978) & Passenger analysis

⁸ Passenger analysis

⁹ Schiphol (2015)

¹⁰ Field trip to WONDR

¹¹ Desmet & Pohlmeier (2013)

¹² Design Interventions

¹³ Diefenbach et. al (2013)

Table 5 – Identified design and interaction qualities and type of activity that lead to certain characters of interaction and emotions

edges that invites to touch but also indicates the ability to rotate. The fact that this shape is associated with leaves and that the interaction vision (IV) is 'collecting autumn leaves' is a coincidence as the participants did not know the IV. When this shape was placed in a set of four (left in figure 50), it was associated with a tulip. This could become the sense of place element that can be discretely implemented. Literature described earlier that curved elements are more calming and beautiful than rectilinear ones (Dazkir and Read, 2012). To a certain extent this minor research can add that they are more attractive to touch as well.

4.4.3. FILTER DESIGN

In order to find and choose a suitable filter, research was conducted to the existence of different light filters and concept feedback was gathered from Lighting expert Sylvia Pont from Industrial Design. After observing and interacting with the prototype of the concept 'flipping colors', she recommended amongst others dichroic glass that reflects one color and leaves through another. Desk research showed the existence of dichroic window filters with the same interesting effect, as can be seen in figure 51. The colors that are perceived on the surface change as the observer or

object changes perspective. These filters are used in some inspiring architectural and art projects and can differ in color and transparency. To test the effect of this filter and some others found through research, a small user test is set up.

Method

A small prototype was made with 8 different filters to test with 8 participants. Figure 52 shows the prototype that participants could interact with to see the effect of the different filters in front of the window. The dichroic effect can be seen on the upper left tile, reflecting green on the wooden beam. Another material that looks like the dichroic filter is an iridescent piece of PVC (upper right) and has more blue tones. The two dichroic filters are analyzed as being the same, because their effects are very similar, and the iridescent PVC is not a real window filter so cannot be used for the concept. The participants were asked to fill in a survey about what filter combination they would make to meet the interaction vision but also what filters they associated the most with the interaction characteristics and desired emotion 'enchanted'. During the test, participants were asked to motivate their choices. The survey and the results can be found in appendix O.

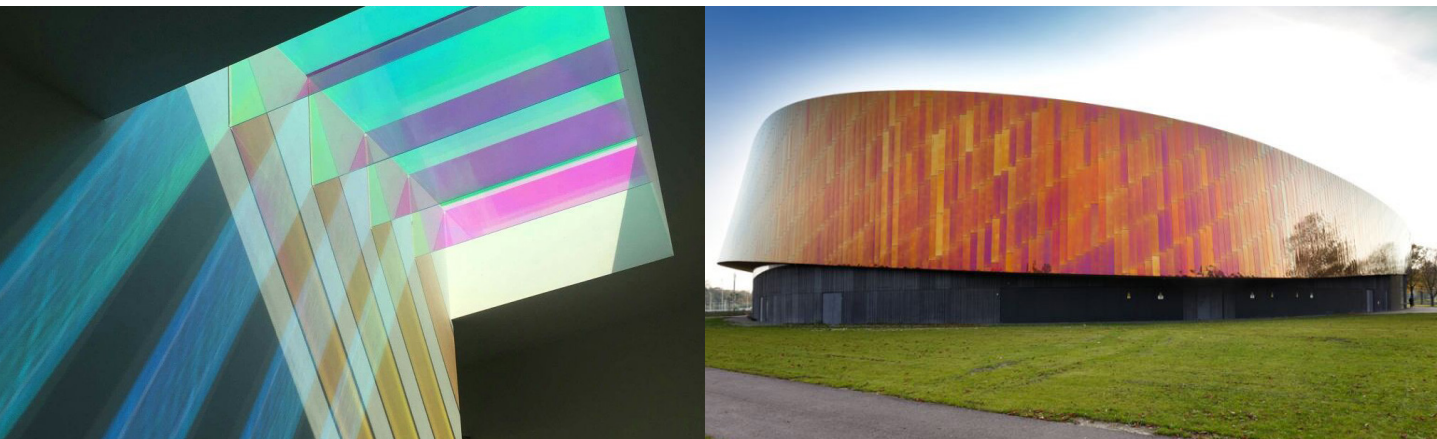


Fig. 51 - Practice examples of Dichroic filters

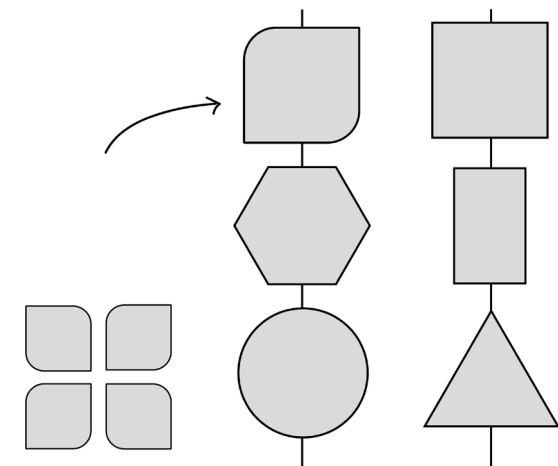


Fig. 50 - Set-up of the shape study

Type of filter	Associations
<i>Striped</i>	Weird, interesting, too much
<i>Dichroic (pink)</i> <i>Dichroic (blue)</i>	Enchanting, excited, interesting, draws attention, should be slowly moving, curious to touch, inviting, mirror is personal
<i>Purple</i>	Relaxed, dark, calm, easy
<i>Yellow</i>	Excited, cheerful, contrast with other colors
<i>Transparent mirror (silver)</i>	"Personal because you can see yourself" "Mirror invites to rotate it"
<i>Orange</i>	Warm, fit IV, autumn, pure, Dutch, inviting.
<i>Light pink</i>	Relaxed, neutral.

Table 6 - Results of filter test with associations per filter

Results

The associations per filter are shown in table 4. The filter that impressed and was chosen the most for enchanting, were the dichroic filters. These filters also scored high for being excited, together with yellow. The dichroic filters were compared to 'the most beautiful fish in the sea' (in Dutch 'de mooiste vis van de zee'), which is illustrated in figure 53. This is a childrens book that a lot of Dutch people know where a fish wishes to be the most beautiful in the sea and then gets a few glittering scales. Orange was most warm and chosen in each combination to fit the interaction vision (IV). The reflecting filters (including the dichroic) were associated with personal because they worked as a mirror. Relaxed was associated with purple, but with a less convincing score. Participants also mentioned to want to see clear contrast between the tiles. This is also proven by other concepts that work with the same principle of making shapes with 'pixels' of any type, as can be seen in figure 54. All these initiatives work with black as contrasting color to make it clear what is being created. Another remarkable element is that these concepts are relatively big, compared to a human-being. This seems to work as trigger for people to start interacting with it, because it catches their attention and challenges them to make something.



Fig. 52 - User test of the filters

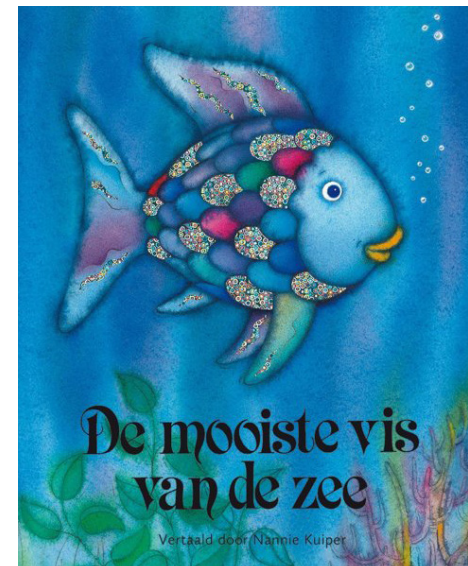


Fig. 53 - "Most beautiful fish from the sea"

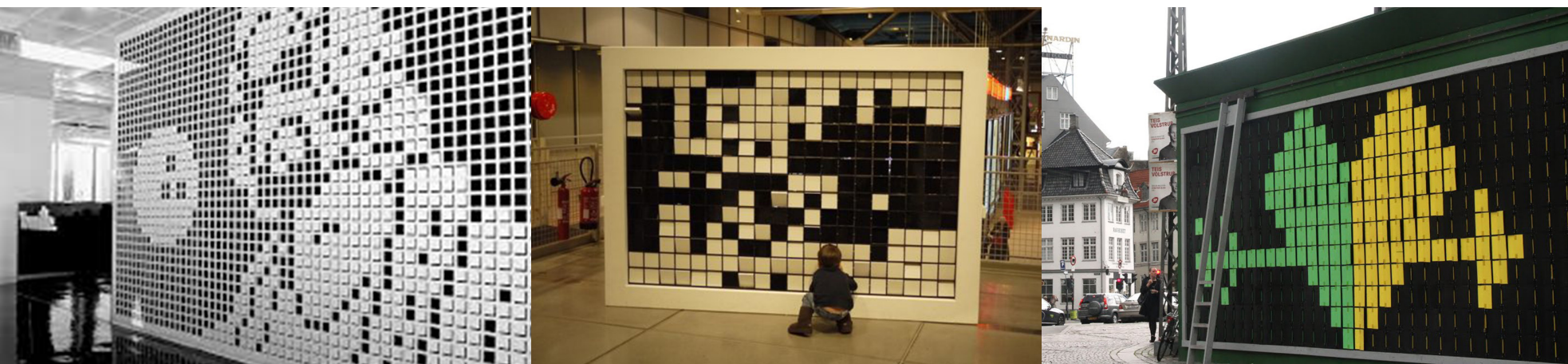


Fig. 54 - Examples of drawing / writing with tiles and pixels

Conclusion Filter Design

The dichroic filters draw the most attention and evoke excitement and enchantment, as they are diverging in color. They will be implemented in the concept in moderate amount because they might distract too much as they reflect and might become less interesting if applied on each tile. It should be a search for the 'glittering scales' like shown in figure 53. One of the functions of the concept is that passengers can create letters or shapes. For this purpose, all tiles should at least have one color of the same. This will be orange, because this color is associated the most with the interaction vision and with warm as a character, but also with The Netherlands, which is interesting for a sense of place element. Especially with this shape of the tiles, orange fits well the association of tulips. Yellow will be the third color and is chosen based on the results of the test, but also because of the required and desired contrast.

The findings of these concept experiments about size, shape and effect have led to the creation of the first concept proposal; FLIP.

The following section will describe the concept in more detail.

4.5. FLIP



Meet FLIP, an interactive window artwork that will offer a distraction for passengers who are waiting at the G-gates of Schiphol and who are bored and restless. Passengers can flip the colored window filters to change the color of the daylight coming through. This way, they can create their own color pattern or even make shapes and letters if they feel creative. Playing with FLIP, but also just looking at it, will be amusing and relaxing at the same time. It will be a low-key activity that does not require much effort or creativity from the user, and it will not distract others from executing tasks they want to perform themselves. Its unique appearance will improve the ambiance of the G-gates by adding some mystery and variety to the coherent and functional environment. For passengers that prefer to stay seated, FLIP will also be beautiful and exciting to look at even without someone interacting with it, because of the dynamic lighting design. These passengers will get a dreamy feeling while looking at it, like witnessing a beautiful sunset. When children are having fun while playing with it, warm feelings and happiness will be evoked for others looking at them.

Experience

The aim of this concept is to enhance a positive waiting experience, in other words to reduce the perceived length of waiting time. The perception of waiting time could be improved when passengers are in a positive state of mind (section 2.1.2). This concept will do so by offering distraction, because that can distract people from negative feelings and elicit positive feelings at the same time. The type of distraction is a low-key entertaining object for stimulus seekers who are directly interacting with it, and a beautiful and eye-catching object for all the other passengers who are indirectly interacting with it. This could be stimulus avoiders, but also stimulus seekers who do not want to play with the concept or are afraid to potentially get attention when standing in front of the window.

Co-creation sessions and in-depth research to the desired waiting experience (section 2.4), unraveled how interactions and emotions within the gate environment should feel like to eventually reach the design goal. The fun and beautiful distraction offered by FLIP, will evoke excited, warm, relaxed and personal interactions that enhance the emotional state of the passengers and thereby improve the perception of waiting time.

Interactions

The interactions with FLIP will fit the interaction vision '*A little child collecting autumn leaves to take home afterwards*' because passengers get enchanted by exploring the concept and its effect. Passengers can make or find something that is beautiful, independent on the creativity of the passenger. They can take a picture with their creation and the airplane on the background, to take home. But they will also take home a positive memory of their last experience with Schiphol. Most importantly, the desired interactions that the interaction vision captures, can be achieved by FLIP.

Excited

Interactions with FLIP will be excited, because of the diverging, delightful and bright colors and the special effect of the window filters. Passengers get enchanted by seeing the effect that flipping the tiles have on the colors they perceive and the pattern they create. It is also exciting that something at Schiphol can be touched and moved. Passengers are free to interact with the artwork as they like without a permanent goal or assignment, which indicates divergence as well.

Warm

Interactions with FLIP will be warm, mostly because of the warm and gentle colors and material, but also when seeing others playing with it. Especially if these others are little children who are enjoying themselves. The concept indirectly connects passengers with their environment through the transparency and with other passengers through the reflection.

Relaxed

Interactions will be relaxed because it is a soothing activity to use senses and explore what happens through touch. It is also a low-key activity that does not require a lot of creativity or effort of passengers. The tiles will move fluently and smooth around the axis. Also, all passengers who are not feeling like doing something can easily look from a distance to the artwork at the window and to others playing with it. It does however not obstruct them from performing own tasks as it is a moderate distraction.

Personal

The interactions with FLIP will be personal because passengers can create a pattern that they like with the inconstant tiles that are adaptable and thereby add something personal to the gate environment. They choose themselves what to touch and modify in this concept. Next to that, a small sense of place element is implemented with the presence of orange tiles that look like tulips and that give the environment more personality and makes passengers feel more at ease and connected to their environment. As an additive function, the glittering dichroic tiles can be placed in certain shapes or patterns in the frame during installation. A secret message, like 'hoi' which means 'hi' in Dutch, or a heart can be hidden inside the concept. A passenger may collect all glittering tiles and will then find the secret message, which could increase the personal interaction even more. Examples of patterns can be found in appendix M.

Appearance

FLIP is a unique, slightly complex and mysterious element in the coherent whole of the low-load gate area. It has unique colors and functions as a delightful decoration. On first sight, this might not seem to fit the environment, but as already explained in section 2.1.3, this can only increase the liking of an environment and stimulate positive feelings (Kaplan & Kaplan, 1989; Han, 2013). But because too much arousal works aversive, FLIP should be present in a limited amount (Berlyne, 1971). That is also how the model of Kaplan & Kaplan works; adding some mystery and complexity will lead to a higher involvement with the surrounding and higher levels of excitement, as long as there is a high level of familiarity and coherence in the environment like there is at the G-gates of Schiphol. For this reason, it will be proposed to only implement one FLIP per gate, because it might otherwise overstimulate the passengers. Also, the size of the concept should not be overwhelming.

FLIP will be the length of one window at the G-gate which is 2100 m as shown in figure 55. The height of the concept must be within reach for the average adult between 20-60 (Dined, 2004), which leads to 2 meter as highest point. The lowest point is then around 0,5 m high.

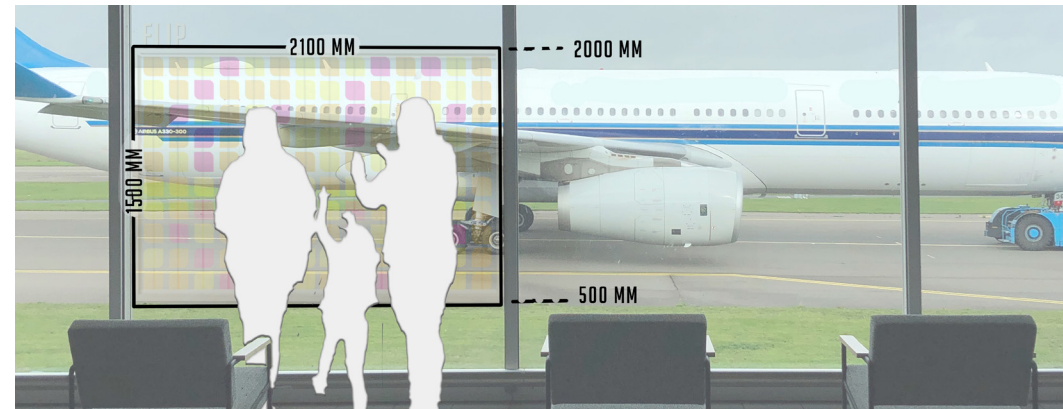


Fig. 55 - Dimensions of FLIP (window)

The size of the tiles should be something bigger than the prototype with post-its. The interaction in that experiment was a little too precise when only flipping one tile. The small size also made participants think that they had to flip them all with one hand, and although it is fluent, it is not per se the desired movement as it requires more effort and energy. The size needs further research but will intuitively be chosen for the first concept proposal on 100 mm breadth, see figure 56. The distance between each tile is now set at 25 mm, so children cannot get stuck in between two tiles (Dined, 1993). The tiles can flip, so a hand could fit between two tiles if it rotates and could easily rotate back again.

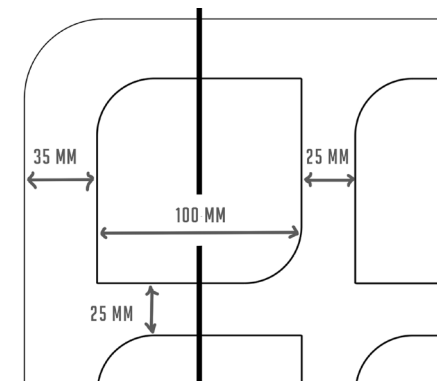


Fig. 56 - Distances between tiles

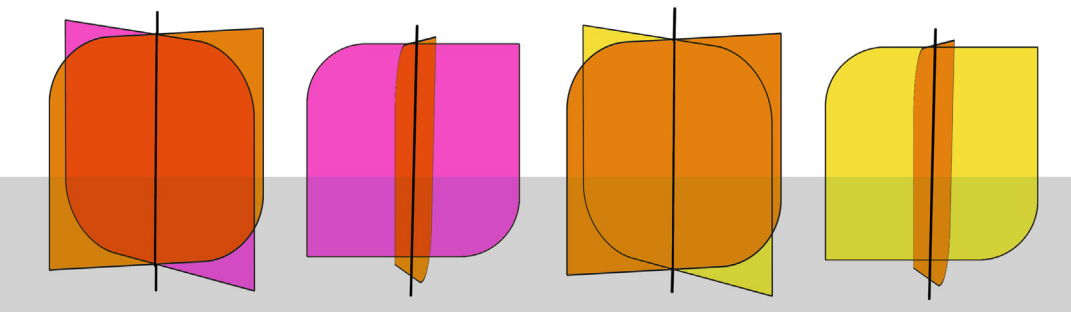


Fig. 57 - Showing the effect of looking from different perspectives to the tiles.



Fig. 58 - Showing the effect of a dichroic filter; leaving through other colors than seen on the paper (see shade) and reflecting green (see flash)

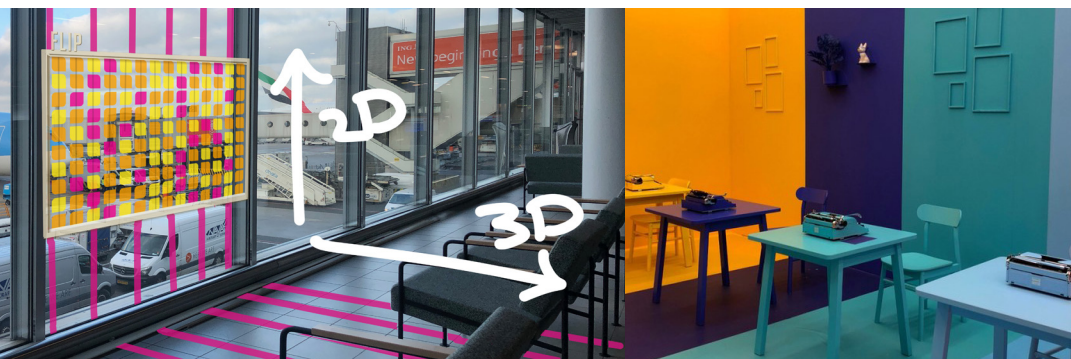


Fig. 59 - An example of how FLIP could involve the gate area (WONDR museum, 2019)

Aesthetics

The colors of the tiles are already chosen in the filter design (section 4.4.2). Something different is seen from different perspectives as is visualized in figure 57. Passengers looking at it from sideways will mostly see orange, because this color rules out the other two. When passing by or coming closer, they will see all of the sudden that there are multiple colors. The dichroic filter also changes of color when the perspective changes, and since the reflected color and the filtered one are opposites, they also change. This is shown in figure 58.

Further research needed

A few elements of the aesthetics of the concept still need to be tested in the final user test. The first is to discover how strong the effect of the window filters are on the lighting conditions around the concept. It is not yet tested how passengers feel about actually changing the lighting for other passengers (experiment question 3 on page 83). This was an important question because it was part of the design direction that passenger could change or create the lighting themselves. It is expected that other passengers will not notice a difference as the impact on the overall lighting conditions will be minimal for the dimensions of FLIP. The gate will not completely become orange when all tiles are flipped to orange, because there is a lot of daylight coming through the other windows that compensates. Only if multiple windows would become orange the lighting conditions actually change into orange.

The second element that needs more research is whether FLIP triggers enough to let people interact with it spontaneously (research question 4 on page 84), and to interact with it for a longer period of time. It should be tested if this is needed to actually make passengers feel better as it could easily be that only interacting with it for a minute already has the desired effect. A trigger could be to involve the floor or at least more space inside the gate. This is also seen back in the results of the field trip to the WONDR museum, where they involve the complete room to trigger and enhance the experience. How this can be done is visualized in figure 59.

Materials

The tiles will be made from transparent clear Perspex, on which the window filter is placed. Perspex resembles glass; it is strong and firm, but most importantly highly transparent. This is done for maintenance purposes as the filters can be changed easily and they function as a protective layer as well for the Perspex. The most important material of the frame is wood because it is a gentle, natural material that can be very strong. Wood can be found in the table of desired product characteristics, shown in section

4.4.1., because it was found during the field trip to RTH and EH airport that wood is experienced as a warm material. The ideation session even identified a need for more nature in the gate. The same wood and steel will be used as the armrests of the chairs at the G-pier to fit the current design. The collage in figure 60 shows the materials used at the G-pier.



Fig. 60 - Materials used in the current design of the G-pier

Lighting design

As was seen in the feasibility test of the window filters in section 4.3.6, they work best on a sunny day. However, the Netherlands knows a lot of cloudy days and flights also depart in the evening when it is dark outside. It is therefore decided to strengthen the effect of the filters by implementing an extra light source in the concept. For this reason, Tom Bergman, a former Philips researcher and current Light Designer, was contacted for advice and inspiration. He is currently working on a project for the Nationale Denktank (2019) that offers dynamic lighting designs, that are based on transitions in nature to relieve people from stressed feelings. See figure 60 for one of the designs of the project Verlicht (Nationale Denktank, 2019). The transitions of the dynamic lighting make the object pleasant to look at while it does not bore the observer, Tom refers to this as 'boeiend maar niet vermoeiend' (Literally translated: fascinating but not tiring). The need for a hint of mystery and complexity in a coherent whole in order to be liked is already explained and goes up for lighting as well that stays interesting by implementing a mysterious 'twinkle'. A twinkle is an outlier in color or brightness. Light also has a relaxing effect which is proven by Oosterhaven (2017) and van Ommeren (2019) who state that watching to a light instrument for three minutes lowers the heart rate and increases tranquility.

Together with Tom, research has been conducted to what kind of lighting would suit this concept best to make it mysterious but pleasant at the same time and to strengthen the daylight during a cloudy day and replace the daylight during nighttime. Different types of lighting were tested and combined with colored Perspex to see the effect they had on each other. It is decided to implement high power LEDs with small lenses in front of them in order to create light bundles for each row of tiles. When a bundle reaches a tile, it gets reflected a little. This makes it possible to actually 'catch a light ray'. The LED's are programmed to twinkle from time to time, which means in this case that they differ fluently in brightness and thereby become dynamic and diverging. These fluent transitions in brightness can be perceived from all perspectives and distances, but with different patterns as the tiles might reflect in different directions, see figure 62 for a top view visual of some tiles.

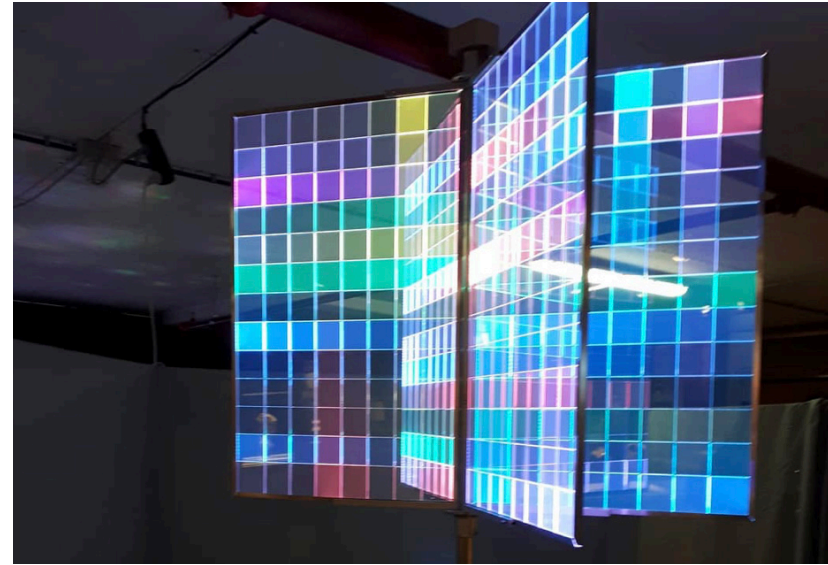


Fig. 61 - 'Verlicht' of Tom Bergman at the Dutch Design Week 2019

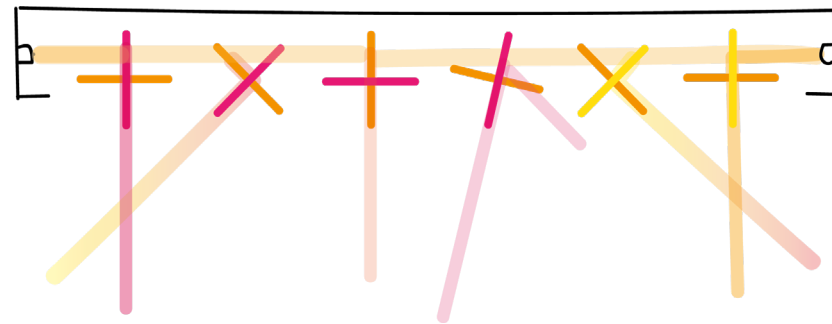
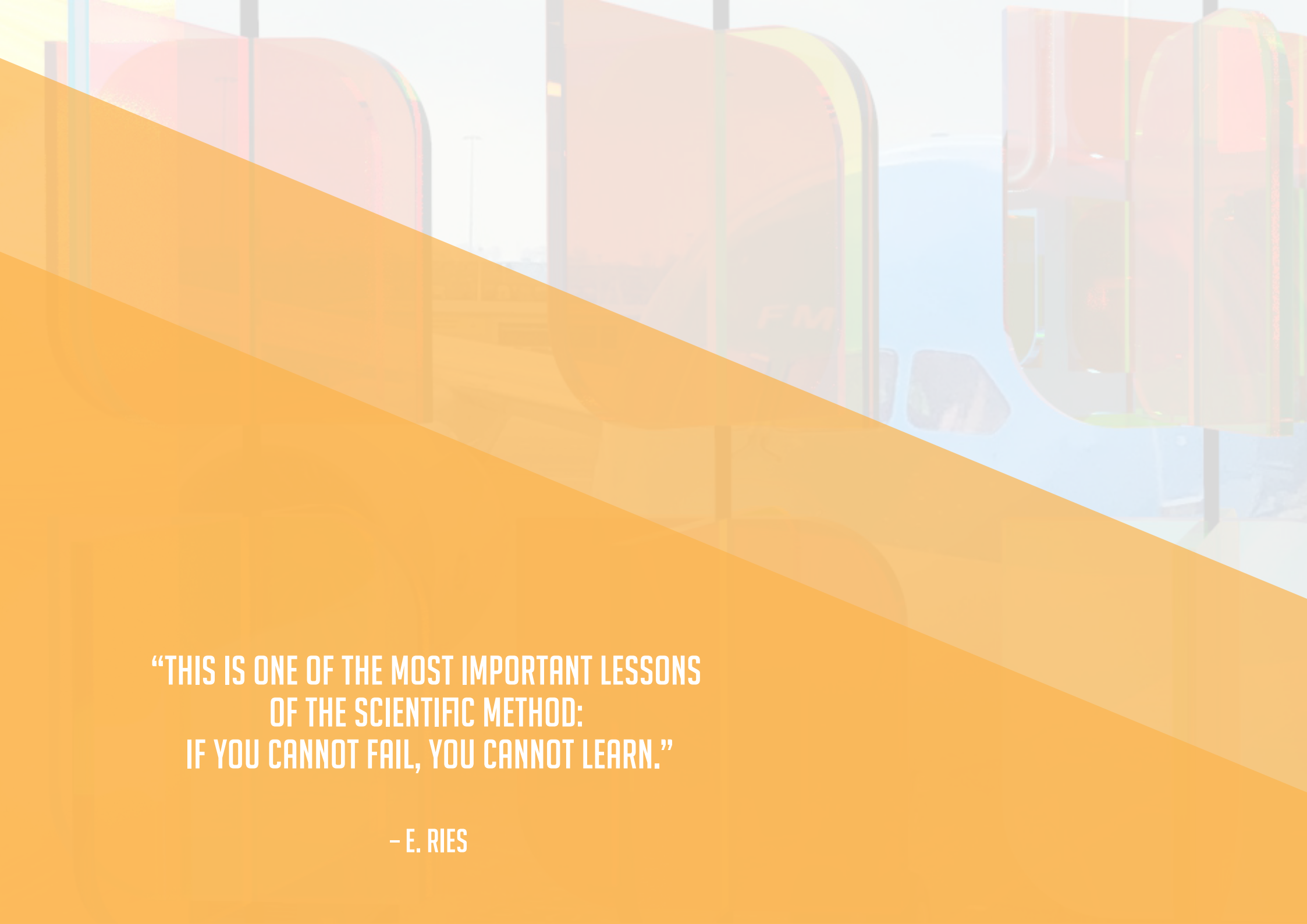


Fig. 62 - Top view of reflections light bundles

CONCLUSION IDEATE & ITERATE

The aim of this section was to find out how the desired interactions can be evoked. This has been done by evaluating the effect that five different design interventions had on the current interactions and by iterating on the developed ideas to specify into one concept. This concept is named FLIP and includes all the elements of the design interventions that evoke the desired interactions. In the following chapter, Demonstrate, FLIP will be tested with passengers in the real context by means of an experiential prototype, in order to evaluate whether all the desired interactions are actually evoked and to improve the concept and deliver a final design proposal.

The background of the slide features a blurred image of a train, possibly a high-speed rail, with a large orange diagonal overlay that covers the bottom half of the frame. The train is white with blue and red accents, and the letters "FM" are visible on its side. The overlay is a solid orange color that tapers from the left side towards the right.

**“THIS IS ONE OF THE MOST IMPORTANT LESSONS
OF THE SCIENTIFIC METHOD:
IF YOU CANNOT FAIL, YOU CANNOT LEARN.”**

– E. RIES

5. DEMONSTRATE

In this final phase the main goal is to be able to answer the research question: Do the desired interactions improve the state of mind of the departing passengers and thereby reduce the perceived length of waiting time? Proving the desired interactions and the effect of FLIP on the passengers is done by making, testing and evaluating an experiential prototype. The results of this user test indicate what needs to be improved before proposing a final concept that evokes the desired interactions and positive emotions. The final concept proposal and recommendations for further design will answer the main research question of this project: How can the perceived waiting time be reduced for passengers departing from the G-gates of Schiphol? The final chapter will cover the main conclusions and limitations of this project.

This chapter includes:

- 5.1 Experiential prototype
- 5.2 User test
- 5.3 Expert review
- 5.4 Final concept proposal
- 5.5 Recommendations

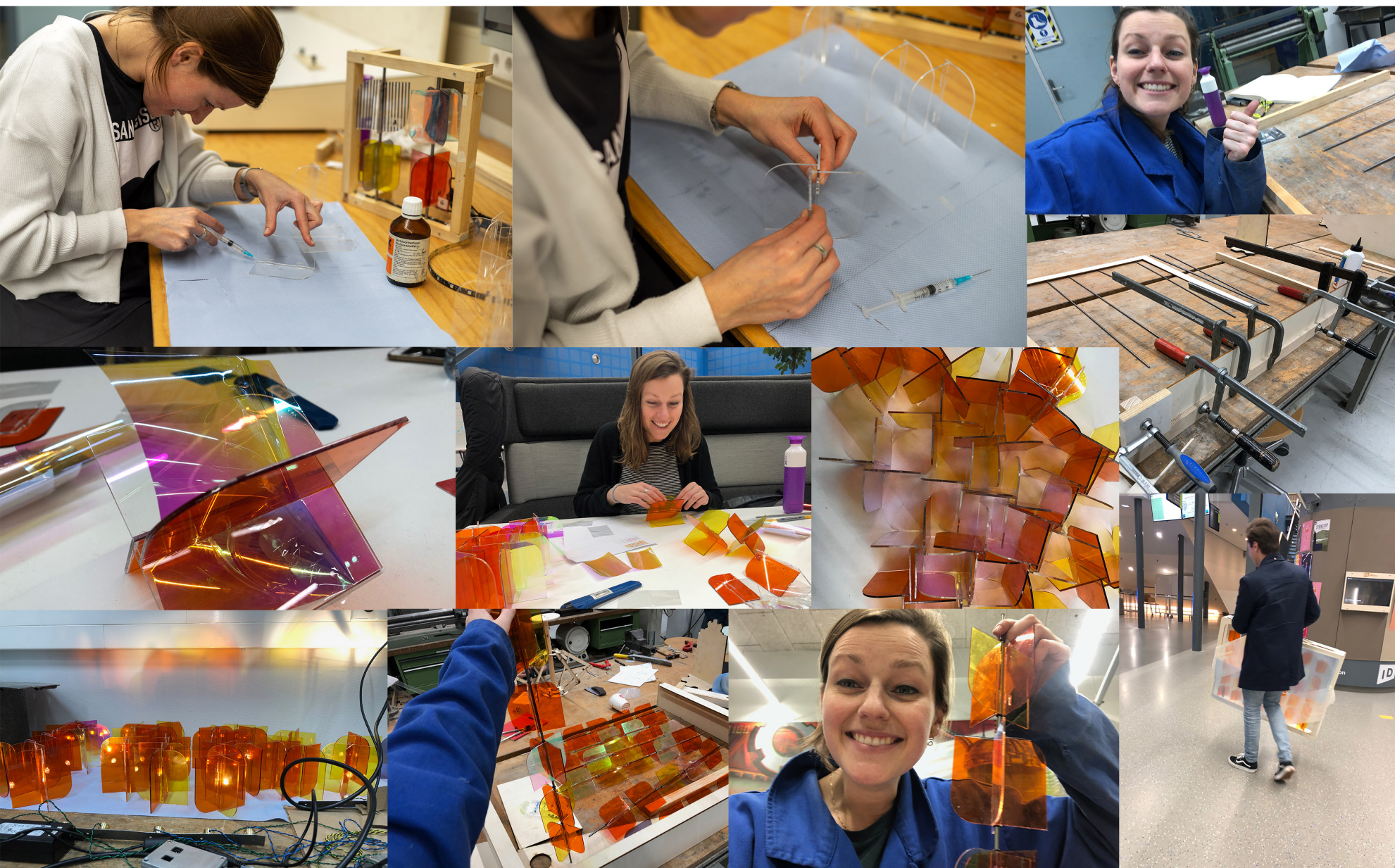


Fig. 64 - Building towards an experiential prototype

5.1. EXPERIENTIAL PROTOTYPE

A prototype construction plan is made to make sure all materials are correct sizes and shapes. See figure 64 for the building process. It was decided to make a scale model (1:4) due to time and budget constraints, but also because it was not needed for proving the interactions. The materials used for the prototype are:

- Transparent clear Perspex is used for the tiles to check its suitability for the final proposal. The tiles are laser cut and melted together using a plasticizer as shown in figure 64. This way, it was possible to run the tiles through an axis and let them rotate easily.
- The axes are made from round shaft steel to be 'idiot proof'.
- The frame is made from poplar plywood and spruce wooden beams. The frame is sanded around the edges to make it soft and gentle, but also to fit better the shape of the tiles.

- PVC window filters are cut out and placed on the Perspex tiles, after these were plasticized.
- The high-power LEDs with lenses are made by Tom Bergman. They are placed inside the frame at last.

Figure 65 shows the experiential prototype throughout the day. Figure 66 shows detailing of the prototype. In these images it can be seen that the lights are reflected by the tiles when they are in a certain angle and also that the lighting conditions are different with an external light source. In figure 66 the reflection of the dichroic filter is shown, just as the effect of the filter with daylight coming through.



Fig. 65 - The prototype in different situations (day no light, day with light, night with light)

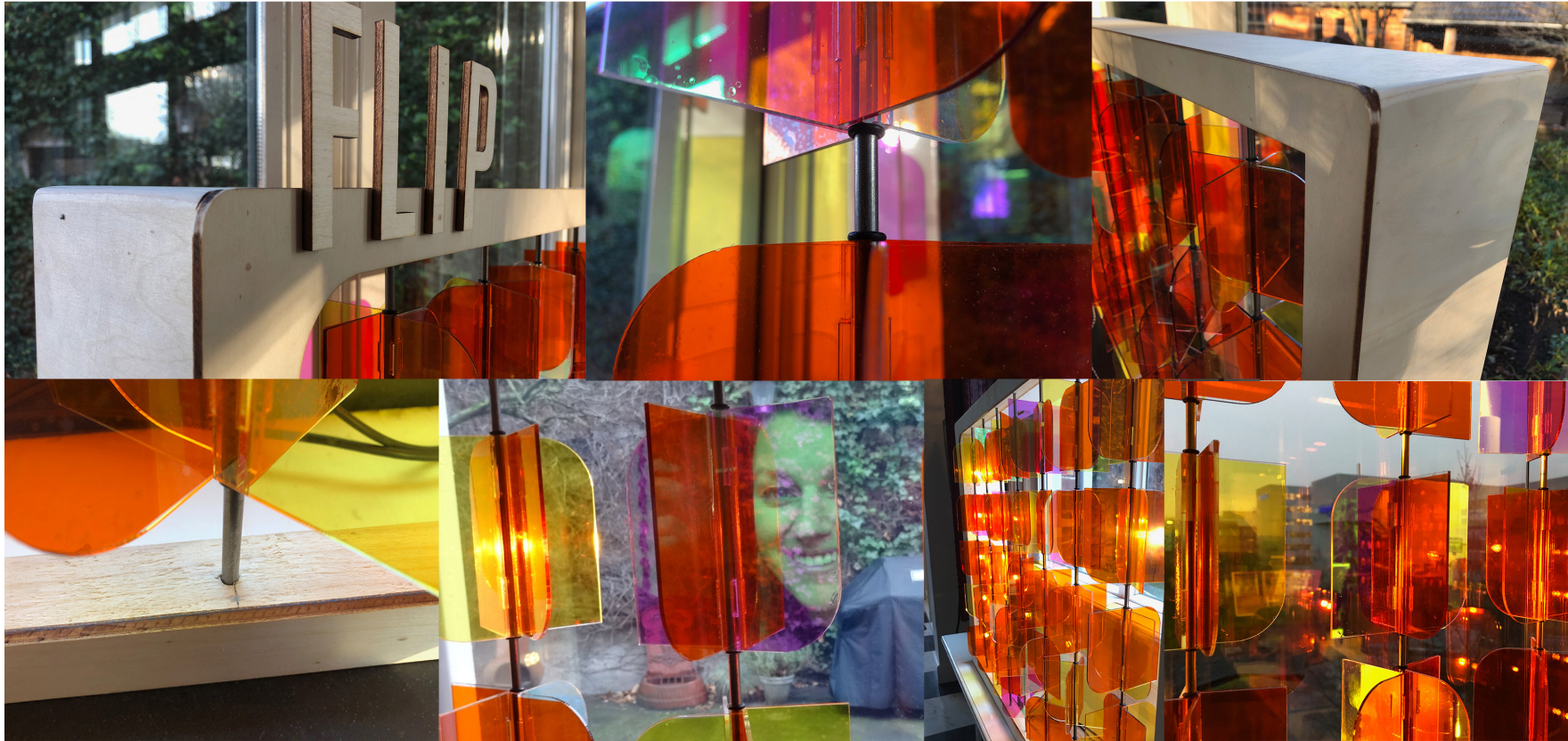


Fig. 66 - Detailing of the prototype

5.2. USER TEST

The experiential prototype of FLIP is tested with passengers departing from the G-gates of Schiphol, in order to determine whether the concept works as assumed in the proposal, and to identify improvements that need to be made in order to evoke the desired interactions and emotions.

User test questions

The main goal of this user test is to answer the research question:

Do the desired interactions improve the state of mind of the departing passengers and thereby reduce the perceived length of waiting time?

To be able to answer the research of this user test, multiple sub questions are created.

1. How do passengers interact with the concept and how do they experience it themselves? Does this align with the desired interactions and emotions? What further improvements need to be made?
2. What are strengths and weaknesses of the concept? With a special focus on: does the concept need another trigger to interact?
3. Do the interactions with the concept reduce the perceived waiting time? Does FLIP enhance a 9+ experience?

It is not a goal of this user test to measure an improvement on the NPS, as explained in section 1.1.2, but to measure in what way it will contribute to a 9+ experience of the passengers.

5.2.1. METHOD USER TEST

The user test is conducted on Friday 24th of January at gate G-08 during daytime only. Two flights have departed within the time frame of the user test. This allowed for conducting two types of tests. For the first test passengers are asked to join a prototype test during which they are interviewed and observed by the researcher. For the second test, passengers are observed who interacted spontaneously with the concept while the researcher was hiding. It was not possible to conduct interviews with all

these people as they quickly proceeded with boarding, but also because intervening could reveal the presence of a host or guide towards other passengers in the gate. A third test is conducted in another Gate without the prototype to measure passengers' Gate experiences and indicate how the 'basic situation' feels like. This is actually already what is found in the passenger analysis in section 2.4, but is measured once more to allow comparison with the FLIP experiences. This is not a so called zero measurement that compares an unimproved situation (0) with an improved situation (1) but that compares an unimproved situation with the improvement. Therefore, conclusions can be drawn about what FLIP contributes to the basic situation, but not about how it completely improves the basic situation.

This user test covered qualitative research only, since the primary focus is on identifying interactions instead of quantifying them. The complete set-up stimulated open thinking and discussion; participants are encouraged to think out loud and say everything they want. The prototype was accompanied with the explanatory poster shown in figure 67. 10 interviews are conducted with direct users, of which one couple interacted spontaneously, and 1 interview is conducted with indirect users. Other non-users that are approached for questions only, declined an interview. The complete set-up and survey can be found in appendix P.

The user test executed the following steps;

- The test started with passengers rating their own emotional state and waiting experience by a five-point valence scale, see figure 68.
- Then, passengers are asked to interact with the prototype for a while and think out loud. Non-users were asked to look at the prototype.
- After the interaction, passengers are asked about their experiences with the concept. A five-point scale is used as a means to start a conversation about their experiences. The scale is inspired on a marked Semantic Differential Scale and Five Point Likert Scale. Varying from 'not...' to 'very...' as shown in figure 69. Most interactions are negative on the left side, like not excited, but some others are positive on the left side like not bored. This was done on purpose to stimulate

participants to actually think about it. They were also specifically asked to whether they were distracted too much and needed a notification for boarding.

- After the interview, the passengers rated their own emotional state and waiting experience again, on the five-point valence scale.
- The test finished with passengers explaining more about how this concept contributed to their waiting experience and whether it improved their perception of waiting time.



Fig. 68 - Five-point scale emotions used in the user test

	1	2	3	4	5	
Not excited	•	•	•	•	•	Very excited_____
Not warm	•	•	•	•	•	Very warm_____

Fig. 69 - Five-point scale of experiences during interaction

Participants

The destinations of the two departing flights were Curaçao and Tokyo. Participants for the user test were randomly approached while they were waiting at G-08. Their reaction to the approach revealed whether they were stimulus avoiders or seekers. Stimulus seekers were then asked to join the prototype test and avoiders were asked to join an interview only. The participants had different ages (as shown in the icons at the right) and were different types of travelers: TRF, OD and business or leisure. Different origins were: the Netherlands (4), England, France (2), Japan, Russian, America and Argentina.

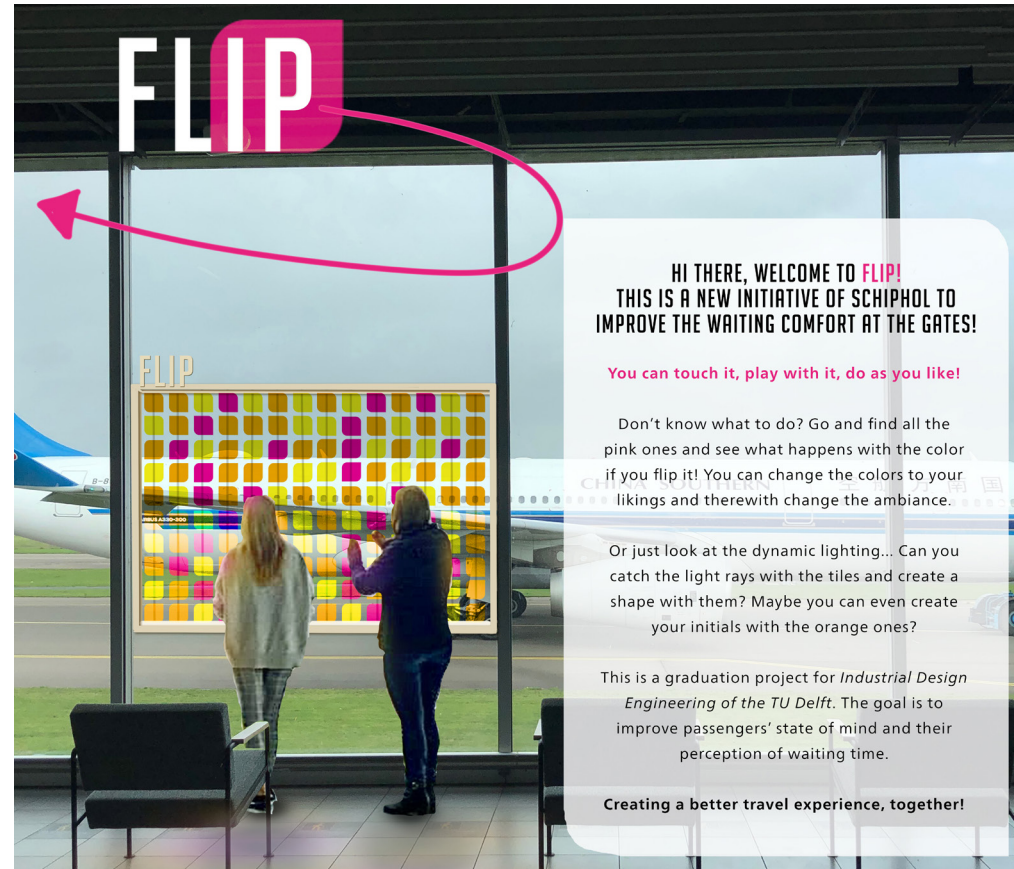
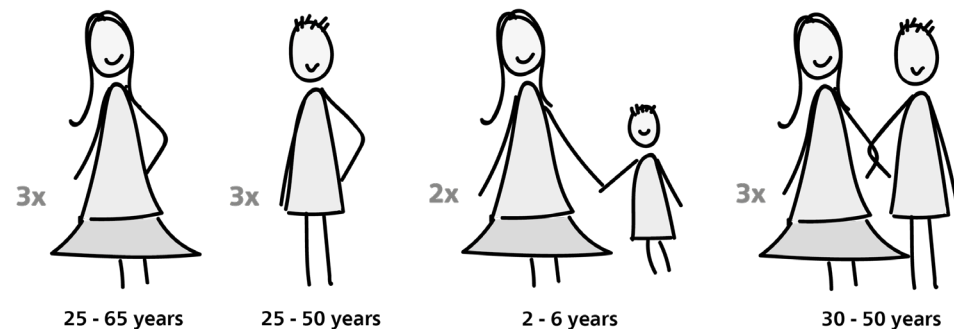


Fig. 67 - explanatory poster of FLIP



5.2.2. RESULTS

Some interesting findings and quotes are placed in the visual in figure 70.
They will be discussed more elaborately in this section.

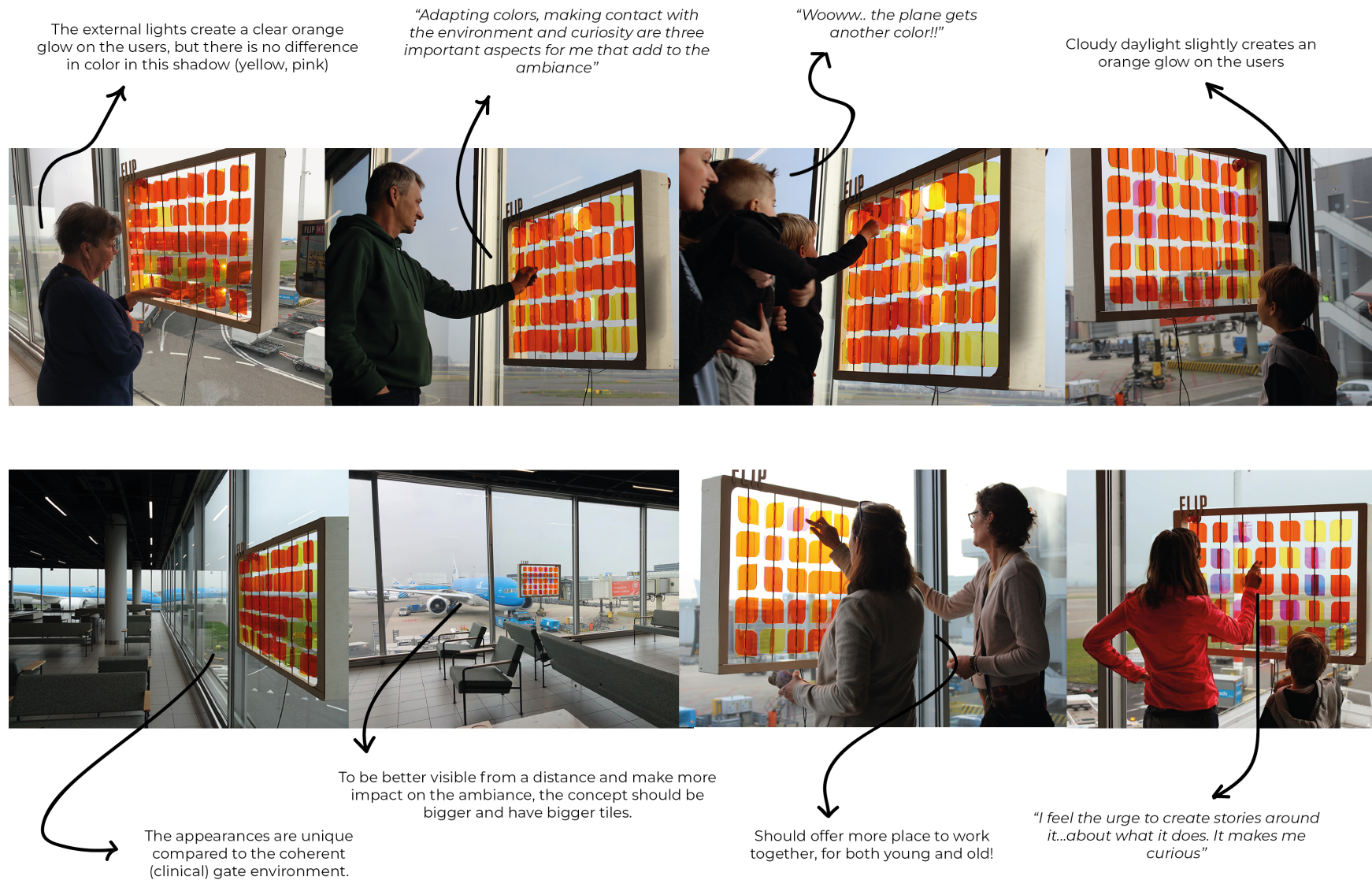


Fig. 70 - Observations and quotes of the user test

Interactions and emotions

The five point scale in figure 70 shows the scores that passengers gave to their experiences of FLIP (yellow) and their experiences of the gate without FLIP (grey). The scale is adapted to have every positive result at the right side. Most positive interactions and emotions that FLIP aims to enhance all score above 4, except for personal and dreamy. Functional is rated lowest but is still neutral, this definition is misunderstood throughout the test. The results from the interviews, for which this scale was a means to start talking, is discussed below.

Enchanted and amused (excited)

- The concept gets attention and evokes excited interactions because of its novelty; people are curious to what this 'new thing' is: *"Excited be-*

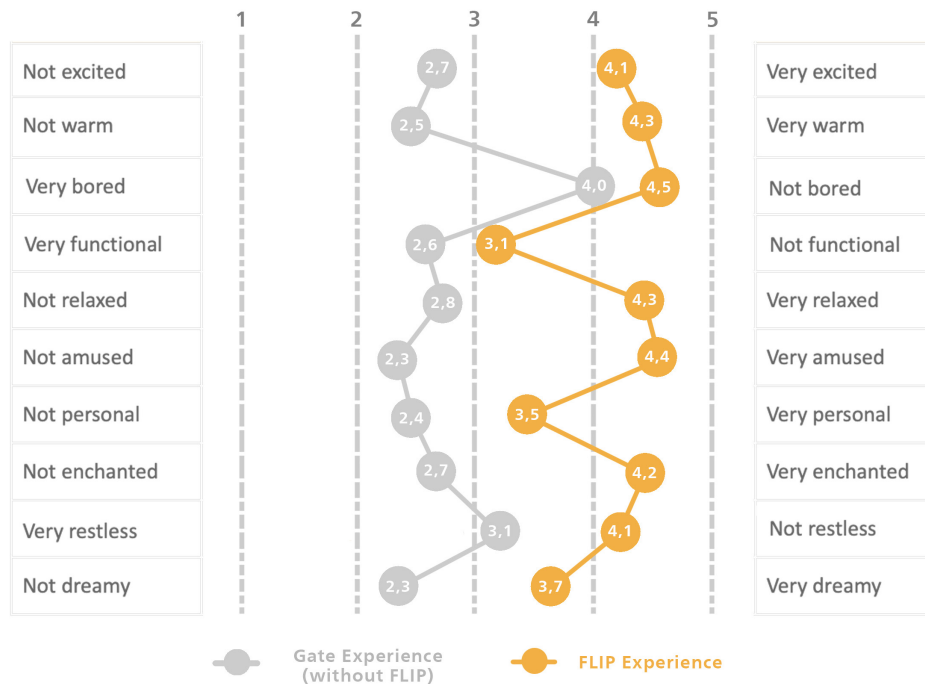


Fig. 71 - Results of the five-point scale about interactions and emotions (left negative, right positive)

cause I really like innovation. This concept is something new and never seen before, I really like it." *"It's the first time that I hear from something like this and I really like that!"*

- The concept connects with the outside world. The tiles are used to *"see life in colors"* and to *"see the world from another perspective"*. *"I see it as how you can look to the world in another way"*
- Passengers are excited about changing the colors and about the different effects they have. It amuses them to see what happens. *"well, it's definitely excited to play with!"* *"The most excited is that the colors change"*
- The glassy and shiny look of the tiles adds to the excited appearance and evokes enchantment.
- The interaction with the concept is noticed by other passengers at the gate who amuse themselves while looking. *"I saw it briefly from a distance and I saw someone playing with it, it intrigued me"* *"Seeing someone busy made me so curious, what is this?"*

Implications

- Passengers only interact excited within the first 20-30 seconds. After that, they have seen the mechanism and effect of the filters and quit playing. Maybe they expect something else to happen. The concept should have more functions and features to trigger and make it more enchanting and amusing and extend the interaction: *"It could be more functional, if this changes but it also tells you something. For example, if you can make letters or signs..."* *"If I were you, I would add some more functionality! Something with movements and light, or catching wind"*
- Some passengers were disappointed that there were only three different tiles. They were searching for other colors and effects.

Relaxation and dreaminess (relaxed)

- Interacting with the concept gives rest to the mind through the soothing activity of exploring colors, using their senses and touch something in the environment. It is even associated with doing meditation. *"It would also be suited for doing meditation, focusing on it and*

being immersed.” “You can put your energy in it, like stroking a cat.” “Interacting with it brings you back in the here and now”

- Parents become more relaxed if their children have something to do. Of all people, children need distraction the most. “For children this gate environment is extremely boring”
- FLIP is a moderate distraction. People who sat with their backs to it, did not notice it. However, passengers that walked by or could see it from their seat were curious and kept on looking or even approached. “I did not notice it really, I sat with my back to it. If I sat next to it, I would look at it and wonder what it would be.” “The colors get you, but not too much, it was not disturbing but more dreaminess.”
- Most passengers will not forget about boarding as it does not immerse them much into the interaction. For the same reason the emotion ‘dreamy’ scores relatively low. The concept should immerse passengers some more. That could already change when it gets bigger and when the lights are working. “I will not completely merge into this concept to forget about boarding, no... The plane will not just leave. I will notice when it gets quiet here.” “I might forget boarding if it is very big, so then a notification would be nice.”

Implications

- Some passengers want a sign when boarding starts while they would not forget about boarding themselves; they just want to be sure.
- Not every passenger becomes relaxed through the interaction. Some are still thinking about boarding or are not interested in flipping the tiles for longer than a couple of seconds.

Improving the ambiance (warm)

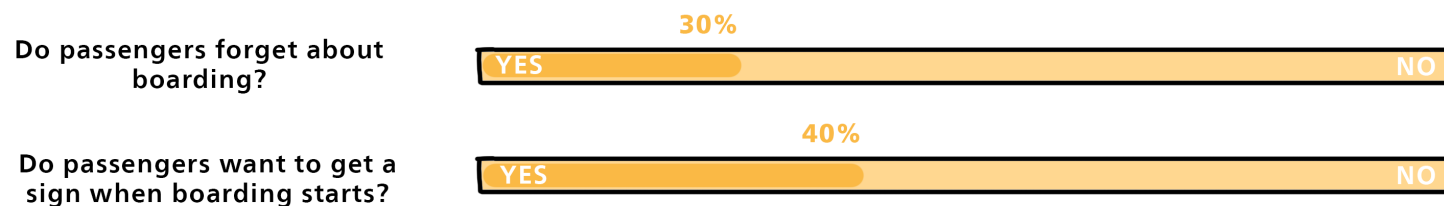
- FLIP contributes a lot to the ambiance through its unique and bright colors that are striking in the relatively boring gate area. “The colors really add something to the ambiance! It looks very slick!” “It is disruptive and that’s what I like” “With this thing the gate is definitely less boring! Because everything is the same color, so this stands out”
- The concept should make more use of connecting passengers. The lights of the concept and reflections of the tiles could help with that as they ‘reach’ others. Also, the concept should provide enough space for multiple users, and especially children, to connect. “This would be more fun with other people, but I am alone” “This works not only to let children learn, but also as a means to let them make contact”.

Implications

- FLIP only adds to the lighting conditions when being close, as can be seen in figure 70. The effect of the colored light coming through the filters is clearly seen at the users face and hands, but it fades quickly. “When it is sunny, I really think that it will be warm light even more, while it is already nice and bright.”
- From a distance of more than 20-meter FLIP does not improve the ambiance a lot, especially when there is no sun and the lights are off. A bigger size should have more impact.

Making and modifying something (personal)

- The concept feels personal because people can leave something behind, but also because of preferences in style. “It’s personal because we can do our own art.” “It’s personal because someone may like it and someone else might not.”



- Passengers felt the need to change the tiles to their personal preferences. This made them more connected to the environment and feel at ease about the ambience. *"I would like to change the colors, make it more chaotic because I don't like repeat / structure" "It's a shame somebody all changed them to orange, but that makes it personal."*
- Children do not need an assignment; they just touch it, look through the tiles and entertain themselves for a couple of minutes.

Implications

- People were not always sure what they could do with it because of the loose cables. This also made them think it was to charge their phone. They touched it to explore the effect. *"I thought it was something with electricity, because of the wires. Would be better without them."*
- Nobody actually made a shape or letter. The concept should be accompanied with rules or explanation to inspire passengers to make something, but also to give a tip about the secret message. Nobody found the heart of FLIP during the test. *"I would definitely play with it, but I would need some explanation of what I could do with it."*

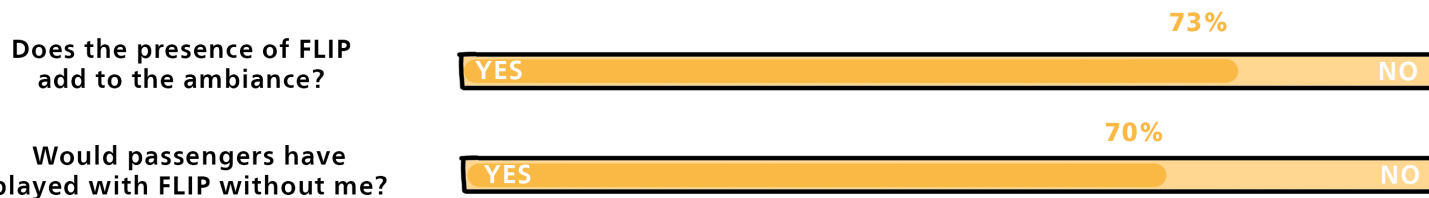
Trigger to interact

- The concept looks touchable, playful and rotatable: *"I also want to play with it!!!" "It is really clear that you can touch it, also because of the name FLIP"*
- The concept draws attention and makes them curious. Three couples, one girl and one single man interacted with the concept spontaneously for around 20 seconds. 70% of the interviewees said to have interacted with the researcher asking them to. *"When I arrived, I immediately saw it and it intrigued me" "I saw it briefly from a distance and I saw someone playing with it, it intrigued me"*

Implications

- Only children actually play with the concept for a while. Adults explore the concept and modify some things. The concept should hang lower for children to play with. *"Especially for children it is very nice, you should hang it lower for them!" "I would only look and try something"*
- The concept is associated with different products that have a more functional purpose. It might be that passengers are disappointed when it does not have a function. *"I associate the shape with a wind-catcher" "Maybe it is some sort of Luxaflex?" "Or to generate power?"*
- The concept should be bigger or there should be more versions at one gate to offer multiple passengers a playing opportunity at the same time. *"Because it was occupied, I didn't even think about going there"*
- From a distance it is not clearly seen what it is. People should be able to see that they can interact with it. *"Oh, now I see that there are two colors, even more! And you can adapt them."*
- Children don't really think about whether they can touch it or not or what they can do with it. They may even hang at it. The concept and structure should be more childproof.

Other strengths and weaknesses are feasibility of the design. The tiles could be bigger to make it easier for children. The orange filter is very dominant, so there should be less orange in the redesign. Also, the heart that was hidden in this concept, as shown in figure 72, was not noticed by any of the participants. None of the participants had used the prototype to make a shape or a letter.



Improving the perception of waiting time

- Interacting with the concept makes passengers feel better, as seen in figure 73. Observation shows that they are more positive as a result of the interactions, but also because they were distracted from the waiting time. *"I feel better because waiting was more fun, the whole experience was better than in a normal gate."*
- Interacting with the concept improves the waiting experience, because it fills the time of the passengers with doing something fun. *"Waiting is not fun I don't like it, but this thing keeps me occupied." "The waiting time feels shorter, and it makes us think of something else then our travel. We like to do something. My son really likes it."*
- The concept received an average grade of 8,1 out of 10.

Implications

- Passengers were bored before but not anymore after the test. Some were not sure if this was the result of joining the interview or playing with the concept. *"I don't know if I feel better because of playing or because I was very bored. But now I am not bored anymore."*



Fig. 72 - Pink heart in the concept

5.2.3. DISCUSSION OF THE USER TEST RESULTS

This section will discuss the findings of the user test and converts these into conclusions by answering the research questions of this test.

1. *How do passengers experience the concept and does this align with the desired interactions and emotions? What further improvements need to be made?*

Overall the concept received very high scores for all positive interactions and emotions, especially when comparing it with a basic situation, as was seen in figure 70. An outlier for the gate experience without FLIP is bored, as it was expected that this would have a lower score. This can be explained by the fact that passengers are 'fine' with their situation and that they are not able to reach underlying thoughts and feelings when filling in a small survey like this. Nevertheless, the low scores for the positive experiences still indicate a need for improvement. The clear scores of the FLIP experience contribute to that matter, by being something very excited, warm, relaxed, amused and enchanted, and moderately personal and dreamy. When taking into account the model of complexity and coherence, these scores indicate that FLIP could eventually result in a higher liking of the environment.

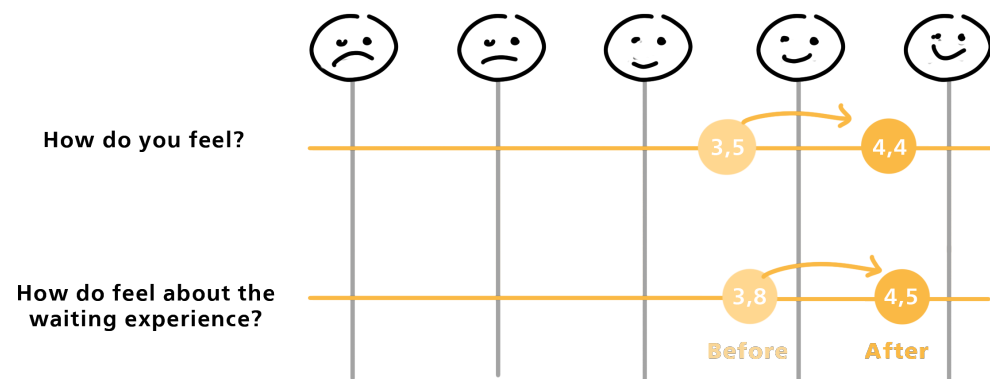


Fig. 73 - Improved scores for emotional state and waiting experience

Outliers for the FLIP experience are functional and personal. An explanation for their neutral scores is that the participants had different associations with these words. Some thought functional was about the functions of the concept instead of the feeling of an environment, and they disagreed upon whether art has a function. Personal was understood as being personally attracted to it versus making something personal. Nevertheless, it is seen that the Gate experience without FLIP is more functional and less personal, indicating that FLIP could still contribute on these two aspects.

The innovative mechanism of FLIP with special effects and adaptable colors led to **excited** interactions that made people **enchanted** and **amused**. The design is playful and unique and thereby offers variety to the gate environment. As the model of Kaplan & Kaplan already expected, this 'complexity' increased the liking of the 'coherent' environment (1989). According to this user test, innovation can be added to their definition of complexity because the novelty of the concept evoked excited interactions. It was something participants had never seen before and that increased their liking of the environment. The prominence of the concept and its unique colors evoke excited interactions but also curiosity with a lot of passengers which is an unexpected but positive effect. This contributes to the research of Han (2013) because the unique colors indeed stimulated positivity in the form of excited interactions and curiosity.

The concept evokes **relaxed** interactions and evokes relaxation as an emotion, because people find a soothing occupation in using their senses. The activity eases their minds, especially for parents of little children who have a care less if their child gets distracted through playing. To become even more relaxed, the concept should be immersive and require more attention. This should be weighed carefully against not forgetting about boarding and not distracting others from tasks they want to perform. A more immersive redesign should include a notification for boarding.

The improved **warm** ambiance makes passengers more positive and excited, but it was assumed that it would make passengers more relaxed. This might be because the bright colors of FLIP have the most impact on the ambiance in this test instead of the changed lighting conditions, which is

needed to relax (Wessolowski, 2014). It is found that the changed lighting conditions are only seen nearby the concept. When this effect gets bigger, passengers might become more relaxed. Also, when the lighting design from Tom Bergman does its work passengers will become more relaxed. Both improved functions will also lead to a further reach of the improved warm ambience. The concept connects to the outside but could also connect to the inside and other passengers to enhance warm interactions.

Some passengers experienced the concept as **personal** because they could create their own thing, which will only increase with a bigger design and more tiles. Also, passengers felt the need to change the concept to their personal likings until they felt at ease. Doing so, connects them more with the environment. Other passengers thought this concept was personal because you have to like the style and the colors. Although understood differently, most answers have positive emotions as a result. The sense of place element that should make it personal, is not recognized by passengers spontaneously.

2. What are strengths and weaknesses of the design?

It was needed to discover whether FLIP **triggers** enough to let people interact with it spontaneously and to let them interact for a longer period of time. The current design is a perfect trigger for attention and touch because of its unique appearances, but it still lacks a trigger to actually play with it for a longer time for adults. The mechanism should become unique as well which can be done by implementing a more interesting function. Either the input or output of flipping a tile should be redesigned to make it more interesting. To extend the interaction, the redesign should also implement multiple different filters. Next to that, the redesign should be accompanied by a guiding explanation that gives examples of what people can do with it, as a trigger to make them play. When hiding shapes in the concept like the heart, chances are small that it will be found. By giving it as an example, it is more likely to be found and seen. A competitive element or challenge could enhance interaction. For example, by providing the passengers with shapes on a screen that they should remake as quick as possible, while their time is being measured. More research needs to be

done to how such a gamification feature can be shaped best. Making clear from a distance what the concept does, triggers even more interaction. FLIP should therefore cover more surface, have a bigger title and bigger tiles. It was already addressed and shown in an example in section 4.5 that involving the gate area some more, could also work as extra trigger.

The concept is not specifically designed for children, because it also aims to trigger adults for interaction. However, it was seen during all experiments that children are a major shareholder in the group of stimulus seekers and that they are the only ones who are actually playing for a couple of minutes with the concept. The redesign should make more use of this finding. Children can become the distraction for others and maybe even be a trigger as well. They will most likely be the main user of the concept which should be taken into account for the redesign.

The filters are now used as glasses to see life outside in other colors. Especially for children this is interesting to see and for people who want to make pictures with special effects. As already mentioned, it would be interesting if the redesign can also connect with other passengers inside.

The redesign should eliminate visible cables for better appearances and to prevent misunderstanding of its function. It would be better if the concept functions without needing electricity at all for the energy consumption and sustainability values of Schiphol. The concept could work on solar energy.

3. *Do the interactions with the concept reduce the perceived waiting time? Does FLIP enhance a 9+ experience?*

Passengers feel better after interacting with the concept. The added value of FLIP becomes clear in figure 71, where the interactions and emotions with FLIP are compared to the gate experience without FLIP. In the new situation passengers experience positivity while interacting with FLIP, even though the gate stays the same. According to the results of this user test, it can be said that FLIP reduces the perceived waiting time and improves the

waiting experience because of the distraction offered that filled passengers' time with experiencing positive interactions and emotions.

The prototype received an average score of 8,1 which is a good grade that indicates satisfaction with the concept. This grade cannot be compared with NPS and the 9 from the ambition of PX, because a different question is asked, and this grade is given about the concept instead of the complete touchpoint in the passenger journey. Nevertheless, it can be said that the prototype contributed to a 9+ experience through multiple aspects. This product stimulates positive feelings through positive interactions, thereby enhancing a positive waiting experience. Next to that, it makes the experience memorable and improves the ambience around the gate at the same time.

5.2.4. LIMITATIONS OF THE USER TEST

This user test is executed for one day, covering two departing flights and 11 participants. This can influence the results, as passengers flying to for example Moscow or Istanbul would react differently. To draw reliable conclusions, the concept should be tested for around 2 weeks, at different gates with more passengers to cover multiple different situations and passengers. For qualitative research like discovering the effect of the interactions with FLIP on the passengers, 11 participants should give enough insights. However, when testing quantitative results like done partially in this user test, with for example the grade for the concept and rating emotional valence, more participants are advised.

During the testing day it was cloudy, and because the researcher was not allowed to make use of electricity in the gate, the user test is executed without the use of the lighting design and not during nighttime. Luckily, the sun and the extra lighting can only make the concept work better than what the results show now. This also accounts for the limitation of the size of the prototype, that is in reality bigger and has a bigger effect as well. Therefore, this test is deemed sufficient to prove the minimal effect of FLIP on the interactions and emotions.

Passengers might have answered more positively because they wanted to be kind to the enthusiastic graduate. The influence of the researcher guiding the concept can be huge. Some of the participants of the test might not have interacted with it spontaneously while they mentioned otherwise. And although there are passengers who interacted with the concept spontaneously without the researcher nearby, it is still needed to conduct more research without someone guiding for a longer period of time in order to find out whether passengers will actually interact with the concept and if only that interaction will improve their waiting experience.

It is not been measured how much FLIP improved the perception of waiting time for people who did not conduct the complete interview, but only interacted with the concept (spontaneously). The interview could have influenced the results because it filled up time and distracted as well. Next to that, there are too little insights as well on the experience of the stimulus

avoiders who were solely the audience of an interaction (non-users). The only insights are from observation and one interview. The researcher did approach stimulus avoiders, but they either wanted to join the prototype test or not join an interview at all. Next to that, it was hard to distinguish stimulus avoiders from seekers, as some passengers might have joined to be kind instead of that they really wanted to do something. Making this division is now only done based on gut feeling. In short, more research needs to be done to the experiences of stimulus avoiders.

5.2.5. CONCLUSION OF THE USER TEST

The aim of this section was to find out whether the desired interactions improve the state of mind of the departing passengers and thereby reduce the perceived length of waiting time. This is answered through answering the sub questions that were set up.

The concept distracts passengers from their boredom and makes them experience more positive emotions through the desired positive interactions. Nevertheless, improvements can still be made.

- The concept evokes excited interactions and makes the passengers enchanted and amused. The colors, the novelty and the unique appearance of the concept contribute to that. The actual interaction needs to be unique as well to make sure passengers are not disappointed when interacting. Adding a function to it can make it even more excited and result in higher levels of enchantment and amusement.
- The concept evokes relaxation through stimulating passengers' senses and because it is a moderate distraction. To evoke even more relaxation, the concept should require some more attention.
- The concept has warm colors that contribute to the ambience a lot. To evoke more relaxation for more passengers, the warm lighting conditions should have more influence with a bigger surface and working lighting design. The redesign should connect to the outside and could also connect to the inside and to other passengers to enhance warm interactions.
- The concept is personal because passengers can make their own thing and adapt to personal preferences. This only increases when the concept gets bigger.
- The passengers already feel better after a very short interaction, which means that the desired effects could only grow when the interaction endures a little longer. This can be done by offering more color combinations, more tiles and an explanatory guide.
- A bigger size of the concept will have more impact on the ambience, trigger more attention, be more immersive and let multiple people interact at the same time. This will enhance all the desired interactions and emotions.
- The redesign should focus more on children as a main user. They are a part of the distraction and a trigger for others to interact as well.

5.3. EXPERT FEEDBACK

Important stakeholders within Schiphol are asked to give feedback on the concept idea of FLIP. Their feedback is analyzed, and the improvements are either taken into account for the redesign or for future recommendations. The complete feedback form and results can be found in appendix Q.

Experience

- The colors stand out in the gate and give a happy look and feel by being bright and warm, but at the same time the style should 'fit in the context' a little bit more.
- The concept should cover a complete window to make an impact on the environment and to offer more possibilities for the passengers to actually create something.

Installation

- It can only be installed at a few places and one window per gate because the sight on the next step in the journey must be visible.
- It cannot be installed in the seating area between the seats, because passengers need that space for themselves and to just 'wait and sit'.

Cleaning

- Design something that makes cleaning of the tiles easy, extra cleaning hours cost a lot of money.
- The windows and the floor 'behind' the product need to be cleaned as well, there will be a lot of dust and dirt. The redesign must be easy to detach from the window or be placed 60 cm in front of it.

Maintenance

- It will be used by millions of passengers a year and by a lot of kids. The concept should be idiot proof, meaning that it should not break through intense usage. Maintenance is expensive. The concept should be strong, sustainable and easy to maintain.
- It needs to be defined who will be the 'owner' of the product and thereby responsible for, amongst others, the maintenance and costs of cleaning.

5.4. REDESIGN OF FLIP

This section shows the final concept proposal that is redesigned based on the insights of the user test of FLIP and the stakeholder feedback. Due to time restrictions it is not possible to take into account all insights and requirements. Therefore, the last section of this chapter will cover recommendations for further design steps.

This final concept proposal is an iteration on the first concept proposal so much of the working mechanism with its interactions, technique, appearances and aesthetics are the same as explained in section 4.4.2. The highlights and some new product information is presented on the following pages. It is made clear in what way FLIP contributes to the waiting experience through a potential use case.

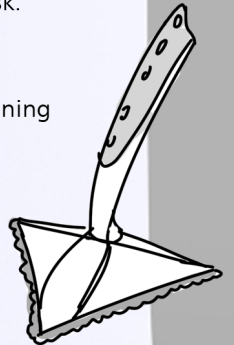
FLIP

FLIP is an interactive artwork that offers a moderate distraction and evokes positive interactions and emotions. It is an eye-catching object through which passengers can experience their world in colors. FLIP is designed to improve the perception of waiting time for passengers departing from the G-gates of Schiphol.

FLIP brightens up the area through the warm and natural light that changes throughout the day. A dynamic lighting design strengthens this effect and eases the mind. In the coherent gate environment, its unique appearance triggers curiosity and evokes excited interactions.

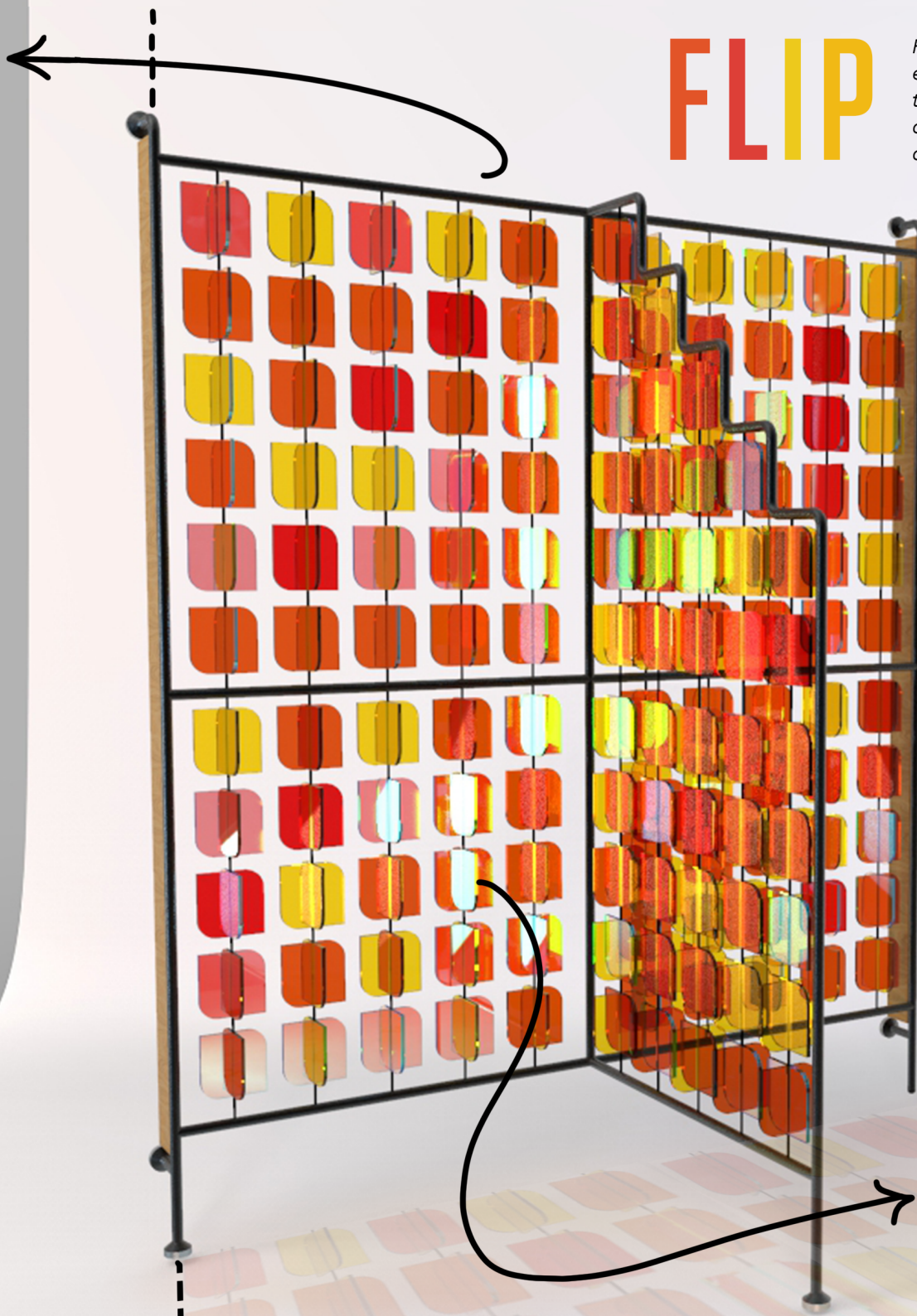
Passengers get enchanted by seeing the effect that flipping the tiles have on the colors that they perceive and the pattern they create. This makes passengers forget for a moment that they are at an airport. It's a playful and engaging distraction for young and old, without having to complete a task.

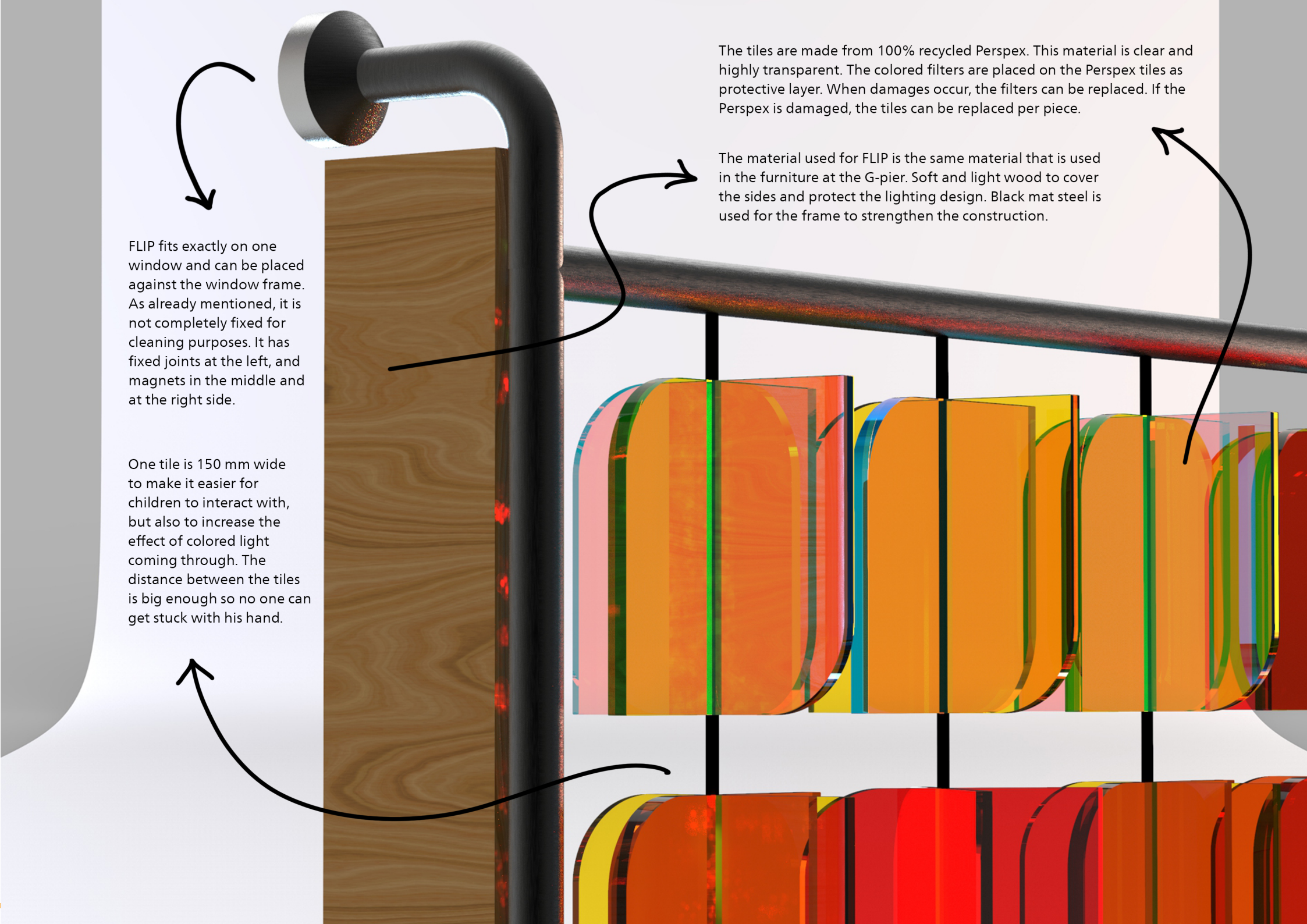
The complete product is easy to rotate aside for cleaning the window. It can be detached from the wall at the right side by disconnecting the magnets and rotate around the left axes. FLIP will be cleaned once a week with a special cleaning tool, making it easy to clean the tiles with one swipe.



The size of the artwork and separate tiles make it clearer from a distance what people can do with it. It covers as much window as is within reach for different type of passengers. Especially for children the tiles continue as low as possible.

A sensor measures the activity of moving tiles that influence the chance of creating a twinkle at that place. If a child is playing low, chances are higher that the twinkles will evolve around that playing area. The lighting design allows passengers to relax through using their senses and changing the lights.





FLIP fits exactly on one window and can be placed against the window frame. As already mentioned, it is not completely fixed for cleaning purposes. It has fixed joints at the left, and magnets in the middle and at the right side.

One tile is 150 mm wide to make it easier for children to interact with, but also to increase the effect of colored light coming through. The distance between the tiles is big enough so no one can get stuck with his hand.

The tiles are made from 100% recycled Perspex. This material is clear and highly transparent. The colored filters are placed on the Perspex tiles as protective layer. When damages occur, the filters can be replaced. If the Perspex is damaged, the tiles can be replaced per piece.

The material used for FLIP is the same material that is used in the furniture at the G-pier. Soft and light wood to cover the sides and protect the lighting design. Black mat steel is used for the frame to strengthen the construction.

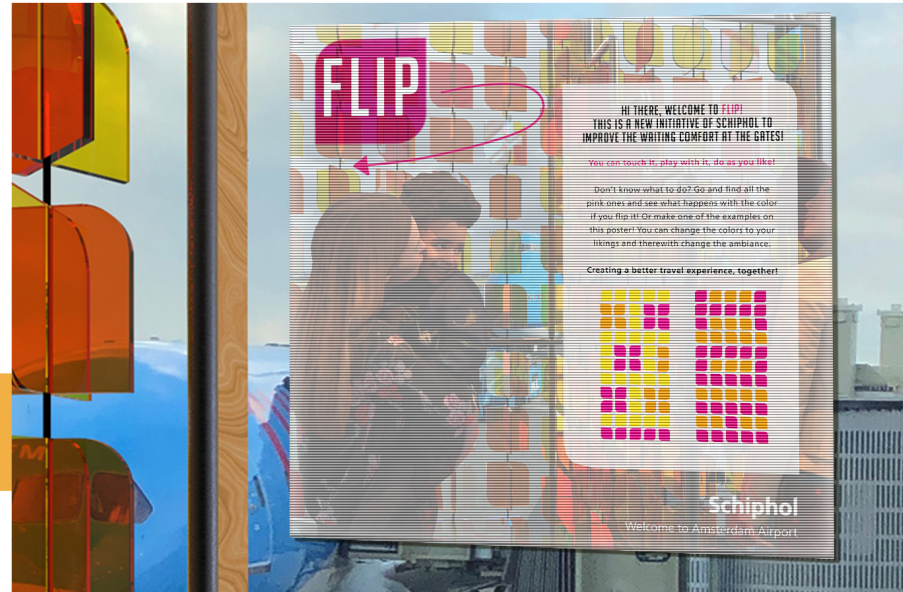


FLIP is placed on a window behind a white pole to increase the effect the colors have on the ambiance because the pole will be colored. Also, this pole already 'blocks' the view to outside, so this way the concept does not reduce the sight. Lastly, this location is otherwise not used by passengers to sit and wait. Both rows of chairs are faced towards the product.



Passengers want to and have to be able to look outside, but with the blinds down this is not possible. The window behind FLIP will not be blinded when the sun shines, because the effect will only become more beautiful when the sun hits it. Passengers can still look to the planes and make pictures if they want to, while mentally preparing for the flight.

FLIP is guided by an explanatory poster that shows examples of what passengers can make with it. This triggers an extended interaction and challenges people some more to actually make something with it. The poster functions as inspiration but is not a guideline because passengers still need to have the freedom to do what they want.



FLIP offers a playing ground for two (or more) passengers at the same time. On the one hand they are separated from each other by the T-shape. On the other hand the transparency of the tiles connects them but in a non-obtrusive and indirect way. Also, other passengers nearby FLIP can see someone else playing with it through the tiles.





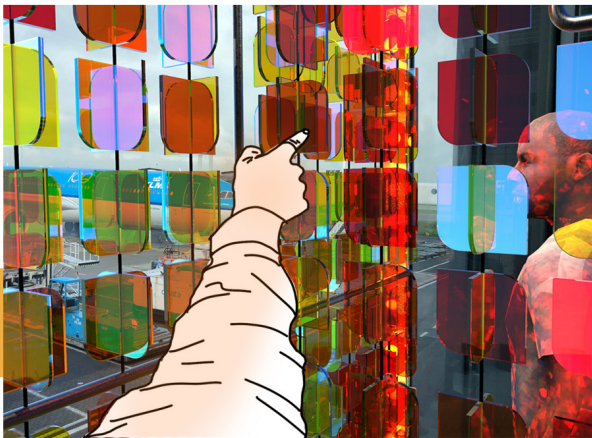
The passenger arrives at her gate and finds a place to sit. She is bored and looking around to the functional and impersonal area where passengers are behaving restless.



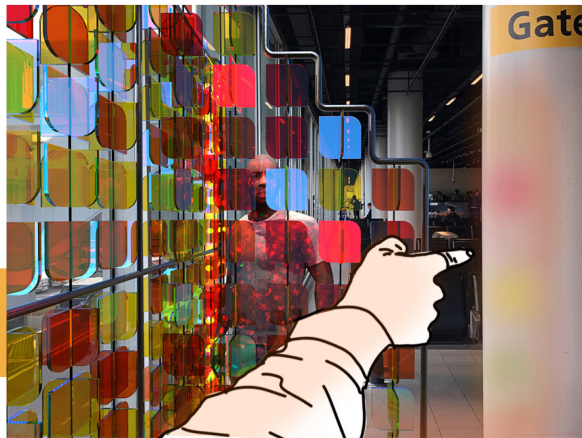
She grabs her phone and starts texting. Let's download a movie real quick, before departure. After some minutes she is done with her phone and starts looking around. *"Is there something I can do to fill my time with?"*



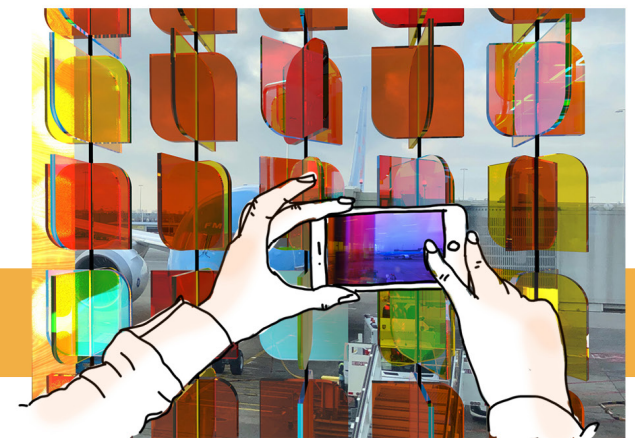
"Hey, that looks nice what would that be? Cute that those children are having so much fun..." It feels relaxed that she can stay seated while looking at the children playing.



The artwork allows her to adapt the ambient conditions by making her own pattern. It connects her with the environment. *"Alright, now I want to change them all to orange!"*



The effect of her pattern is seen around the artwork. By looking in this direction, it also connects indirectly to the other passenger(s). *"Hey look there is someone else next to me..."*



"This will be a nice photo for instagram!" She grabs her phone and makes a photo of the airplane, that can now be seen in unique colors.



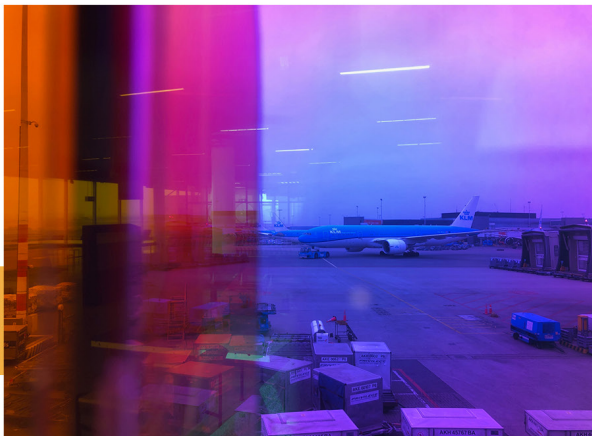
She became curious so when the children are done playing she approaches the eye-catching object. *"Wow what would this be, it looks nice! Hey there is a poster with examples, let's try this out!"*



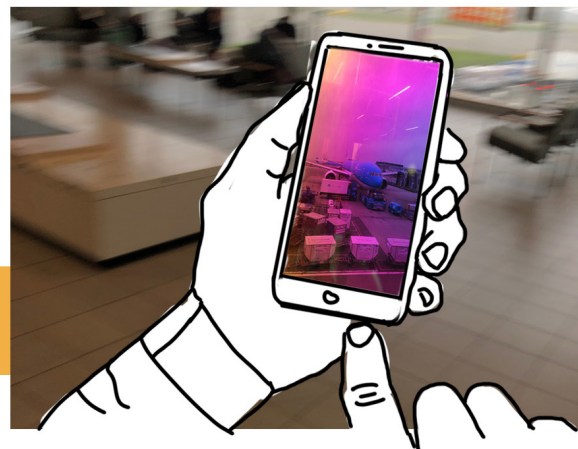
She gently touches the tiles and explores the special effects of the colors. The tile rotates smoothly around the axis. *"This is fun and easy, what shall I make?"* With the plane in the background she can prepare for the next step in her journey



The tiles are placed in another pattern, leaving a different shadow on her body. After touching a few tiles, the lights start to twinkle. *"Wow! My hand also gets another color! It seems that I can influence the lights that become brighter!"*



This is what she sees when looking closely through the tiles: her perspective on the world is now full of colors!



"This effect is amazing, almost like a special filter! Let's post this online: #byebye #Schiphol #seeinglifeincolors #thanks!"



The lighting design shuts down to indicate that it's time for boarding. She feels good and is satisfied with her picture. She joins the queue with a smile on her face. *"Time flies when your having fun!"*

5.5. FUTURE RECOMMENDATIONS

This section gives recommendations for further redesigns and proposes a continuation plan for the PX team. Due to project time restrictions, it was not possible and realistic to test everything and implement everything in the redesign of FLIP. The recommendations include findings that need more testing before implementing it in a redesign.

As indicated by the limitations of the user test and the recommendations on the following page, FLIP could go through an iterative PX cycle once more. The first cycle (figure 74) explains the extra iterations and tests that must be executed to come closer to potential deployment. The last cycle (figure 75) is the Deployment Living Lab, but shows less details since the needs to be approved (step 1) before making a deployment plan.

5. Run Test Living Lab & Measure

User test the redesign as proposed for two weeks without a host accompanying the test. This way the following aspects can be tested:

- Does the concept also work for more different passengers, including the stimulus avoiders who will mostly look to the concept instead of interacting with it?*
- Will passengers interact the same with the redesign as seen in the user test of this project?*
- Are the interactions and emotions the same or even better for different weather conditions and with the lighting design by night?*
- To what extent is the design idiot proof and needs the material or structure be improved?*
- How much cleaning does the concept need when being used intensively?*

4. Prepare Test Living Lab

Build a prototype for the redesign with real sizes that can be operated without a host and that is idiot and child proof. This prototype has to meet all Schiphol safety regulations for interventions in the Terminal.

1. [Re]Define

Define or redefine the mission challenge based on explorative research: desk research, talking to passengers and experts.

2. Strategize

Set the scope and create focus by selecting high-impact touch-points and opportunity areas for the mission challenge.

3. Ideate & Iterate

Decide upon the considerations to be taken into account and execute the proposed steps for that. For example, conducting extra research on how to re-use garbage from Schiphol and make transparent plastic for the tiles.

6. Evaluate

Evaluate the results of the user test and implement the findings in another redesign to prepare for the next phase. Also evaluate the redesign with important stakeholders (Art management, Asset management, Consumers, Operations and the architects of the Terminal. The goal is to:

- Find flaws or limitations of the new redesign (assessed from their perspective) and discuss how these can be overcome.*
- Make a decision about who will be the owner of the product and who will pay for production, installation, cleaning and maintenance. Can the design be seen as 'art'?*

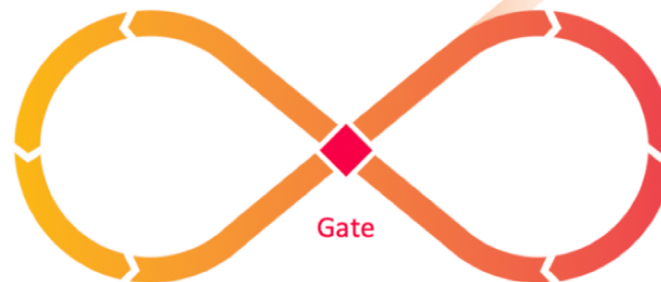


Fig. 74 - Test Living Lab cycle with recommendations

Recommendations

- Implement another extra function to make it more challenging for adults to interact for a longer time. A study must be done to how an extra and competitive function can be implemented. The tiles could have letters or lines that can be aligned and create something bigger like a puzzle.
- Include an explanatory screen instead of window sticker with examples of what passengers can make and possible even create a game or competition around it to challenge passengers some more. It should be designed carefully so it will not counteract the relaxed interactions.
- There are a lot more possibilities of what shapes can be created with these colors and patterns. An artist could be asked to find more shapes that can be made, that can also be given as example for passengers to imitate.
- Make the redesign more sustainable by for example letting it work on solar energy solely. Also, research could be executed to how transparent plastic garbage of Schiphol can be recycled and used as material in this concept.
- The concept should be redesigned even better for children as a main user group. For example, the floor around the concept should be a little softer for children to sit or kneel down safely and comfortably.

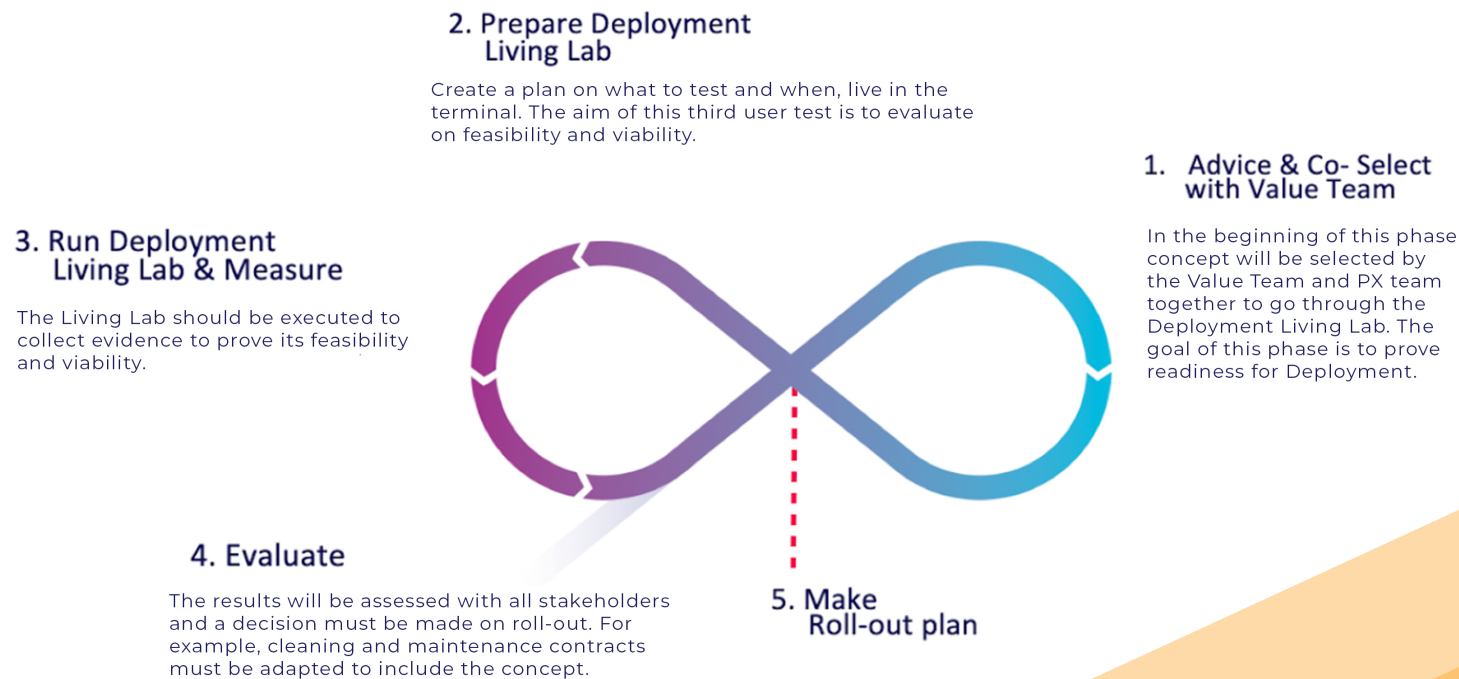


Fig. 75 - Deployment Living Lab cycle with recommendations



**“EVALUATION OF THE PAST IS THE FIRST STEP
TOWARD VISION FOR THE FUTURE”**

– C. WIDENER

6. PROJECT EVALUATION

The final chapter will answer the main research question of this project: how can the perceived waiting time be reduced for passengers departing from the G-gates of Schiphol? Before doing so, a discussion will be held on the findings gained throughout this project, indicating their relevance and relativity.

This chapter includes:

- 6.1 Project Discussion
- 6.2 Project Conclusion
- 6.3 Personal Reflection

6.1. PROJECT DISCUSSION

The aim of this thesis was to design a concept proposal to reduce the perceived waiting time of passengers departing from the G-gates of Schiphol. Literature indicates that emotions play an important role in influencing the perceived waiting time. Examples are given of certain qualities of a waiting area that evoke positive emotions and reduce negative ones. Other principles learn that waiting time must feel occupied. However, not much is known about the role of positive product-human interactions in such initiatives although these are very important in evoking positive emotions (Desmet, 2012). Therefore, this research focused on discovering how positive interactions in the G-gates of Schiphol can improve the perception of waiting time.

The current interactions are identified through in-depth research that belong to a low-load environment. This shows the need for a moderate distraction and unravels what its desired interactions should be like; excited, warm, relaxed and personal. One interaction in particular is interesting new knowledge for airport designers. This project shows that a 'personal' interaction can enhance positivity. Literature has already shown such positive effects of warm, excited and relaxed interactions. Observations of other terminals and multiple passenger analyses at Schiphol have shown the importance of implementing 'something personal' in the offered products and services at an airport, in order to make passengers feel connected and at ease. Three examples of what could improve the emotional state of the passengers are personal communication, personal space and personality in the building.

The project proceeded with testing different types of distraction with real passengers to find ways of evoking the desired interactions. These findings are combined in one concept that is tested in a live environment as well. These results suggest that the desired interactions can be evoked by a specific type of distraction and improve the emotional state of the passengers and their perception of waiting time. However, it does not mean that this is the only way of designing a distraction for the gate context and reducing the perception of waiting time. Multiple choices have been made

along the way. The most important choices are discussed for each phase of this project.

Discover

The observations during the field trip to Rotterdam and Eindhoven are executed by the researcher only, meaning that these results could be biased. The same accounts for the field trip to WONDR museum, although these findings are discussed with a fellow traveler. The reliability of these studies will increase when involving an extra observer or researcher.

It was decided to execute the generative sessions in the real context with real passengers, but as a result most of these sessions had to take place within 30 minutes due to the limitation of the departure time. This might have been too short to actually reveal underlying knowledge and latent needs. According to Sanders & Stappers (2012), such sessions should take around two hours. Next to that, it is noticed that some passengers may have joined these sessions uninspired and therefore answered shortly. This might have limited the richness of the results. It may be considered to execute these sessions with participants who are not real passengers at the time of the session. Inviting a participant to the context might be immersive enough and provide with valuable insights already. Lastly, these sessions were not recorded but quotes were noted on paper and the results were only analyzed by one researcher. Both increase the chance of misinterpretation or missing of information. To retrieve more reliable results, these sessions could be recorded and analyzed with more researchers.

Ideate & Iterate

In this phase some aspects of the experiments with the design interventions can be put to discussion. The experiments were conducted on different days with different weather conditions, different destinations of the passengers and different moods of the researcher. All these fluctuations could have had an impact on the results. Also, the experiments were conducted with a small number of participants that should be increased for follow-up research. The last experiment is conducted at Industrial Design Engineering due to feasibility of testing with the prototype. This influen-

ced the results because the participants were Design students only, who are more likely to be open for innovation. To gain more reliable and easily comparable results, all experiments should better be held with more corresponding characteristics of the test situations and with better corresponding procedures.

At the end of this phase, the design interventions are given scores through the use of Harvey Balls. This assessment is done by the researcher only, due to time restrictions and holiday season. The results would be more reliable if it was conducted with more researchers.

Demonstrate

The user test with the experiential prototype is only conducted with 11 passengers, for two different destinations and at only one gate. The redesign should be tested for longer period of time (two weeks), with more passengers (± 100) and without a researcher accompanying the test to gather more reliable results. The main goal should be to discover whether passengers will actually interact with the concept spontaneously and if solely that interaction will improve their perception of time. In this project that is measured qualitatively by asking the participants how the interaction had contributed to their waiting experience and their perception of time. It should also be measured quantitatively by comparing estimations on passed time with the actual passed time. Also, it would have been better to use either the Semantic Differential Scale or Five Point Likert scale, instead of a new approach. These scales are proven to work and using them can only increase the reliability of the results.

Earlier in this project it is assumed that the interactions between stimulus seekers and the offered distraction will function as a distraction for stimulus avoiders as well. However, due to time restrictions it was not possible to gather enough insights in the experiences of stimulus avoiders, so more research is recommended.

Lastly, it is not clear whether the perception of waiting time improves because of the distraction that is offered or because of the positive interactions that are evoked. Both are tested by means of the same concept and can therefore only be seen as one; FLIP. Nevertheless, it can be said that FLIP is a moderate distraction that evokes positive interactions and thereby improves the perception of waiting time.

.

6.2. PROJECT CONCLUSION

This project started with the question: how can the perceived waiting time be reduced for passengers departing from the G-gates of Schiphol? To conclude this thesis, this research question will be answered. This is done through answering the sub-questions that are set at the beginning of this project as well (pg. 18).

What influences the perception of waiting time?

Literature research has been done to discover how the perception of waiting time can be influenced, but also to why it is important that Schiphol improves at this point. Both indicate the importance of improving the emotions of the passengers. According to literature, this can be done by offering a moderate distraction and by implementing certain qualities in design. The external analysis shows similar types of distraction and design qualities, indicating interesting opportunity areas of influencing the perception of waiting time.

What are current and desired interactions in the context?

A passenger analysis identified interactions in the current situation. Passengers can easily get bored in the functional and impersonal gates of Schiphol. They are restless about boarding and want to keep an eye on the gate. Some passengers are actively looking for something to do in this phase while others prefer to stay seated; respectively stimulus seekers and avoiders. Both of these passenger types could benefit from distraction of their feelings of discomfort and boredom. Desired interactions are excited, warm, relaxed and personal. The interactions with the concept should feel like "A little child collecting autumn leaves and chestnuts to take home."

How can these desired interactions be created?

Research showed that the identified design qualities and interactions may lead to the following positive emotions: feeling enchanted, amused, relaxed, dreamy, at ease and connected. Some design interventions were tested to gather more insights in how the desired interactions could be created, but also to identify what type of distraction passengers want to engage in. The results of these experiments have led to the creation of a

concept and together with some small user tests and extra research a first concept is proposed. 'FLIP' offers a moderate distraction for passengers waiting at the G-gates of Schiphol. Stimulus seekers can modify the ambience around them by flipping colored window filters to another color, thereby leaving a personal pattern. Its eye-catching and unique appearance improves the ambience of the G-gates because it adds some mystery and variety to the coherent and boring environment. Passengers will feel enchanted and amused through the playful design with special effects of bright colors that they are able to create with their touch. The warm light in a fluent dynamic design enhances relaxation. FLIP allows passengers to connect with the environment. Altogether, it makes passengers forget for a moment that they are waiting at an airport.

Do the desired interactions reduce the perceived length of waiting time?

FLIP evokes the desired and positive interactions in the shape of an entertaining and eye-catching distraction. Through interacting with this artwork, passengers get distracted and experience positive emotions. They feel better than before and their perception of waiting time has improved

6.3. PERSONAL REFLECTION

In this final section I will look back at the journey I've been through the last five months. As stated in my project brief (appendix R), my personal learning ambitions were to improve on competences for fast prototyping, user experience design and communicating through visual thinking. Secondly, I wanted to develop a more critical attitude towards design and be able to build a good argument. I had confidence in planning and leading a project, and I learnt about facilitating creative and generative sessions. However, I wanted to gain more experience in 'the real world' and make use of these competences. Lastly, I wanted to learn how design processes are followed in a corporate environment. This could be done by following the PX way of working model.

To start with reflecting on that model that is very similar to the iterative design processes we normally go through as Industrial Designers. However, this model is especially made for complete missions that include several concepts and that are able to improve the NPS. The project I executed was only for the creation of one concept, because the design interventions were merely small tests instead of different concepts. Also, I only tested with the concept proposal one day, while the model suggests a Living Lab must be done for two weeks. All these decisions were made due to time restrictions. These restrictions made it harder to follow the PX model, also because I joined a mission at a point where it had just started, and my starting point was quite vague. Therefore, I had to go through the first two steps of the model to define hospitality and find a problem that needed to be solved. In the meantime, a colleague was setting up the Hospitality mission for the PX team. Luckily, her findings and mine aligned quite well and the problems that I had found became an opportunity area for the PX team as well. However, it took me relatively too much time to discover the approach of the PX team and to define what Hospitality actually meant. When looking back, I would argue that I held on to the mission Hospitality for too long. I was trying to fit it inside my project while all that time the actual problem was being put aside; the waiting experience needed to be improved. Only when realizing this, and focusing less on hospitality, the perception of waiting time became important. I've been told such iterati-

ons on research questions are normal for big projects like this, but I would prefer the shorter route for the limited amount of time that stands for a graduation project. It is impossible to follow the PX model like the PX team does because that takes too much time, but it is a perfect inspirational model that a graduate could follow that literally gives a 'way of working'. I could have used their methods and tools even more for doing research and facilitating sessions. I was too much focused on following my own planning that I missed some learnings from following an existing path. For example, I did not take into account the already existing experience values and PX principles. It could have been easier to hold on to their definitions and targets, although it took me a while to get to know their working strategy and methods. In the future I would plan a meeting early in the process to have someone of the team explaining me what their strategies, ambitions and working principles are. Only then I would make my own planning, taking into account their way of working.

I had a lot of fun during the ideation phase where I could go wild on ideas and challenge myself in facilitating a huge session on an amazing spot. I was really excited that I was able to gather so many people from different directions at the real context of the project. This was an added value for me personally, but also for the results. I have been working a lot of hours on the G-pier, spending time with passengers and getting to know the situation. The easy access to the context of the project really helped me in getting the results I wanted. It's a real plus for a design project that tests on desirability to spend a lot of time inside the context and being immersed in the target group at all time. For the sessions with passengers I should take into account that it is energy consuming and that a good preparation is half of the work. Executing the research was hard because I got anxious to be rejected and to forget parts of the research. One thing that I learned is that it works better if I am confident about the design myself, but also if I do not have to focus on making notes. From now on, I will record audio fragments during tests because it eases my mind that I might not forget something valuable.

I was disappointed in how hard the actual writing of the thesis was for me. I know I am not a good writer but logically structuring all the things that had been going on in my mind for five months was pretty tough. Especially because of the subject that tends to be very abstract. I used so many words for emotions and interactions, that it became a challenge to keep the structure and overview of what I was doing. It is a good learning point for me to be less impatient at the beginning of a project. I have to carefully think about what I am going to prove, what research is needed for that and how should that be structured. I have to take the bird perspective more often and question myself: what am I actually doing? If I would be able to do this project again, I would also take a research and writing course for beginners just to make the process easier for myself and thereby more fun.

Because the writing was such a challenge, I forgot to be able to use other ways of communicating. Other ways of which I am normally better like visual thinking. I could have used more drawings throughout the project to communicate my thoughts and findings. This was a learning ambition that I forgot about, but I will definitely take this knowledge with me: writing might not be my thing, but I could do some more drawing.

During the past couple of months, I learnt that doing a solo project of this size is extremely tough. As an Industrial Designer, I am used to having partners around me who are occupied by the same worries and with whom you can always share thoughts about the project. Although it was very difficult, I have learnt a lot from having to deal with all the problems and challenges myself. Not being very good at something? Face it. You have to solve it on your own during graduation. Completing the milestones throughout this project did not feel as satisfying as it would with a team, at least not for me.

I know now that my happiness evolves around other people, through sharing emotions and being able to strengthen each other where needed.

Building FLIP was the most stressful but satisfying time of the project. I worked extremely focused to follow my planning and eventually even asked for help because I was not able to finish it within the time that I gave myself. At the end of the week, some minutes before PMB closure time, the separate parts could finally be assembled and all of the sudden there she was. FLIP was born and I could take her home... I was so proud and happy with it that I could not stop touching it, making pictures and making it slightly better in the following weeks. Even if it was cleaning the tiles. Having this prototype in hands, stimulated me to write the thesis. I now needed to prove that this beautiful 'thing' was made with a reason. From this moment onwards, everything was easier, even doing the user tests became easier with FLIP. It almost felt as if we were together, I finally had found my partner of this project.

I hope this project gives rich and valuable insights in how to improve the perception of waiting time of the passengers departing from the G-gates of Schiphol.

LITERATURE REFERENCES

A

Amadeus. (2012). From chaos to collaboration - amadeus.com. Retrieved from http://www.amadeus.com/it/documents/aco/it/it/From_chaos_to_collaboration.pdf

Ali, F., Kim, W. G., & Ryu, K. (2016). The effect of physical environment on passenger delight and satisfaction: Moderating effect of national identity. *Tourism Management*, 57, 213-224.

B

Bazley, C., Vink, P., Montgomery, J., & Hedge, A. (2016). Interior effects on comfort in health-care waiting areas. *Work*, 54(4), 791-806. doi: 10.3233/wor-162347

Baker, J., & Cameron, M. (1996). The Effects of the Service Environment on Affect and Consumer Perception of Waiting Time: An Integrative Review and Research Propositions. *Journal of the Academy of Marketing Science*, 24(4), 338-349. doi: 10.1177/0092070396244005

Beautiful Lives (2016). De klantreis van een reiziger, hoe te komen tot een excellente customer experience op Schiphol.

Biddiss, E., Knibbe, T. J., & McPherson, A. (2014). The Effectiveness of Interventions Aimed at Reducing Anxiety in Health Care Waiting Spaces. *Anesthesia & Analgesia*, 119(2), 433-448. doi: 10.1213/ane.0000000000000294

Bitner, M. J. (1992). Servicescapes: The impact of physical surroundings on customers and employees. *Journal of Marketing*, 57-71.

Bjork, R. A., & Whitten, W. B. (1974). Recency-sensitive retrieval processes in long-term free recall. *Cognitive Psychology*, 6(2), 173-189. doi: 10.1016/0010-0285(74)90009-7

van Boeijen, A., Daalhuizen, J., van der Schoor, R., & Zijlstra, J. (2014). *Delft design guide: Design strategies and methods*.

C

Cassee, E. T. (1982). The Management of Hospitality. *International Journal of Hospitality Management*, 1(2), 77. doi: 10.1016/0278-4319(82)90036-6

Chase Card Services. (2014, June 10). Millennials Most Likely to Indulge in Luxury Hotel Services, Chase Marriott Rewards Survey Reveals. Retrieved from <https://www.businesswire.com/news/home/20140610006008/en/Millennials-Indulge-Luxury-Hotel-Services-Chase-Marriott#VGOedd7Tncs>

D

Davelaar, E. J., Goshen-Gottstein, Y., Ashkenazi, A., Haarmann, H. J., & Usher, M. (2005). The Demise of Short-Term Memory Revisited: Empirical and Computational Investigations of Recency Effects. *Psychological Review*, 112(1), 3-42. doi: 10.1037/0033-295x.112.1.3

Delft Institute of Positive Design (2017). Design for Happiness Deck. Delft, Delft University of Technology. ISBN: 978-94-92516-86-2

Desmet, P. M. A., & Pohlmeier, A. E. (2013). Positive design: An introduction to design for subjective well-being. *International Journal of Design*, 7(3), 5-19.

Desmet, P. M. A. (2012). Faces of product pleasure: 25 positive emotions in human-product interactions. *International Journal of Design*, 6(2), 1-29.

Do, A., Rupert, A., Wolford, G. (2007) Evaluations of pleasurable experiences: the peak-end rule. *Psychonomic Bulletin & Review* 2008, 15 (1), 96-98

Dube-Rioux, L., Schmitt, B.H. and Leclerc, F. (1988), "Consumers' reactions to waiting: when delays affect the perception of service quality", in Srull, T. (Ed.), *Advances in Consumer Research*, Association for Consumer Research, Provo, UT, pp. 59-63.

E

Eventbrite. (2014). Millennials: Fueling the Experience Economy. Retrieved October 2019, from <https://www.eventbrite.com/blog/academy/millennials-fueling-experience-economy/>

F

Friman, M. (2010). Affective dimensions of the

waiting experience. *Transportation Research Part F: Traffic Psychology and Behaviour*, 13(3), 197–205. doi: 10.1016/j.trf.2010.04.006

G

Gunnarson, J., Blohm, O. (2002). Hostmanship, De Kunst mensen het gevoel te geven dat ze welkom zijn, Dialogos Forlag AB

H

Han, H. (2013). Effects of in-flight ambience and space/function on air travelers' decision to select a low-cost airline. *Tourism Management*, 37, 125-135.

Heijne, K., & Van der Meer, H. (2019). Road Map for Creative Problem Solving Techniques. (February).

Howard, M. W., & Kahana, M. J. (2002). A Distributed Representation of Temporal Context. *Journal of Mathematical Psychology*, 46(3), 269–299. doi: 10.1006/jmps.2001.1388

I

Internet Marketing Inc. (2019, August 26). Millennial Travel Trends & How to Brands Reach Them: Internet Marketing Inc. - Generation Statistics & Size. Retrieved from <https://www.internetmarketinginc.com/blog/millennial-travel-trends/>

K

Kahneman, D., Fredrickson, B. L., Schreiber, C. A., & Redelmeier, D. A. (1993). When more pain is

preferred to less: Adding a better end. *Psychological Science*, 4, 401-405.

Kaplan, R., Kaplan, S., & Brown, T. (1989). Environmental preference: A comparison of four domains of predictors. *Environment and Behavior*, 21(5), 509–530.

King, C. A. (1995). What is hospitality? *International Journal of Hospitality Management*, 14(3-4), 219–234. doi: 10.1016/0278-4319(95)00045-3

L

Lenz, Eva & Hassenzahl, Marc & Diefenbach, Sarah. (2017). Aesthetic interaction as fit between interaction attributes and experiential qualities. *New Ideas in Psychology*. 10.1016/j.newideapsych.2017.03.010.

Lashley, C., P. Lynch and A. Morrison, 2007, Hospitality: A Social Lense. *Oxford: Elsevier*

M

Medallia. (2015). Net Promoter Score. Retrieved October 18, 2019, from <https://www.medallia.com/net-promoter-score/>

N

Norman, D. A. (2008). The psychology of waiting lines. Excerpt of, 3.

O

Oborne, D. J. (1978). Passenger comfort – An overview. *Applied Ergonomics*, 9(3), 131–136. doi: 10.1016/0003-6870(78)90002-9

Van Ommeren, V. The restorativeness of a dynamic lighting design: Finding optimal complexity on a dynamic lighting design. Master thesis, 2019

Oosterhaven, N. C. Fascinated by dynamic lighting: dynamic lighting scenes with various levels of mystery and complexity evoke effortless attention. Master thesis, 2017

P

Pine, B. J., II, and J. H. Gilmore (1998). Welcome to the Experience Economy, *Harvard Business Review*, 76 (4), 96-105

Pruyn, Ad & Smidts, Ale. (1998). Effects of waiting on the satisfaction with the service: Beyond objective time measures. *International Journal of Research in Marketing - INT J RES MARK*. 15. 321-334. 10.1016/S0167-8116(98)00008-1.

R

Richards, L. G., Jacobson, I. D., & Kuhlthau, A. R. (1978). What the passenger contributes to passenger comfort. *Applied Ergonomics*, 9(3), 137–142. doi: 10.1016/0003-6870(78)90003-0

S

Sanders, E. B. M., & Stappers, P. J. (2012). *Convivial Toolbox: Generative research for the front end of design*. (4), 8500.

Schiphol (2019). Jaarrapportage Kwaliteitsmonitor en ASQ augustus 2019.

Schiphol Customer Insights (2018). Passenger Profiles. Internal use only.

Schiphol Customer Insights. van den Bos, J. (2018) Customer Insights half year report ASQ.

Schiphol Customer Insights. van den Bos, J. (2014) Schiphol trendbriefing 'sense of place'

Soremekun, O. A., Takayesu, J. K., & Bohan, S. J. (2011). Framework for analyzing wait times and other factors that impact patient satisfaction in the emergency department. *Journal of Emergency Medicine*, 41(6), 686-692.

T

Taylor, S. (1994). Waiting for service: the relationship between delays and evaluations of service. *The Journal of Marketing*, 56-69.

Taylor, S. (1995). The effects of filled waiting time and service provider control over the delay on evaluations of service. *Journal of the Academy of Marketing Science*, 23(1), 38-48. doi: 10.1007/bf02894610

Thompson, D. A., Yarnold, P. R., Adams, S. L., & Spacone, A. B. (1996). How accurate are waiting time perceptions of patients in the emergency department? *Annals of Emergency Medicine*, 28(6), 652-656.

U

U.S. Travel Association. (2019, April 3). U.S. Travel Answer Sheet. Retrieved from <https://www.ustravel.org/answersheet>

W

Wessolowski, N., Koenig, H., Schulte-Markwort, M. & Barkmann, C. (2014). The Effect of Variable Light on the Fidgetiness and Social Behavior of Pupils in School, *Journal of Environmental Psychology*, 39, 101-108.

Z

Zurich Airport - Dock B Redesign. (2011). Retrieved from <https://www.zurich-airport.com/the-company/zurich-airport-ag/completed-construction-projects/dock-b-en>

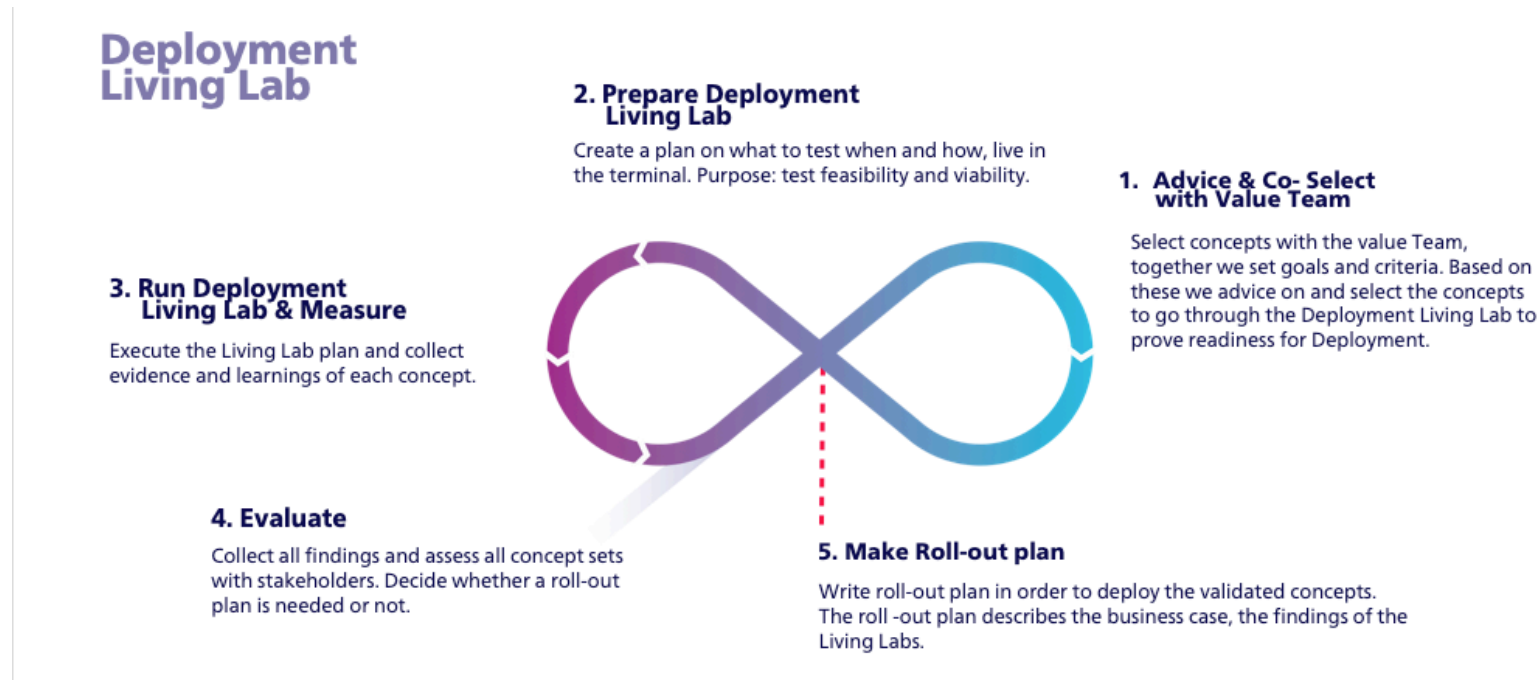
7.

APPENDICES

This section contains the following appendices:

- | | | | |
|----|------------------------------------|----|-------------------------|
| A. | PX way of working model Deployment | J. | Passenger behavior |
| B. | Hospitality at the gates | K. | Ideation session |
| C. | Comfort at the gates | L. | Follow up ideation |
| D. | Field trip RTH & EH airport | M. | Design interventions |
| E. | Trend analysis | N. | Shape design user test |
| F. | Design criteria | O. | Filter design user test |
| G. | Interview gate agents | P. | Final user test |
| H. | Early observations | Q. | Expert feedback |
| I. | Context mapping | R. | Project brief |

A. PX WAY OF WORKING – DEPLOYMENT PHASE



B. HOSPITALITY AT THE GATES

This appendix includes the research that is done to define Hospitality. Before starting the project, it is important to create a deeper understanding of what hospitality actually means for Schiphol, but also for other people. Both definitions will be compared in this section, by conducting an ideation session with students of the TU Delft.

General definition

Starting with what it actually means in the common understanding. The Cambridge dictionary defines Hospitality as:

1. The act of being friendly and welcoming to guests and visitors.
2. food, drink or services that are provided by an organization for guests, customers, etc.

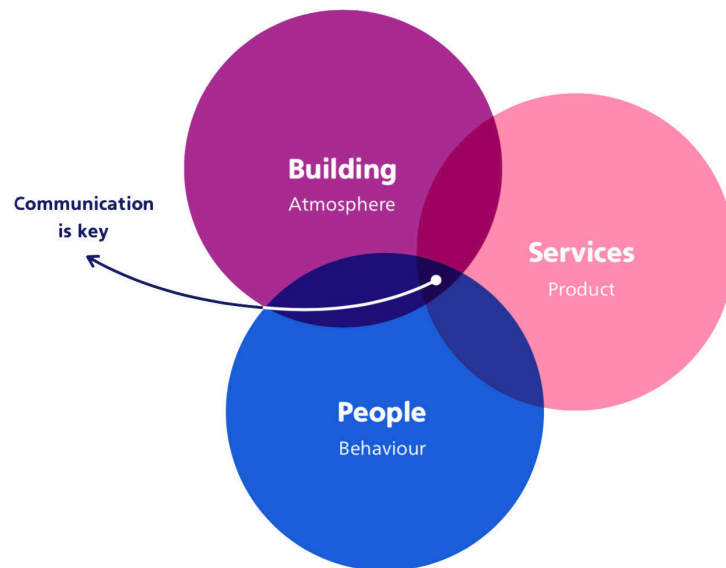
Research shows several dimensions of Hospitality (Lasley et al, 2007). The context of this project is situated in the commercial dimension, meaning within the hospitality industry where people are hospitable to make people feel comfortable in exchange for money. Indirectly passengers pay for the service and products they receive. Hospitality in this context is a value-adding activity.

Hospitality has developed from simply delivering a service or selling a product (Cassee, 1983) to the way in which it is delivered. The way we experience a specific service or product impacts the value we attach to it. Therefore, Hospitality is a good mission for improving the passenger satisfaction at the Gates.

Schiphol definition

Earlier research of Schiphol led to a definition of what 'being hospitable' means to them, namely: to make passengers feel welcome, seen and well-helped (experience values); Schiphol feels pleasant because of its' building, services and people (drivers). This definition shows that Hospitality could be created by more than only people or services what seems to be when looking at the definition of the Cambridge dictionary. The definition of Schiphol is the most important one and therefore will be the starting point of this chapter.

This image shows the three drivers that can have an impact on the experienced Hospitality at Schiphol; the building, the services, the people. Depending on the situation and location, some drivers seem to have a bigger impact on the passenger experience. For example, people at security might play a more important role than the building does. According to the PX team and their way of working, it is important to research and define what the most impactful drivers at the gates are, in order to design effectively. This is done in an ideation session with students from Industrial Design Engineering from the TU Delft.



Ideation session IDE students

Method

To increase the understanding of Hospitality in this context and to find what drivers are most important for a hospitable experience at the Gates, an ideation session has been done with 9 students divided over two groups in two hours of time. Each group session was facilitated by a student from the course Creative Facilitation of the TU Delft. The session focused on the associations they had with Hospitality; what it meant to them and how this is seen back at the gates.

Results

The students' definition of Hospitality is; "giving someone the feeling that it's about him/her". The values that they associated with Hospitality are assigned to the three drivers building (B), services (S) and people (P) to find the most important ones.

Passengers should feel free and creative - Being open-minded (B&S)

The gates should feel like home - Familiarity (B&S)

Passengers should be able to relax and be careless - Feeling at ease (B&S)

Passengers should trust in quality and help - Trust (S&P)

Passengers should get attention and feel connected - Having Interaction (B, S & P)

Discussion - hospitality at the gates

1 - 'Fulfill wishes and needs'

As can be seen in the definitions of Schiphol and the students, it seems to be important that in being hospitable Schiphol should accommodate the needs of their passengers and fulfill their wishes. In addition to these definitions, Hospitality literature emphasizes the importance of having knowledge of what would invoke great pleasure in the guest and delivering it flawlessly and generously in order to achieve successful Hospitality (C. King, 1999). Therefore 'fulfill wishes and needs' should be added to the definition of Schiphol, by being an overarching goal of Hospitality instead of a feeling or value.

2 & 3 - 'Feeling welcome' and 'at ease'

In the same research of C. King (1999), other hospitable activities are discussed that belong to receiving guests, like making the guest feel welcome and providing comfort. A same perspective is taken by Gunnarson and Blohm (2002) who define hospitality as "hostmanship", the art of making people feel welcome. Both Schiphol and the students addressed the importance of making a passenger feel welcome, feel at home, and is therefore deemed an important value in being hospitable.

As is explained in the literature review and appendix C; the waiting time can be made comfortable by increasing a sense of well-being and pleasure and by alleviating passengers' feelings of distress. Making a passenger 'feel at ease' is also an important value of the ideation session, which addresses the importance of including the value 'feeling at ease' to the definition of Schiphol.

4 & 5 - 'Feeling seen' and 'well-helped'

Lastly, it seems to be important for Schiphol and the students to give the passengers attention and to offer qualitative help. They should, as the definition of Schiphol already included, feel seen and well-helped.

In this table the results of the definition analysis are shown, concluding with a new definition of Hospitality at the Gates of Schiphol:

"Fulfilling the needs of the passengers who should feel welcome, at ease, seen and well-helped while spending their time at the Gates."

Research	Value 1	Value 2	Value 3	Value 4	Value 5
Schiphol	Increase satisfaction	Feel welcome		Feel seen	Feel well-helped
Ideation	Facilitating needs	Feel like home	Feel at ease	Getting attention	Trust in quality & help
Literature	Delivering pleasure - fulfill wishes	Feel welcome	Providing comfort - alleviating distress		
HOSPITALITY	Fulfilling needs & wishes	Feel welcome	Feel at ease	Feel seen	Feel well-helped

Building and services

The results of the ideation session also show that Hospitality is more often associated with the services and the building than with the people. These two drivers seem to have more impact on the experienced Hospitality at the Gates of Schiphol, which needs to be taken into account for the continuation of this design project.

Comfort \ Hospitality	Feel welcome	Feel at ease	Feel seen	Feel well-helped
Increasing well-being and pleasure	4	3	1	2
Alleviating distress	3	4	1	2

Conclusion hospitality at the gates

When looking at the problem as stated in the introduction, the "comfort at the Gate" needs improvement and it is decided to try to improve this by improving the experienced Hospitality. Due to project time restrictions, a decision is made to focus only on the Hospitality values that have the most impact on improving the "comfort at the Gate". This table shows a value ranking, which is made based on explorative research and interviews with passengers.

As can be seen in this table, feeling welcome and at ease seem to have the most impact on improving the comfort at the Gates and will therefore be the focus for this project. 'Making passengers feel welcome and at ease' will be used interchangeably with 'increasing the comfort at the gate' over the course of the project.

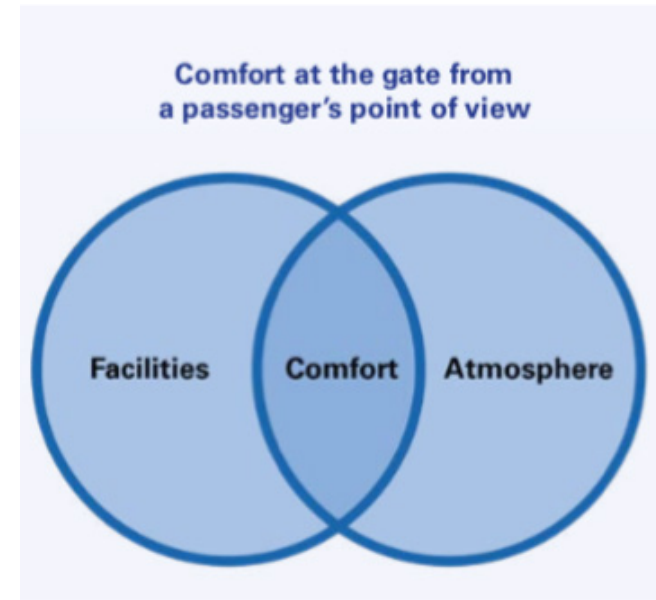
C. COMFORT AT THE GATE

This appendix shows the research done to identify what “comfort at the gate” actually means and what aspects in the gate environment could influence the emotional state of the passenger and therewith reduce the perceived length of waiting time. That the environment can have an impact on the experienced comfort makes sense when looking at the definition of comfort (The Oxford dictionary, 2019):

1. *“A state of physical ease and freedom from pain or constraint. Things that contribute to physical ease and well-being.”*
2. *“The easing or alleviation of a person’s feelings of grief or distress. A person or thing that helps to alleviate a difficult situation.”*

“Comfort at the gate” can therefore be seen as; making the waiting time comfortable by increasing a sense of well-being and pleasure and by alleviating passengers’ feelings of distress. In other words; improving the emotional and physical state of the passengers to reduce the perceived waiting time. This project will only focus on improving the emotional comfort, leaving out subjects such as ergonomics and physical comfort. However, emotions can also express themselves physically which means that the physical state of the passenger cannot be excluded completely from this project.

The ASQ Best Practice Report (ACI, 2016) did research to innovative and effective initiatives of 28 airports who experienced a significant improvement in their satisfaction results for the service item ‘comfort at the gates’. According to these airports, comfort is best defined as the facilities that are made available to the passengers, whose needs differ from one another, together with the ambience that has been created (see figure 9). The comfort at the Gate is perceived as a whole by all respondents of the ASQ report; it is the sum of several efforts, only one is not enough. As this thesis is just a single effort, it might not have as a result that the comfort in the Gate has suddenly increased. However, when being complementary with other initiatives, the proposed concept could improve the comfort at the gate on the long-term. Therefore, chapter 2.3 will identify what current



comfort initiatives at the G-gates of Schiphol are and what might need more attention.

The redesign of the G-pier

Studies show that the ambient conditions, aesthetics, spatial layout and functionality are aspects that have an impact on satisfaction in a waiting area (Han, 2013) and therewith also on the perception of time in this waiting area. All of these items are also discussed in the Best Practice Report (ACI, 2016) as proven initiatives that have increased the ‘comfort at the Gate’ of 28 other airports around the world. The Upgrade Pieren project has implemented several of these aspects for a more comfortable waiting area, but a few also seem to need improvement.

- **Functionality:** more comfortable and varied seating and working places with more power outlets, modern sanitary facilities and more restaurants and shops.
- **Aesthetics:** more plants and an artwork of Terrazzo in the floor at the beginning of the pier.

- Spatial lay-out: the pier is arranged according to the 'open space concept' which led to a lot of space and a lot of light.
- Ambient conditions: a lot of light from the big windows and the architecture style includes sturdy concrete tones and modern white walls with black contrasts, making the lighting cold and bright. As can be seen in the pictures, the ambient conditions can be perceived as cold, clinical and fixed (rectilinear).
- Distraction & entertainment: At the end of the pier there are two massage chairs and an aquarium with real fish inside. Each gate has two or three TV boxes showing the news, the weather forecast of the destination and holiday commercials. These are the only distraction initiatives and they are not used frequently, especially not the massage chairs. It might be that passengers do not want to do anything anymore at this point, or that the chairs are located at the wrong place. The need for more distraction can also be seen on these pictures, as the limited amount of distraction offered are only the TV's, the aquarium and the massage chairs.

Entertainment and ambient conditions are two important aspects of comfort that impact the emotional state of the passengers, as is already emphasized by literature. However, these two aspects seem to lack or be wrongly implemented at the current design of the G-gates. Especially the initiatives to improve the physical comfort of the passengers has succeeded.

Discussion

Tangible and intangible elements of the gate environment make it a comfortable environment and can influence the passengers' emotional state. The overarching objective of "comfort at the gates" is therefore to improve the perception of time. Comfort at the gates is seen as the sum of several tangible (facilities) and intangible (atmosphere) efforts. This project must therefore seek to become complementary with existing initiatives.

D. FIELD TRIP - RTH AND EH AIRPORT

Rotterdam The Hague

The Terminal of RTH is currently under construction for a year at least, so their main focus lays on keeping the passenger experience positive, despite the construction nuisance. As can be seen in figure 15, they offer a few facilities that seem to improve the passenger's state of mind.

- With the use of warm colors and materials like wood, they try to make the terminal feel like a living room.
- They implemented colorful flowers and plants across the terminal. The presence of greenery is deemed an important element for the airport design (Best practice report, 2019).
- RTH included more rounded furnishings in their terminal, that are found to be more beautiful to look at than straight designs (Dazkir & Read, 2012). This fits well with the low load environment. However, these couches are all three unique colors. This could mean that adding some variety in the coherent whole is possible, whether it actually works should need more research.
- By communicating more personally and emotionally RTH attempts to elicit positive emotions and since this is placed at the end of the journey, when leaving the airport, it has more impact.
- Lastly, the restaurants are in the same area as the boarding. This makes it easy to combine 'being in the lounge' with 'waiting at the gate'.

Eindhoven Airport aims to make the passengers feel welcome and at ease by increasing a sense of privacy and a living room feeling. The coloured glass walls add to both privacy as the ambiance, but also makes the room seem to be bigger. Low hanging lamps give a cosy feeling and warm ambiance, increasing the living room feeling. They offer different kind of seating and working places, accompanied with power outlets, just as the G-pier of Schiphol. EH airport brings colours to the Gate area that are used constantly throughout the airport to create a visual identity and cheerful ambiance. Lastly, distraction is offered for children and their parents in a playzone located nearby the gates and some seats are facing the windows so passengers can look to the platform and aircrafts.

COLOURFUL FLOWERS / PLANTS TO IMPROVE THE ATMOSPHERE

'CHESTERFIELD' COUCHES TO INCREASE A RELAXED LIVING ROOM VIBE

CHAIRS AND TABLES DIFFER PER HEIGHT FOR A NATURAL VARIETY

ADDING A PARASOL TO THE COFFEE CORNER CREATES A 'ZONE'

ALMOST ALL CHAIRS ARE PLACED AROUND A TABLE TO CREATE 'YOUR OWN SPACE'

THE USE OF WOOD AND BROWN COLOURS GIVE A WARM FEELING



NEXT TO THE RUNWAY THERE IS A SIGN SHOWING THE NAME OF THE AIRPORT, FOR WELCOMING AND SAYING GOODBYE

THE USE OF COLOURS AND ORGANIC SHAPES LIKE ROUND COUCHES, MAKE THE ROOM FEEL LESS FUNCTIONAL

EMOTIONAL COMMUNICATION ADDS TO A WELCOMING AND PERSONAL FEELING

MAKING USE OF THE LAST CONTACT MOMENT MAKES SURE THE MEMORY LASTS

CREATING A ZONE BY SETTING UP THE FURNITURE TO SHAPE A LIVE NATURALLY

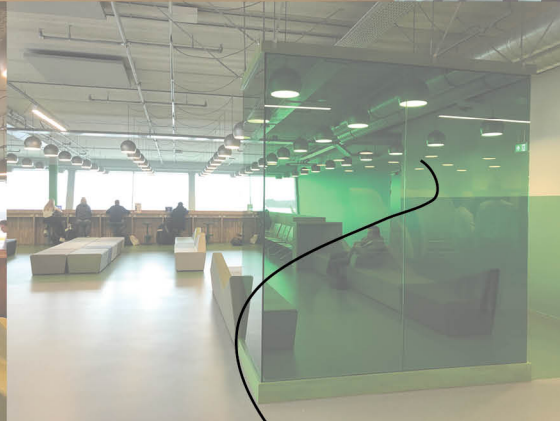
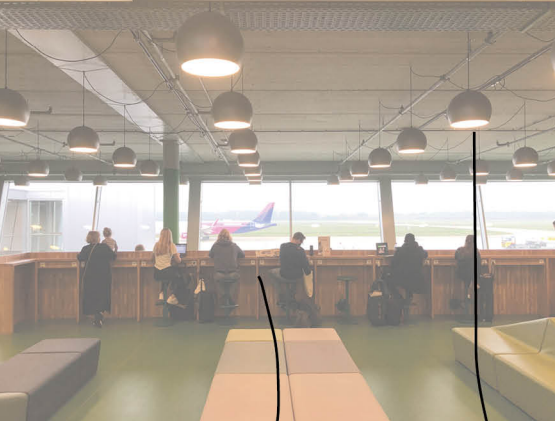
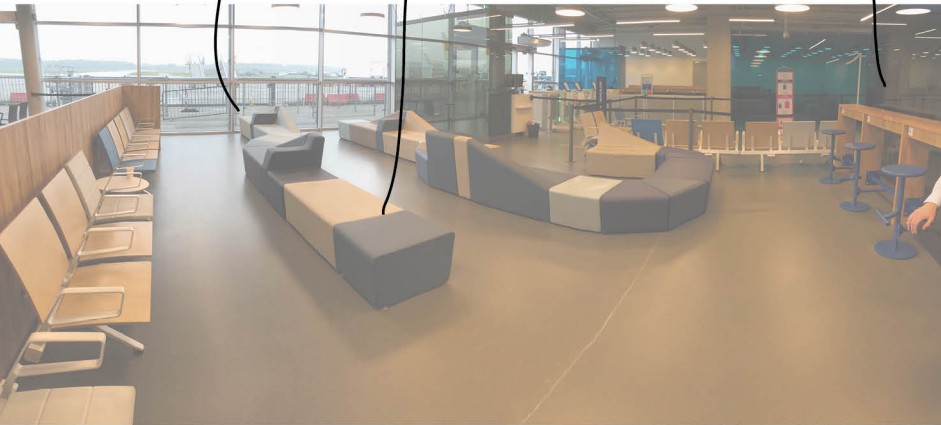
DIFFERENT COLOURS OF CHAIRS AND DIFFERENT KIND OF CHAIRS ADD TO A GOOD VIBE (GEZELLIG)

FACILITATING DIFFERENT NEEDS WITH DIFFERENT TYPES OF SEATING

A MIRRORRED WALL MAKES THE ROOM FEEL MORE SPACIOUS AND IT GIVES DISTRACTION: YOU CAN LOOK AT YOURSELF. INCLUDED WAYFINDING SIGNS.

INTERACTIVE BEAMER IN THE CHILDREN'S CORNER TO PLAY WITH

HAVING A KIDS CORNER NEARBY THE GATES, MAKES PARENTS RELAXED AND CHILDREN DISTRACTED / HAPPY.



LETTING PEOPLE SIT TOWARDS THE WINDOW (BEHIND A TABLE) DISTRACTS AND GIVES THEM SPACE TO THINK AND PREPARE. MORE LIKE SITTING IN A BAR!

LOW HANGING LAMPS FEEL COSY AND EMIT A WARM LIGHT, ALSO ADD TO THE LIVING ROOM VIBE

THESE GLASS SHIELDS PROVIDE PEOPLE WITH A 'PERSONAL SPACE' LIKE PROTECTION BUT STILL OPEN BY TRANSPARENCY

RECOGNIZABLE VISUALS (ON GLASS) ADD TO EFFICIENCY AND IDENTITY, BUT STILL FEEL FRIENDLY AND CLEAN.

HAVING DIFFERENT COLOURS PER GATE ALSO ADDS TO MAKING IT 'YOUR SPACE' AND CREATES VARIATION / DISTINCTION.

E. TRENDS ANALYSIS

This appendix will show the results of a trend analysis to identify trends that can have an impact on the flying industry and the passenger experiences. Some trends are explained in Dutch as they are retrieved from a Dutch Trend Analysis from Schiphol (J. van den Bos, 2015).

Climate change

There is an increasing focus on the negative effects of travelling for the climate. Schiphol faces Greenpeace actions, regulations with Nitrogen and not being able to open up Lelystad airport.

(NL) Polarisatie van reizende generaties

We zien een duidelijk verschil tussen jongeren en ouderen in hoe ze naar de wereld kijken en omgaan met wat er gebeurt in de huidige tijd. Jongeren staan open voor de wereld. Ouderen gaan sowieso moeilijker mee met veranderingen. Daarnaast zagen we al dat met name ouderen minder goed meeprofiten van het economisch herstel. Teleurstelling, boosheid, angst en wantrouwen zien we meer voorkomen bij de oudere groep. Maar door vergrijzing heeft deze groep wel een steeds grotere stem en drukken daarmee een grotere stempel op de huidige tijd. Maar om vooruit te kijken, is het juist belangrijk ook goed te begrijpen wat er in jongeren ofwel Millennials omgaat. Zij vormen immers de toekomst.

(NL) Polarisatie Strategisch

In de Retail zien we een verdwijning van het middensegment. Bedrijven die failliet gaan, zijn vaak deze bedrijven. Iets wat kleurloos, niet heel uitgesproken. Bedrijven die succesvol zijn, bevinden zich met name aan de polen: heel goedkoop zoals de Action en de Primark, of juist meer luxe en relevantie zoals Apple. Een andere mogelijkheid is nog kwaliteit bieden in combinatie met ergens voor staan zoals Tony Chocolonely en Doppler. Het is belangrijk om aan een van de twee kanten van de polen te gaan staan om jezelf te onderscheiden: kies je ervoor om de goedkoopste te zijn of bied je de beste ervaring; het meest prettig en relevant waarbij de klant volledig centraal staat? Voor hoge kwaliteitsambities zijn investeringen nodig.

Een reactie op polarisatie is om te verbinden, want in een verhardende wereld hebben mensen behoefte aan vriendelijkheid en warmte. Een missie van Schiphol is dan ook “connecting to complete”. Bied passagiers en werknemers de mogelijkheid en ruimte om samen te werken. Shared spaces zoals het Volkshotel zijn goede voorbeelden van hoe je kan verbinden. Dit gaat niet alleen om massagers onderling maar ook om werknemers met passagiers.

(NL) Globalisering

Globalisering heeft ons heel veel gebracht, maar zoals we zagen neemt het met name de laatste jaren ook veel negatieve elementen met zich mee. Daarom zien we de laatste jaren dat de tegentrend van de globalisering, namelijk de lokalisering steeds sterker wordt. Mensen zoeken de geborgenheid in de vertrouwde en overzichtelijke omgeving direct om hen heen.

(NL) “Sense of place” (als effect op globalisatie)

Reizigers komen veelal vanuit andere tijdzones en voelen zich ontheemd. Ze hebben behoefte om de figuurlijk met de voeten weer op de vloer te staan. Dit wordt bereikt met Sense of Place. Reizigers vinden het prettig op een luchthaven om te weten waar ze zijn, om iets van het land mee te krijgen, binnen de eenheidsworst die luchthavens van oudsher toch vaak neigen te zijn. Dit maakt een luchthaven persoonlijker en geeft ook een bijzondere en authentieke ervaring. Het is de manier om je als luchthaven te onderscheiden van de rest. Immers, iedere plek heeft zijn eigen identiteit. Dit is een trend waar maar is nu actueler dan ooit en de behoefte hieraan zal de komende tijden alleen nog maar sterker worden. En hoewel we al veel mooie voorbeelden hebben, een goed voorbeeld is de klok van de Nederlandse designer Maarten Baas in Lounge 2, denk ik dat we wij als Schiphol hier nog veel meer mee moeten. Als we dan voor een restaurant kiezen van een tv-persoonlijkheid, laten we dan niet voor Jamie Oliver kiezen, maar voor een samenwerking met de Librije. Naast gevestigde Nederlandse namen, ook meer plek creëren, bv. pop-up space voor lokale designers, start-ups etc

Consumenten zijn op zoek naar betekenisvolle plekken, producten en diensten waarmee ze zich kunnen associëren en die ze zich blijven herinneren. Deze behoefte is een reactie op een geglobaliseerde wereld, die naast veel voordelen (welvaart, reizen, toegang tot informatie) er ook voor gezorgd heeft dat veel mensen zich onzekerder voelen en op zoek gaan naar de menselijke maat en cultuur, vrije tijd en winkelen koppelen aan betekenis, verrassing en verhalen. Het maakt bovendien dat reizigers die uit een andere tijdzone of land komen, even kunnen aarden.

“Schiphol hecht aan het afgeven van een persoonlijk visitekaartje, te weten ‘sense of place’. Op een subtiele manier, zie, voel en ervaar je dat je in Nederland bent en voel je ons Schiphol DNA. Door juist onze persoonlijkheid op een voor reizigers relevante manier te laten zien, geven we onze luchthaven een uniek karakter passend bij ons DNA.”

Steden en winkelcentra reageren hierop door lokale initiatieven te stimuleren en ook luchthavens zien we steeds vaker transformeren van anonieme en generieke plekken naar locaties met een eigen identiteit. Die identiteit wordt gecreëerd door verbinding te zoeken met de karakteristieken en eigenschappen van het land of de stad. Denk hierbij aan lokale elementen als iconen, levensstijlen, gastronomie en tradities. Lange tijd zijn deze elementen verwaarloosd, maar vandaag de dag bieden zij een grote bron van inspiratie om een onderscheidende identiteit te ontwikkelen. Het maakt dat je meteen weet waar je bent, door wat je herkent, ruikt of proeft. Dit roept herinneringen en gevoelens op – een ‘sense of place’ – die het reizen aangenamer maken.

- Local design: give a local look & feel to the architecture of the building.
- Local culture: food and beverages that are typical Dutch, or for example the Rijksmuseum.
- Local heroes: local shops or brands to do something different than the mainstream shopping.
- Local produce: biological and local food instead of multicultural based diner.

Millennials as important target group

Aged 17 - 27 millennials are important as passenger group. In addition to being hyper connected and digitally driven, Millennials are focused on sharing experiences and stuff. A design (product or service) must serve a purpose, make their lives easier and more convenient in order to be considered. They don't have a lot of patience for wasted time. Millennials are relatively unfamiliar with the offerings at the airport and rather go straight to the gate due. Once at the gate, they stick around and check their smartphone or read a book or are bored. Millennials think the gate areas are a boring place to hang out.

Need for human interaction

Despite the interesting tech developments Millennials also value real human interactions and the offline world. Because Millennials prefer talking to humans when it comes to complex tasks, reserving chatbots for simpler things like checking an order status or making an appointment. There currently isn't enough confidence yet among millennial consumers in bots' (technology's) abilities to solve difficult problems.

Co-working with other services - DELIVEROO

Nowadays many airports offer apps you can download as soon as you enter the airport to keep you informed or to allow you to pre order. But research shows Millennials are not likely to download specific airport apps. But what if airports use apps Millennials have already on their phone and partner with these brands in bringing an extra level of convenience and choice to travelers? The more tech-savvy customers at airports expect the food to be delivered directly to them, rather than rush through a terminal to find a dining spot on their own. DeliverooDXB, launched in partnership with Deliveroo, is a delivery service that enables time-deprived travelers to have their food brought to their gate within minutes of ordering via the Deliveroo app. Currently available at T3 A-Gates area, the service offers freshly prepared food from 10 restaurants. If proved to be successful, the program will be rolled out to other DXB's concourses and the offer will cover more diners.

Shared economy and sharing social life

Millennials view ownership differently than previous generations did. While young adults have traditionally placed high value in a car and home, many are now seeing them as major commitments. They rather share things. Alongside the decreased desire to own things or buy them through traditional channels, the experience industry is booming. According to the Harris study mentioned earlier: “For this generation, living a meaningful, happy life is about creating, sharing and capturing memories earned through experiences that span the spectrum of life’s opportunities.”

Travel inspiration from social networking

When it comes to Millennial travelers, the phone is the hub of planning, experiencing and sharing every trip. Social content is a major travel influencer: 87 percent of Millennials use Facebook for travel inspiration, and more than 50 percent use Twitter or Pinterest. Millennials say seeing where their friends on social platforms go on vacation holds weight when deciding their own trips. And it’s not just inspiration travelers seek from technology – 66 percent of Millennials book their trips via a smartphone and 97 percent post on social networks and share their experiences while traveling.

The next generation of travel experience

The world of the traveler is, in some ways, contracting; travel is increasingly about depth rather than breadth of experience. Our experience of a place will increasingly be seen through the lens of other people who are simultaneously there with us or have been there previously. Travel will become more about depth rather than breadth of experience, as we come to realize that all places are layered according to their history and culture of who is there and who else has been there previously.

Three generations of travel experience:

- In travel, we can broadly sketch three stages of experience-seeking. In the first stage, what we could call “the first generation of experience”, there was glamour and intrigue in travelling further, to the places that were out of reach of the majority.
- With the arrival of cheaper flights, further afield destinations became more accessible to the majority of Western travelers – and therefore felt less special and exclusive. This led to what we could call “the se-

cond generation of experience”, where travelers would seek out more obscure or unknown destinations, visiting Puglia rather than just Italy, and Laos rather than Thailand.

- In the ‘third generation of experience’, we may see greater emphasis on rediscovering and making the most of familiar places. Put simply, travelers may come back – or come home. Increasingly, people may travel to things rather than to places and countries. Events and festivals that transform the setting and mood of a familiar place may be increasingly valued – and increasingly common and popular. Travelers may look to new technologies that help them rediscover sites, experience a festival or event more fully, or make the most of their own local area. The change is likely to be accelerated and, to a large extent, driven, by economic factors. Slow or even stagnant growth may force the Western traveler to be less adventurous – particularly if airfares are pushed up by higher energy costs and carbon duties.

Familiarization

Being able to have conversations with people in their own language; technology will help people make the most of an unfamiliar place. Intelligent translation services and augmented reality applications that overlay information about the physical world around us will increase significantly in use and improve in technology.

Additional experience

As well as a familiarization tool, technology will be able to offer an alternative experience of a place. Augmented reality and game-based applications could make a qualitative difference to travel. Through the camera lens of a mobile device, locations could be seen from a completely different perspective: their physical appearance could be augmented with photos, videos or sounds from the past – or from an alternative, simulated reality. Technology has the power both to edify and to entertain. Imagine being able to play Shakespeare’s London, take a tour through Beijing at the time of the Ming Dynasty, relive Harry Potter across film locations in Oxford and Edinburgh, or explore the cultural history of cotton across different parts of Asia. In this way, ‘gamification’ could be used to offer people the ability to time travel while travelling.

Automatic transit

For the first time ever, checking-in could become the exception rather than the norm, as manual check-in security will be replaced by faster and more efficient systems that track flows of people. This is called seamless travel.

Intelligent recommendation

As technologies make it easier for people to tag and review all aspects of travel experiences, travellers will be influenced by peer groups more (intelligent, personalized travel guides). This could for example be executed with friends, so your schedule gets changed because of their recommendations etc.

Peer groups, the internet and experts will form an information ecosystem which will be more collaborative than the one-to-one transactional relationships that predominate today. As technologies make it easier for people to tag and review all aspects of travel experience, travellers will be influenced by peer groups much more. Moreover, as data on payments is shared and integrated, it will leave a trail of digital breadcrumbs, tracing where we've been and what we've done.

Taking the stress out of travel

The well-being agenda of passengers has become more important over the past years (Amadeus, 2012). Health, feeling good and having positive experiences are becoming important items for airports to improve on because they influence the passengers' satisfaction. Desk research shows that multiple booklets and blogs have been written about 'how to take the stress out of travel' with travel tips for passengers from passengers. Reducing stress and making passengers happy is the overarching goal.

F. DESIGN CRITERIA

Requirements

The concept:

1. Should elicit positive emotions through its interaction and ambience.
2. Should be a moderate distraction for stimulus seekers; they will interact with the concept directly
 - a. without forcing anyone to do something; it should be a passenger's choice to interact with the concept
 - b. and have an effect that is a moderate distraction for stimulus avoiders as well; they will interact with the concept indirectly
3. Should make sure the passengers will not forget to pay attention to boarding activities (e.g. being able to keep an eye on the queue, get notifications)
4. Should offer a distraction that either requires attention, entertains, looks beautiful and eye-catching or that creates a vibrant environment.
5. Should have warm light colors and curved elements in the design.
6. Should comply to a low-load environment and the current design of the G-pier, but also offer some mystery and / or complexity.
7. Should not interfere in passengers' personal space or force people to stand or sit close to each other.
8. Should not hinder the boarding procedure of the airline personnel
 - a. Should not lead to (more) questions for the airline personnel
9. Should be located at the gates or very near the gates (at the pier).
10. Should require minimal amount of (extra) cleaning hours
11. Should make optimal use of the available, scarce m2 in the increasingly crowded terminal.
12. Should not over stimulate passengers' senses.
13. Should not obstruct passenger flows, since these are carefully designed for the safety and smooth process of moving people.
14. Should not obstruct the passenger sights, since passengers need to be able to see the Gate desk and boarding activities at all time. The maximum height of a product in sight is 1.4 meter.

15. Should not obstruct the formation of a queue nearby the gate desk next to the screens.
16. Should be stuck (in the environment) and not have or exist of loose parts, as passengers should not be able to take them with them.
17. Should not hold or attract too many people to one place to guarantee crowd safety and control.
18. Should comply to the fire regulations of Schiphol
19. Should match with the (design) identity of Schiphol.

Wishes

The concept...

1. Should preferably be an add-on in the environment, it does not change anything to the existing.
2. Should preferably have a low risk on being 'out of service'
3. Should preferably be scaled easily across other gates
4. Should preferably work without needing extra employees to stimulate usage
5. Should preferably exist out of sustainable materials or enhance sustainability
6. Could offer something unexpected at the gates.
7. Could implement warm light colors and curved elements in the design.
8. Could require attention, be entertaining or be eye-catching and beautiful.
9. Could be an experience in itself that stimulates passengers to 'share' the experience they had with the concept.
10. Could include 'sense of place' elements in the design.

G. INTERVIEW KLM GATE AGENTS

Interview gate agents

Problemen bij de gate

Hoe verloopt het boardingsproces gezien vanuit jullie?

1. Boardingsproces is anders dan bij andere gates. We staan niet vaak aan de G-pier en de layout is anders dan andere gates. Er is soms een grote ruimte na het boardingpass moment wat ervoor zorgt dat we de klm procedure van instappen niet perse waar kunnen maken (eerst sky prio instappen). Vaak beginnen we nu eerder aan de gate met boarden als in boardingpassen scannen. Dan kunnen de pax nog niet aan boord.
2. (90 min van tevoren er zijn met 2 agents, opstarten computers, vragen beantwoorden PAX)

Wat is voor het boarden belangrijk in dit proces?

1. Goedwerkend apparatuur en ruimte
2. (soms moeten we mensen spreken voordat ze aan boord gaan, dan wordt hun naam op het scherm gezet en inmiddels kunnen we ook smsjes versturen).
3. Dat er zoveel mogelijk passagiers op de ITBL lijst (lijst met commentjes over passagiers, zoals bv ppt swipe) aan de balie zijn geweest voordat het instappen begint.
4. Dat we op tijd kunnen beginnen met instappen. De focus ligt bij ons op het halen van de vertrektijd.

Wat is jullie invloed op de passagiers beleving?

1. Communicatie
2. We proberen alle passagiers vriendelijk, netjes en professioneel te woord te staan en te helpen. We willen dat de passagier een fijne reis-beleving krijgt zodat hij/zij de volgende keer weer voor KLM zal kiezen.

Hoe wordt daar vanuit KLM een richting aan gegeven?

1. Omroepen door de microfoon
2. Moving your World, KLM app, berichten over boardingtijden, last call, handbagage en Action en Attention waarbij we passagiers verrassen met een kleine attentie op verjaardagen, bruiloften etc. Ook problemen

door passagiers meegemaakt worden via een app aan verschillende afdelingen doorgegeven, zodat een passagier bij de gate of aan boord benaderd kan worden, bv overboekte c class

Wat zijn problemen bij de gate die jullie veel zien voor passagiers?

1. Grote gate area waarbij pax wel alvast kunnen verzamelen, maar waardoor skyprio niet als eerste kan boarden. Er is geen extra agent beschikbaar die bij de deur kan staan om te checken indien de deur open mag
2. (Mensen zoeken toch bevestiging bij ons, en de mate daarvan is afhankelijk per afkomst.)
3. Er zou iets meer vluchtinformatie getoond kunnen worden, zoals vluchtduur, overstappen, aankomstterminal.
4. Oplaadpunten.

Wat zijn veelvoorkomende vragen op die plek?

1. Is dit de goede gate, mag bagage mee, is bagage al aan boord, stoelwijziging, ticket upgrade, hoe laat gaan we boarden, vliegen we op tijd?
2. Waar kan ik mijn telefoon opladen?

Wat zijn problemen bij de gate voor jullie zelf?

1. Grote gate area
2. Defect apparatuur, ontbrekend of stuk meubilair, omroep werkt niet.

Wat zijn klachten die je weleens hoort van collega's?

1. Ver lopen

Merken jullie al een verschil tussen de G-pier en andere pieren? Wat dan?

1. G-pier voelt open en rustig, fijne plek om te werken. Vervelend om twee verschillende wachtruimtes te hebben i.v.m volgorde van instappen skypriority en PRM.
2. Groot, open en rustig
3. Passagiers zijn ook stuk rustiger, het is minder lawaaiig

Herkennen jullie de situatie? Wat wel/niet?

1. Deels herken ik dit. Gate area is voor onze procedure niet perse functioneel. Ik vind de gates in de G-pier wel onpersoonlijk, maar niet perse unwelcome en restless.
2. Ik kan mij dat wel voorstellen, het is functioneel maar niet echt gezellig.

Kunnen jullie je voorstellen dat het voor passagiers zo voelt? Waarom wel/niet?

1. Nee niet echt, het is een gate area. Ik verwacht daar niets meer of minder van dan wat er nu is.
2. (Veel passagiers hebben hun mindset op deze plek al op vertrekken en dus op KLM. Ze zien het vliegtuig buiten staan en denken dat KLM verantwoordelijk is voor alles in die omgeving; vieze toilet klachten komen bijvoorbeeld ook bij gate agents terecht. Het is dus een dunne lijn waar wiens verantwoordelijkheden liggen en in hoeverre de pax dat ook denken/weten)

Hoe ervaren jullie de situatie?

1. Op zich goed, het zijn ruime gates. Tijdens het instappen zijn we vooral bezig met het zo snel mogelijk instappen van de vlucht. Wat er dan gebeurt in de wachtruimte gaat een beetje aan ons voorbij.
2. Een ruime veilige gate met werkend apparatuur. Qua uitstraling is het ons om het even denk ik.
3. Een fijne werkomgeving geeft ook werkvreugde en dat resultaat in tevreden personeel en heeft dan dus ook zijn weerslag op pax.

Perfekte situatie:

1. Ruim · Licht · Genoeg zitplaatsen · Warm (planten/veel hout) · Dichte plafonds

H. EARLY OBSERVATIONS

Observations and enactment (partly Dutch)

Mensen wachten. Ze weten ook dat ze moeten wachten, dat is altijd zo op elk airport. Ze vinden het daardoor ook niet echt heel vervelend om te wachten, het is belangrijker dat ze weten wanneer ze kunnen boarden.

Het is de laatste stap van het hele process op Schiphol en daarom vinden mensen het fijn om daar te zijn, wetende dat ze alles gehad hebben en nu alleen nog maar hoeven te boarden. Mensen zitten er best vredig bij, ze zijn tevreden met het afronden van alle verplichte stappen. Het is ook echt laatste moment dat mensen nog even 'live' zijn en dus via internet of telefoon contact kunnen hebben met vrienden / geliefden. Vliegen blijft toch altijd wel een happening dus laten weten dat je je vliegtuig hebt gehaald en bij de gate zit hoort er toch bij.

Het is opvallend dat bijna iedereen wel bagage bij zich heeft en dat of naast zich neerzet, of op schoot houdt. Ze creëren er een beetje hun eigen zone mee, zo kan bijvoorbeeld niemand naast hun gaan zitten. Wat ook wel erg dichtbij voelt en awkward. Mensen willen graag samen zitten als ze ook samen reizen.

Iedereen zit op hun telefoon. Ze 'vervelen' zich maar dat is niet vervelend. Naar buiten kijken vinden mensen fijn. Een beetje kijken naar de vliegtuigen of in ieder geval het idee hebben dat je kan kijken, is fijn.

Op de G-pier vertrekken alleen de grote vluchten. Deze mogen boarden in bepaalde volgordes. Dat is niet altijd duidelijk of mensen luisteren niet goed genoeg. Behoeftte aan om te kunnen lezen welke zone er nou mag instappen. Emirates roept ook om in hun eigen taal. Er is geen duidelijke rij, maar dat lijkt geen probleem te zijn, mensen sluiten vanaf de zijkant aan. Mensen wachten voor de poortjes / pal naast de rij tot wanneer hun boarding groep naar binnen mag. Passagiers lijken onzeker te zijn over 'of ze al aan de beurt zijn' en worden daar onrustig van. Sommigen passagiers vragen zich af of ze wel tegelijk mogen boarden, omdat hun stoelnummer anders is. Een host loopt een paar meter door de gate om te vragen (schreeuwen om zichzelf verstaanbaar te maken) naar sky priority passagiers / business class. Niemand reageert dus ze loopt terug. Later loopt zij ook de hele gate in om te checken of alle passagiers die er nog zitten nog

aan boord moeten. Niemand reageert dus ze loopt weer terug.

Some people are turned around towards the gate, to see when it's their turn or to make sure the plane doesn't leave without them. After the call for remaining passengers to enter the plane, people are still moving slowly or even keep their seats. They probably know that there is still a waiting line inside the plane...

"Heh? is this already our number?"

"Have a nice holiday, maybe we see each other again!" People made friends at the gate, during the wait and when boarding starts, this is the moment they split up and say goodbye.

One woman decides to go to the toilet last minute, and here husband worries about her being back on time. He excuses to the boarding personnel and asks them to wait. When she comes back the other woman is not very happy, but there is no reason to. The barrier tape is in the way of her 'fast track' otherwise she has to bypass it uncomfortably. The worker doesn't seem to notice so the woman bends herself underneath the tape / rope.

Parents with a small child have a lot of stuff, when they board they also pack everything and leave the trolley. 5 bags, 1 baby carrier, 1 stuffed animal and the baby.

One guy is facetimeing until he passes the passport control.

The 'service desk' at the gate is open for questions, but half of it is not accessible because of the barrier rope / tape. Since the working personnel is behind their desk, they are not able to help them.

People re-organise their luggage, they bought stuff and want to use certain items on the plane and don't want to put them at the cabin.

One couple sat at the wrong gate and didn't notice. The woman had told him that their plane would be next, after this one, but in the meantime the gate changed. The woman never got back to them to tell them. There

were no screens near them; they needed more information.

High priorities:

- weten wanneer boarden begint
- laatste dingetjes op wifi doen
- familie en vrienden bellen / appen
- nog even wat eten
- nog even toiletteren
- spullen her-organiseren / checken

Why are people there already at their gate?

- We are almost boarding so we are expected here.
- We've stayed away as long as possible but we are leaving very soon, so now we had no choice but to wait here.
- I am tired and am killing my time here, I don't want to be anywhere else.
- Bad planning, we thought we were able to board already at this time.
- All the queues before took a while (in total one hour) so I wanted to make sure to be here on time in case there would be another queue. Now this is the boarding queue so I will wait until it's gone
- We don't want to miss the plane!
- I don't like to rush so I am always early.
- I don't like when something goes wrong, at this place I can just sit and wait on my plane.
- They already did everything else on Schiphol so this is now where they should be.
- To not get stressed about missing your plane! When you're there yourself, you can experience there is no need for rush and stress.
- We are ready to go, we've waited almost an hour.
- It's more quiet then in the lounges - less crowded.

How do people experience the gates:

- Nice to sit and relax after all the busyness of this morning at the rest of Schiphol. We're comfortable.
- We are happy we can sit next to each other on this coach, normally the chairs are occupied by individuals and then there is no place left for

two. It looks efficient but it is not at all, since people are not going to sit that close to each other. People need their own space before going into a plane.

- The place is not 'gezellig'
- There are seats and couches available so that's good! But it looks clinical.
- There is a lot of staff around, that feels good. Especially when arriving, I was helped immediately.
- It's spacious, that's good! But I need more shops here! Something to do..
- Nice that I can charge my phone that's all I need.
- It's a fine gate, it's good. It doesn't miss anything, an airport is an airport I am not used to something different. There is nothing to do, but that's always.
- It's very big here! But easy to read the signs. The gate is a good place to chill and relax. I am sleepy so I want to sit and not do too much.
- We're here more often but it's still a maze. "Het is niet fleurig" meaning: there are no colours, not a happy vibe. "It would be nice if that would be different, this is not my holiday feeling!"
- I don't really feel like being in a gate, like in some other places where you are being put in one hallway / waiting room... Like kettle.
- It's fine, we just sit here and go smoke or shopping from this point onwards. Nice to just be at the gate.

What keeps people busy:

- Busy on phone
- Watch football
- Staring out of the window
- Staring in the deep
- Using the toilet
- Chat with friend
- Reading
- Just sitting
- Looking in the shops
- Listen to music
- Charge phone

- The same as when I am sitting in the train and have 'nothing to do'
- Look at passengers / people

What do people want to see at the gates:

- More water dispensers!
- I want to check out more presents or magazines, since I did not have the time to do that earlier.
- Charge yourself: relax and chill. You've got to wait anyway.
- Coffee and toilets.
- A small table for my stuff.
- I would want to grab a book or something, not to buy but just to read for now (library idea)
- I would want something to do, for example shops... just to look at something that kills time or anything.
- At least nothing energizing, I am going in a plane and I want my rest. Would love to have some relaxing chairs here.
- I just want to sit without having to think. I like to take a picture from the plane / the view.
- An earth without people is no earth at all. I like to look at people and I am happy with that. If I get bored then I would want to see TV screens of the place I am about to visit; Africa! I love to see animals on TV.
- I want more colours!

In what way are people being well-helped at the gates?

- I think all is good, I didn't need any help.
- I know when to go to the gate because they call us to enter the line and when everybody is standing.
- I don't have any questions yet, because the signage is very clear. I know that I am in the right place.
- If I need any help I know where to ask for it
- The indirect service is good with very clear screens and directions
- First time travellers are like explorers; they don't know where to go but they can find out. I looked on the website before our flight this morning so I knew where we had to go.
- Everyone is very kind and willing to help, I went to the service desk when I had a problem

- I am not really helped so far, but last year my flight had a delay and then I didn't get any attention from the personnel.
- Not yet, but I know that if I need it I can ask for it.
- Everyone speaks English very well
- I don't understand the broadcasting lady when she calls people by their foreign name. I can not process those words in time, maybe it's about me?

How could you be helped even better?

- Everything until this moment is where you can be helped, but at this place it is just waiting for boarding. There's nothing to it.
- "Waiting here is just part of the airport process."
- If everything goes alright, we will get to hear when boarding starts.
- In Singapore everything is better: there they have carpet and there is way less noise; more quiet!
- Make the information available at every place, the TV with gate information was not in our view.
- We needed someone to tell us that our gate changed.
- You really have to pay attention to the broadcast voice, if it's already your turn. Would be nice to have a big communication screen that shows everything that's also broadcasted; some sort of big monitor displaying the needed information.

In what way do you feel seen?

- Probably they don't know that I am here exactly but I'm on the system I guess, because I checked in. In the meantime however, I did not engage with anyone.
- I blend into the mass... I don't think anyone knows that I am here
- Yeah I think they know that I am here...
- I know how many cameras there are in this place so yeah I might be seen at some point :)
- I don't think the personnel realizes that I am here

In what way do you feel welcome?

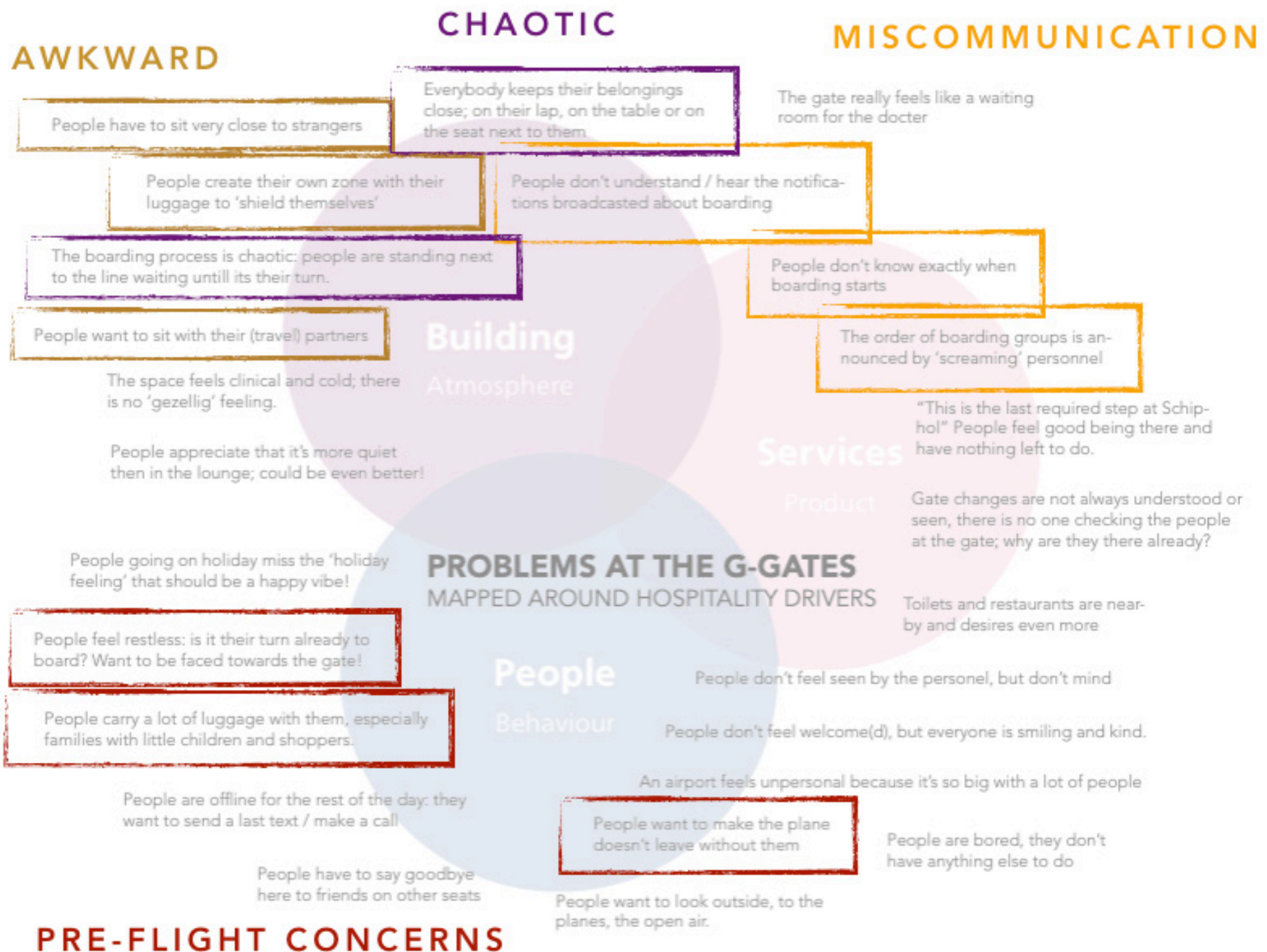
- With the signs it feels nice that you know the way.
- Well it was very nice talking to you! The other staff is also very kind,

approachable and friendly.

- Compared to America this is very nice, there it feels like a kettle house. This is open, not per se welcome but I can move.
- Everyone is smiling
- Especially when I talk to people.
- Everybody is kind and I feel safe always.
- Well, if you're at the correct gate then you're welcome. But if you're at the wrong gate, they don't notice you being there.
- I don't really feel welcome, I mean I feel comfortable but not welcomed.

What could be improved in order to make you feel more seen and welcome?

- Everything is just a little bit impersonal, because it is massive. Almost like a city.
- I accept an airport and its function. It is not always comfortable but that is okay, that's just how it is.
- Comments on monitors to make you feel welcome?
- I would like movable chairs, so we could sit together.
- I don't necessarily want to be seen, because I want to be able to do my own stuff; read and chill a little bit. But when something goes wrong, it would be nice if they knew we would be at the wrong gate.
- As long as I can sit and it's an open space.



"GEZELLIGHEID"

People have to sit very close to strangers

Everybody keeps their belongings close; on their lap, on the table or on the seat next to them

The gate really feels like a waiting room for the doctor

People create their own zone with their luggage to 'shield themselves'

People don't understand / hear the notifications broadcasted about boarding

The boarding process is chaotic; people are standing next to the line waiting until it's their turn.

People don't know exactly when boarding starts

People want to sit with their (travel) partners

The space feels clinical and cold; there is no 'gezellig' feeling.

People appreciate that it's more quiet than in the lounge; could be even better!

People going on holiday miss the 'holiday feeling' that should be a happy vibe!

People feel restless: is it their turn already to board? Want to be faced towards the gate!

People carry a lot of luggage with them, especially families with little children and shoppers.

People are offline for the rest of the day: they want to send a last text / make a call

People have to say goodbye here to friends on other seats

Building
Atmosphere

Service
Product

CONFIRMATION

PROBLEMS AT THE G-GATES MAPPED AROUND HOSPITALITY DRIVERS

The order of boarding groups is announced by 'screaming' personnel

"This is the last required step at Schiphol" People feel good being there and have nothing left to do.

Gate changes are not always understood or seen, there is no one checking the people at the gate; why are they there already?

Toilets and restaurants are nearby and desires even more

People don't feel seen by the personnel, but don't mind

People don't feel welcome(d), but everyone is smiling and kind.

An airport feels impersonal because it's so big with a lot of people

People want to make the plane doesn't leave without them

People are bored, they don't have anything else to do

People want to look outside, to the planes, the open air.

QUIET & RELAXING

DISTRACTION

People
Behaviour

ONLINE CONTACT

I. CONTEXT MAPPING (GENERATIVE SESSIONS)

PROCEDURE

- Sensitizing (10 minutes before session) @ gate
- Find participants
- 5 groups of 2 passengers: Going home, going on holiday, transfers, experienced travellers, inexperienced travellers.
- Explain sensitizing material + pen and invite them to come to your table after finishing (max 10 min)

Workshop / generative session (20 minutes max) @ gate

Introduction

Thank you for your time.

Signing the consent forms.

Start video!

The following 20 minutes we will be making two different collages on a sheet of paper. The material you can use exists of words (a.o characters of interaction), pictures, pencils, glue, scissors and everything that is on the table! I want to ask you to think out loud, this helps me in understanding your thoughts. Maybe I'll ask some questions in between, but remember that nothing is wrong! You are the expert of your own thoughts!

(Present) Current situation

Please make a collage with the photos and words that you find fitting in the current situation at the gates. If possible, place them around the circle that you find most appropriate.

Questions

What comes up in your mind as first?

What are negative experiences and what are positives?

Which characteristics do you want to change?

What are your fears?

(Future) Desired situation

Please make a collage with the photos and words that you find fitting in the desired situation at the gates. If possible, place them around the circle

that you find most appropriate.

Questions

How do you envision the mindset could change?

How could that be enhanced?

Looking at both collages: which current interactions are undesirable?

What are your desires?

If your dreams would come true, what would the gate be like?

Presentation

Discuss the outcome of your map with other passengers / or with the researcher: present your results.

RESULTS

P1. Woman 55 travelling with man - no travel experience - already here because they wanted everything to go well.

Current situation

- Travelling means relaxation to me; a different culture.
- Everything is nice, I have no negative experiences with this travel so far.
- I am just looking to people and looking outside the window.
- We are walking back and forth a bit, drinking coffee and smoking a cigarette.
- The gate offers enough seating places so we have nothing to complain.
- The building feels efficient, it is very tight / strict.
- Every service and product is simple and functional.
- The personnel at the airport are all friendly and relaxed.

Desired situation

- I would call it warm functional, because there are certain tasks to complete but it could be a bit more friendly / soft / warm.
- The building could make people happier! I want to see more colours.
- Products could be softer with organic soft shapes.
- The people are already very friendly and relaxed that's just fine.

P2. man 65 travelling with wife and friends - Not a frequent traveller no-

wadays

Current situation

- Rust, reinheid en regelmaat: peace, cleanliness and regularity.
- It is nice to chat with my friends who I am travelling with, I enjoy travelling.
- Travelling means freedom to me. If I am able to travel, I am able to go wherever I want.
- I like to look around me to all the people and to the planes. I like that technique.
- You have to enjoy life, especially when you're going on holiday! Don't worry, be happy!
- Having the freedom in discovering new stuff makes me happy.

Desired situation

- Title: positive in life
- The building could be more open-minded, more creative.
- The services offered would be neat and direct.
- You will be treated after you act (?). Meaning: you treat others like how you would be treated. Open-minded by giving others the opportunity to give their opinion. That should be the behaviour of people. Respect another.

P4. 50 year old woman travelling with man - not a lot of travel experience - flight to Izmir

Current situation

- A big space with a lot of things
- Everything is symmetrical, it feels like an office.
- There is no 'gezelligheid' in the gates.
- All products and services are functional. If they have a colour it is because of its function.
- When you are going on holiday, you want to observe and absorb things like new cultures. It feels like looking through your camera.

Desired situation

- Title: curiosity
- When I am going on holiday I am curious to new things, to everything.
- I am going to fly because I am going on holiday, those two are linked together. I would want to see more pictures or something to trigger

my holiday feelings.

- Products could be more positive, like my mood 'on my way to holiday'
- Holiday means new cultures and new food, healthy.
- People should not be boring, but a little bit more arty, like this cute picture.

P5. 30 year old girl and cousin - travels sometimes - has anxiety - flight to Izmir

Current situation:

- To me everything is fine because I am going on holiday, so I am happy either way. It would be different if I would be standing in the supermarket right now, haha.
- Yeah the balloons look like a good vibe, because I am going away I am happy and I think everybody is.
- It feels the same as drinking a beer, that's also nice.
- There are enough services like food and drinks, that's fine.
- Title: Onderweg = On tour.

Desired situation:

- Your holiday starts at Schiphol!
- I would want to use the building more to relax, lay down a little bit to prepare for the flight and to reduce my anxiety.
- The services could be a bit more honest, because of the high prices of food and drinks.
- People could be happier.
- I would like to see distraction and relaxation possibilities like a gaming room. For example with playstation, hotspots of some countries to check before flight.
- Also you could give more real-time information about how busy it is on Schiphol, because we thought it would be very busy because of the holiday (herfstvakantie) but now we have too much time here.

P3. Three girls from Denmark - Transfer going home

Current situation

- The chairs are nice.
- There is a lot of steel and the building feels open but also very busy.
- There is enough light from the windows that's very nice.

- It feels familiar because it is standard, just an airport.
- All people that are going on holiday should be happy and excited.
- The people have the freedom to do what they want.
- There is a harmony when everything is together (building, services, people).
- Until now we didn't have to wait very long...

Desired situation

- We want to see more colours, more warmth in the environment.
- Maybe even art, to just look at...
- Music would give a good vibe, but not like at Joe & Juice (too loud).
- Happy people make people happy, that's what we need even more; like babies.
- As a service improvement I would make sure to have more and better affordable food & drink.

P6. 25 year old guy travelling with a friend - travel experienced - flight to Istanbul

Current situation:

- "It all feels familiar because an airport is always a little bit the same"
- "Within the building everything is in harmony"
- "However it is busy everywhere"
- "Between the building, services and people all is in harmony, that's why I pasted that one in the middle"
- There is not much to it, all services are just nice and easy. I am satisfied with that, it's just okay...
- The people (workers) are friendly.
- Other passengers are tensed, like me I am missing home.
- Also they are restless and hurried because they have to go somewhere.
- I think people feel controlled because there is a lot of things you have to do.
- Time is important at an airport.

Desired situation:

- The building could be a lot more attractive for children they need more fun.
- There is a lack of services like food and drinks here.

- I would love to hear music here, that's really the most important. A piano or anything distracting but relaxed.
- Make the people more energetic.

P7. 30 year old guy travelling alone - travel experienced - flight to Istanbul

Current situation:

- The building is very simple, walking here feels normal. There are all kinds of these structures.
- The service is easy, there is nothing complicated about it.
- Everything is controlled and how it should be.
- People are sitting there and the screen is communicating.
- I have not talked to people, but they all look kind and friendly.
- Everybody is active/busy with something.

Desired situation:

- The building should feel more excited with colours and make happy.
- A good service would be to play music.
- Make people have more energy, maybe a bar that you can walk around.
- It would be more cosy with more active passengers.
- I would like to meet people or connect with them, normally I am on my phone and computer.

P8. Girl travelling alone - semi experienced

Current situation:

- My father says: travelling is waiting! If you hurry one step, the other step will be waiting longer.
- TL buizerig - niet welkoming
- allemaal wel een simpele stijl, alles moet handig zijn.
- Productiewerk voor massa, allemaal hetzelfde.
- Alles draait om tijd, dus die zit in het midden.
- Alles in het gebouw draait om die tijd, alles heeft daarmee te maken. Dubbele beleving want je wordt erdoor geleefd maar het is neit nodig.
- Stoelen naast elkaar dus altijd naast iemand moeten zitten of tas weghalen, in elkaar's personal space. dus awkward.
- Mensen zijn niet op hun best als ze in de gste staan.

- Ieder is heel erg voor zich, we zijn allemaal boos met vertraging en iedereen gaat voor zijn eigen hachje. Ook met zijn allen reizen maar je kent niemand.
- Bij KLM lounge lekkerder om een eigen stoel te hebben en te relaxen.
- Met grote groep wil je liever ook allemaal kunnen zitten, in je eentje maakt dat niet altijd uit.
- Touw: producten en mensen zijn een beetje op het einde van hun latijn / op randje van knappen.

Desired situation:

- Abu Dhabi dak: goeie combi van modern en cultuur / oudheid...
- Sfeerverlichting: iets gezelliger maken.
- Amerikaans is geforceerd leuk, wat dan dus niet echt leuk is. Terwijl gewoon relaxte lampjes kan een ruimte al heel gemoedelijk worden, zonder daar al te overdreven in te doen.
- Faciliteren van relaxen en at ease voelen.
- Kleuren van de herfst deden we eraan denken dat een ruimte er gezellig uitziet. Kleurrijk trekt me aan.
- Mensen die er werken zijn niet altijd de vrolijkste, die kunnen wel wat 'warmer' of persoonlijker zijn.
- Wil geen gespannen sfeer bij de mensen, gunfactor naar elkaar!
- Kampvuur in het midden waar je heel relaxt bij kan zitten zonder iets te doen, wat nu in de gate niet echt is maar wel perfect zou zijn.

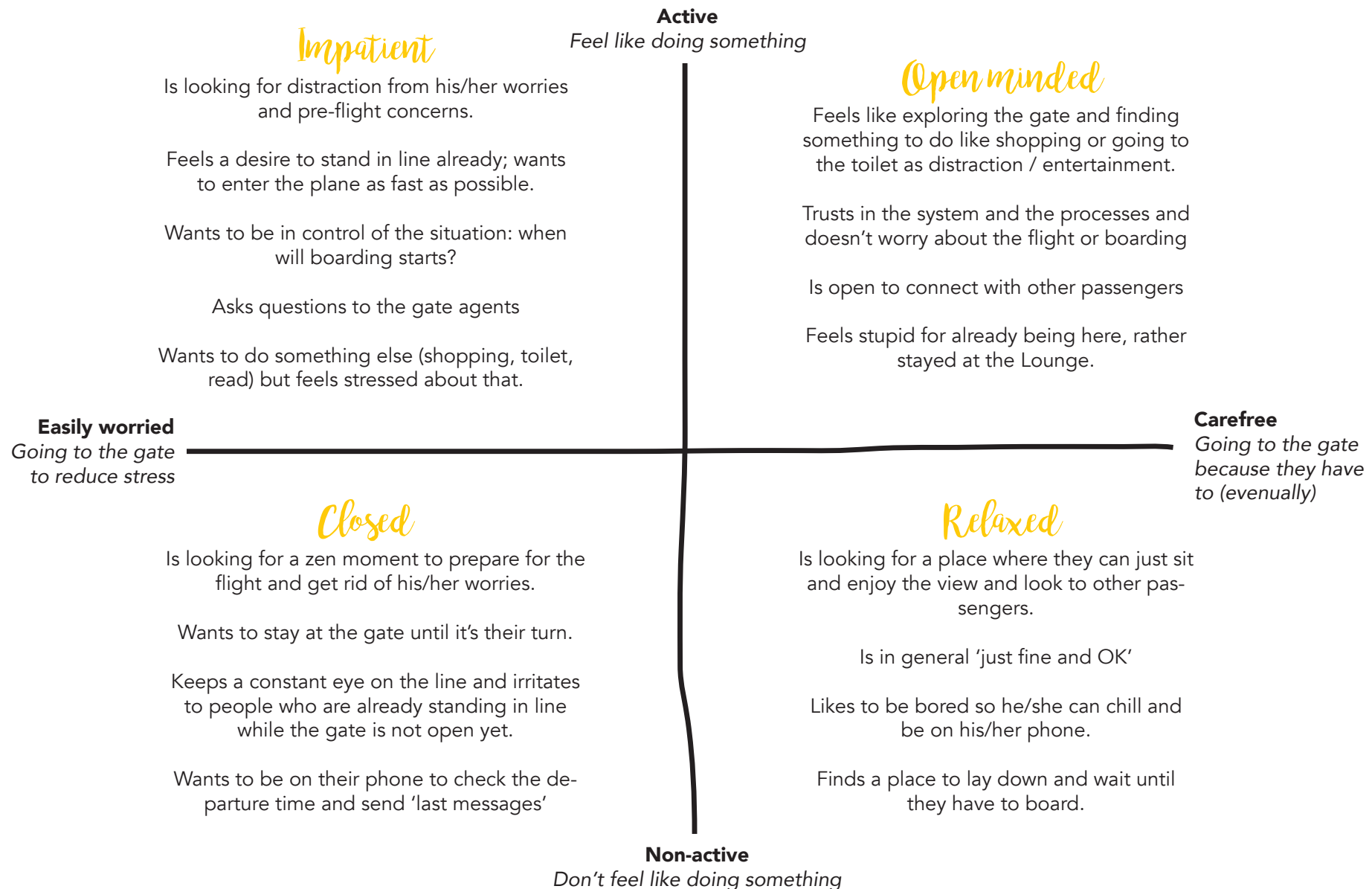
Reflection Context Mapping

About the session

- 30 minute sessions are really short, make the exercises way smaller or less exercises (1 sensitizing and 1 normal)
- Do not ask people who don't want to join, they will not feel like helping or doing something. People from arab countries don't want to help, don't pick flights to the middle-east.
- Take at least 10 minutes of time to find people and to explain what they need to do
- Do not prepare 12 toolkits, but reuse the images and words that are used in an earlier session. I spent way too much work in preparing the toolkits.

- Explain with a background how they must use it, with my cases everybody only stucked pictures inside the bubbles while this was not what I wanted them to do...
- Enactment 1 hour before the session really helps in feeling what they might feel at that moment (added value of executing session on the location)
- The images seemed not to interfere a lot with the 'gate experiences' that people had, they had a hard time to find fitting images more than 1 or 2.

J. PASSENGER BEHAVIOR



K. IDEATION SESSION

IDEATION SET-UP

How to make passengers that are waiting for boarding at the G-gates of Schiphol feel welcome, at ease and seen?

Tijd	Duur	Onderdeel	Instructies	To do ter plekke	Success factors
Ontvangst					
13:30	10m	Passen halen CUIP	Met Jelmer als begeleider en gezamenlijk door de douane heen	Voorbereidende mail, paspoort!	
13:40	20m	Rondje lopen G-pier	Immersive rondje, even zitten bij de gate, goed kijken.	Stiften + post-its al klaarleggen	
14:00	5m	Welcome and introduction	Wie is wie, wat gaan we doen (3 diamonds uitleg)	Klaarzetten koffie / koekjes	
14:05	5m	Icebreaker	Je buurman tekenen op een creatieve naamsticker	Grote stickers & stiften. Maken Parking Lot.	
14:10	5m	Briefing problem	Uitleg van de huidige situatie en design goal (welcome, at ease, seen). Uitleg verschillende soorten passagiers en verdelen van moods voor eerste gedeelte:	Posters rond laten gaan. Koppels maken per mood.	Check of begrepen
Problem Finding					
<i>Diverging</i>			Uitleg regels diverging phase, uitleg parking lot	Poster regels laten zien	
14:15	5m	Purge	Dump hier alle gedachtes die je hebt rondom het probleem, welke problemen hebben jullie nu gehoord? Wat denken jullie zelf dat problemen zijn? Welke vinden jullie belangrijk.	2x A1 op tafel	Als iedereen open is en vooroordelen gedumpt heeft.
14:20	5m	Flower association	Vergroot de context van gastvrijheid door je associaties rondom 'feeling welcome and at ease' en 'being seen' te zetten.	Vragen: waar associeer je X mee? Waar doet X je aan denken?	2 volle vellen
<i>Converging</i>			Uitleg regels converging phase	Poster regels uitleggen	
14:25	10m	Restating the problem	Maak 10 andere formuleringen van wat jij denkt dat het probleem nou echt is in een 'How to...' formulering. Voorbeeld oude PaG. Keuze van 1 beste H2	Verdelen A3 vellen. SPARK check (specific, positive, ambitious, relevant, simple)	
Idea Finding					
<i>Diverging</i>			Regels		
14:40	5m	Purge	Schrijf alle ideeën op die je nu al hebt om de PaP op te lossen op een post-it en hou deze even voor jezelf. Na 2 min: plak omstebeurt al je post-its op t vel.	A1 vel met PaP in het midden van de tafel. A1 vol → weg leggen.	2 volle vellen - 50 ideeën
14:45	20m	Brainwriting on post-its (fluency)	We gaan nu hiermee door op een nieuw blad en we willen er zoveel mogelijk! Denk aan de wildste ideeën, alles mag! Trend cards kan je als inspiratie gebruiken	Trendcards uitdelen na 5 minuten.	4 volle vellen - 100 ideeën
		If needed: Analogy or metaphor	Inspiratie uit situaties waar wachten ook voorkomt, hoe lossen ze het daar op? Komen gates op andere plekken voor? Hoe zouden dieren dit probleem oplossen? Waar is je welkom voelen belangrijk en hoe zorgen ze er daar voor?	Als nodig: na 10 minuten erin gooien.	2 volle vellen - 50 ideeën
15:05	15m	Excursion (flexibility)	Loop met koppel een rondje door de gate (2 min) en zoek een object wat jullie interessant vinden (in gedachten). Terug: maak een tekening van jullie inspiratie object. Force fit dit object als oplossing: genereer meer ideeën! Klaar? Vertel aan de groep welke nieuwe post-its je toevoegt.	Koppels maken. A3 per koppel voor tekening.	2 volle vellen - 50 ideeën
15:20	5m	BREAK	Take a break while taking a walk. look at the gates if needed, visit toilet.	Ophangen vellen met ideeën op	Als einde diverging & 250 ideeën

15:05	15m	Excursion (flexibility)	Loop met koppel een rondje door de gate (2 min) en zoek een object wat jullie interessant vinden (in gedachten). Terug: maak een tekening van jullie inspiratie object. Force fit dit object als oplossing: genereer meer ideeën! Klaar? Vertel aan de groep welke nieuwe post-its je toevoegt.	Koppels maken. A3 per koppel voor tekening.	2 volle vellen - 50 ideeën
15:20	5m	BREAK	Take a break while taking a walk, look at the gates if needed, visit toilet.	Ophangen vellen met ideeën op de ramen met schilderstape. 4X A1 doormidden voor poster.	Als einde diverging & 250 ideeën
Reverging			Regels		
15:25	10m	Spontaneous clustering	Maak connecties tussen de opties die hier allemaal staan. Cluster ze als groepen bijv vorm, functie, werking, doelgroep. Geef ze een titel. Spontaniteit is belangrijk, het hoeft niet per se logica te zijn. Wisselen mag ook.	Herinneren aan regels. zorgen dat het binnen de tijd lukt!	Ongeveer 8 clusters.
Converging			Regels		
15:35	5m	Hits & dots	Hits & dots in 3min op interessante, haalbare, relevante oplossingen (3x groen) en op innovatieve, fascinerend hits (2x rood)	Uitdelen stickers	
		Indien geen tijd meer: hits & dots ronde 2	Indien geen tijd meer voor solution finding: welke clusters met ideeën kunnen het beste een situatie creëren die als volgt aanvoelt: excited, relaxed, warm, personal	Uitdelen stickers	2 of liefst 1 cluster die gekozen wordt.
Solution Finding					
Diverging			Regels		
15:40	10m	Brainsketching / poster	Kies een cluster die jou aanspreekt, schets zoveel mogelijk ideeën uit die je hebt als je kijkt naar dit cluster, geef het een leuke titel en link het cluster / de ideeën aan de trend(s). > <i>Of moet ik hier de clusters verdelen over de groep zodat elk cluster even goed wordt uitgewerkt?</i>	4x A1 doormidden scheuren. Uitdelen half A1 per persoon.	Kies een cluster die je helemaal niet aanspreekt. + trend die erin voorkomt.
Reverging			Regels		
15:50	5m	Elevator pitch	Uitleg design direction met ideeën en trends in 30 sec.	Timen 30 sec per persoon.	
Converging			Regels		
15:55	5m	Hits & dots	2 grote stickers plakken op welke clusters volgens jou een goede design direction vormen om de gewenste situatie te bereiken: excited, relaxed, warm, personal.	Vergelijken met IV ?	Als 1 gekozen

IDEATION RESULTS

Problems at the gate

- I want information of the destiny
- I have no clue what happens in the plane / with the plane
- I have no connection with nature / outside
- I don't have a complete overview of what's happening around me; I have to sit close to the gate
- Tough materials; sitting is not comfortable
- There is nothing extra's to do here besides waiting (and spending money)
- There is not a positive vibe / no nice atmosphere; not much colours.
- People are restless / in a stressed vibe and they contaminate each other with that: I am worrying about other people.
- I don't want to see bad news on the TV screens; I am going on holiday!
- Very open; no privacy and not cozy; the ambiance has no personality!
- No contact between people; not much to talk about.
- There is nobody to welcome you at the gate.
- There is no Schiphol employee around; no point of contact.
- With my back to the gate I can't see when boarding starts.
- The light from outside is very bright.

Welcome, at ease and seen is being associated with:

- No waiting line
- Home; familiar / warm ambiance, autumn
- Personal attention; to your wishes
- Personal: recognition
- "Here you are" confirmation / sense of place
- Personnel; friendly, taking care of you, present at gate.
- Welcoming person / open arms / inviting / saying hello.
- Pillows; soft and 'gezellig'
- Relaxation; ZEN, be myself.
- Entertainment; travel is fun feeling; holiday!
- Nice (friendly) host / hostess
- Getting help when needed

Clusters are shown on the next page!

IDEATION REFLECTION

Trend cards werkten niet zo goed als ik dacht, volgende keer misschien iets langer mensen door laten gaan nog en ze een voor een uitdelen ipv drie tegelijk.

Moeilijk om structuur of overzicht te houden in zo'n grote groep

Toch nog iets beter mensen aanspreken op de regels tijdens divergeren en convergeren. Echt luisteren naar wat mensen zeggen en ze daar dan op aanspreken als het verkeerd gaat.

Tijdens divergeren toch nog energieke zijn en mensen motiveren om meer ideeën te genereren. Er moet een soort stoommachine opstijgen!! Niet afwachten tot dat vanzelf komt, facilitator is degene die dat gevoel moet creëren door zelf zo te zijn.

Clusteren iets georganiseerder beginnen, het was nu de eerste 2 minuten (heel lang dus) niet duidelijk welke clusters wat waren... De groep ook zelf de cluster titels laten bedenken ipv ik zelf, want daardoor was het te 'obvious' ofzo?

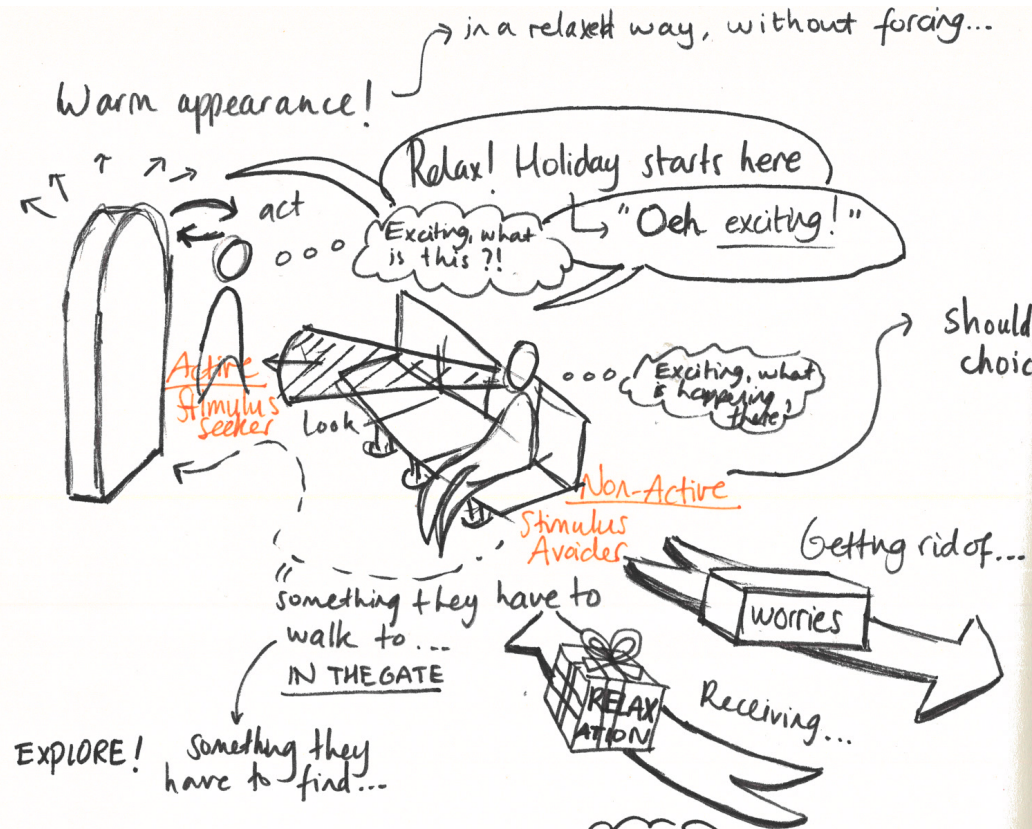
Koppels maken, mensen zijn net kleine kinderen die dan niet kunnen of durven kiezen ofzo. Gewoon op pad sturen hup!

Main take-away aan het einde had mensen nog meer een 'gehoord' gevoel gegeven, zij hebben veel nagedacht en willen toch ook wel graag dat hun energie nog gebruikt wordt. Zonde om sommige 'toelichtingen' zo te laten schieten. Had bijvoorbeeld iedereen even zijn eigen zegje moeten laten doen ipv per cluster.

Het kiezen van clusters had ik wat beter moeten bedenken hoe ik dat ging aanpakken. Die 4 woorden hadden duidelijker de input moeten zijn voor het kiezen van de clusters; betere uitleg / instructies nodig.



L. FOLLOW-UP IDEATION

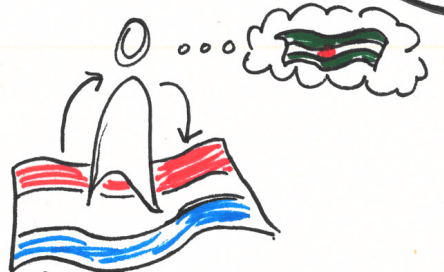


A **warm** ambience

A **personal** approach

An **excited** feeling

A **relaxed** vibe

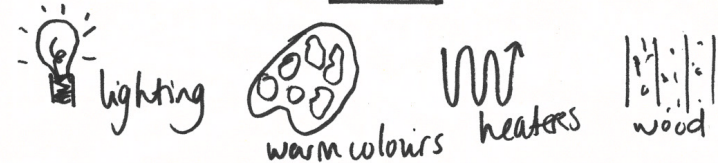


Sense of place while already connect the mind to the
DESTINATION

Collecting 'something' and take it with you?

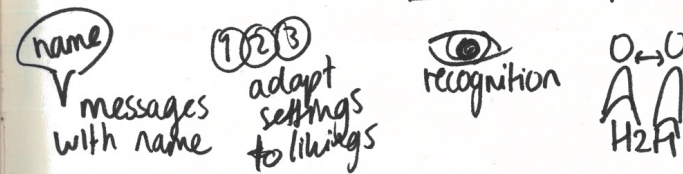
Exp. value: atmosphere

How to create a warm ambience?



Exp. value: hospitable

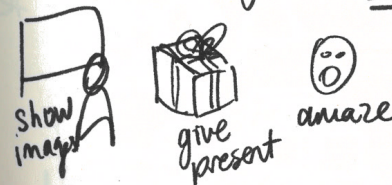
How to make a personal approach?



Exp. value: inspiration

How to give an excited feeling?

Emotion



Amusement is the enjoyable experience of being entertained and the tendency to share the enjoyment

Exp. value:

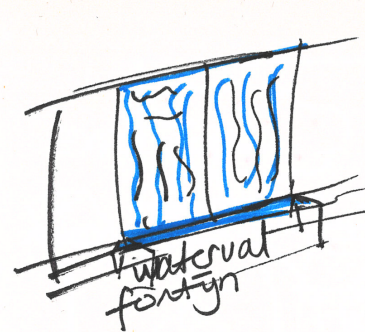
How to create a relaxed vibe

Emotion

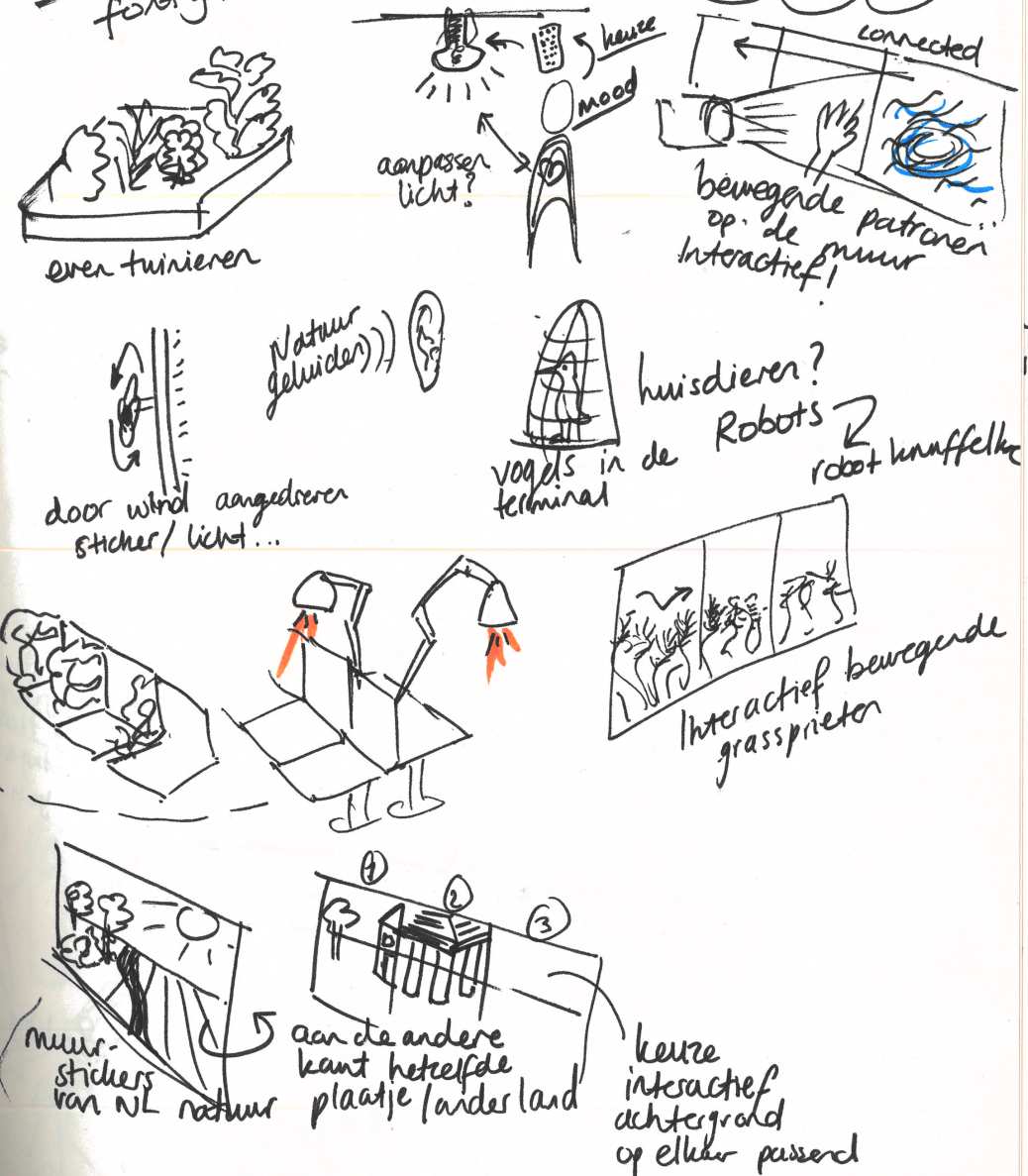


Relaxation is enjoying a state of mental or physical calmness, slowing down and savouring the present moment.

HUISKAMER



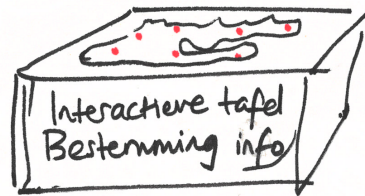
NATUUR



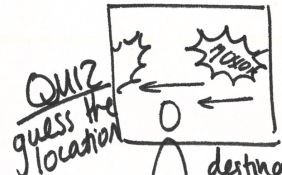
CULTURE EXCHANGE



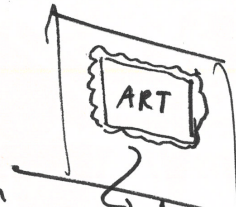
different living rooms
"typical" ... [country]



↑ of room



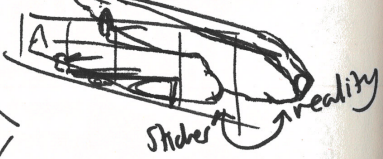
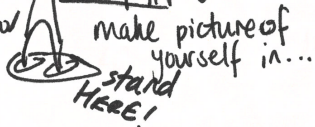
destination generator
STAND HERE!



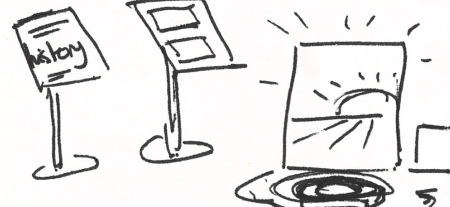
changing per destination?
Screen



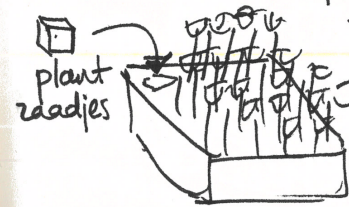
or choose destination yourself?
make picture of yourself in...



EXPO schiphol



turn the wheel to change the setting



neem bloem mee naar huis.

phones to call other pax



Amsterdam stickers

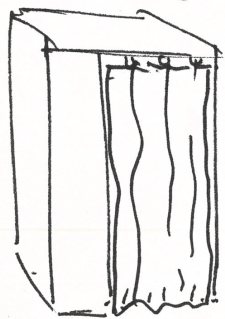


pak een spelletjes boekje hier!

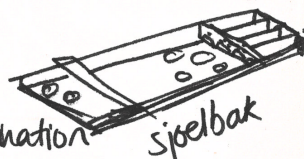


30 seconds

about NL? culture?



Experience Booth destination



spelbak

INTERACTIEF MET CULTURE

ACTIVITEIT

touch for different light or sound?

opdracht 1. spel 1.

Fakkel tocht?

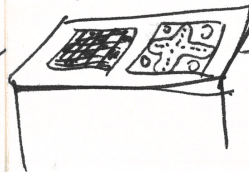
spel opdracht 3.

opdracht 2. spel?

opdracht 4. spel

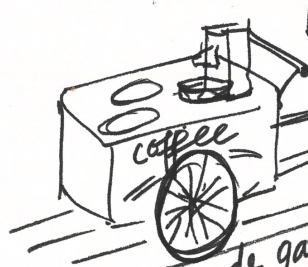
schiphol Mascotte?

Interactieve bord spellen



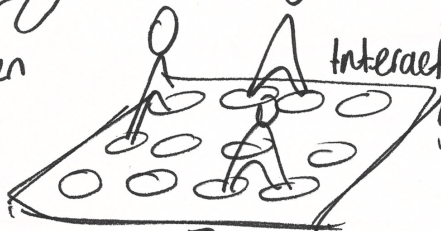
painting with your feet

bakfiets koffie/ys local products
langs de gates verkopen



knutselen kleurplaten?

Interactief bordspel



light fibres
moving



mime screen snapchat



+ background sounds?

+ ambiance depends on

something should be done here? (connect phone?)

the more people connect, the brighter the ambiance light will work



CAMPFIRE LAMP

Hey, come sit!



shadow

KUNST

hologram van airport helpes

welkom
Smile and wave

making it yourself

patterns existing through light / different thickness



removing the colour on the glass

reaction to pen
- heat
- magnetic
- pressure


M. DESIGN INTERVENTIONS - DIK(W) MODEL

Prototype 1 - Making shapes with triangles		
Data	Information	Conclusion
Everybody was looking at me while I was busy with putting stuff at the window	Window is a good place to draw attention!	This place and object (window) draw the attention while people can stay seated.
When I or the girls were busy with the window, people looked at us to 'have something to do'. People want to look around them.	Doing something at the window draws attention	The window is a good place for interaction.
People already sat at the gate when I entered and they saw me hanging up the things, they keep looking at me as if it is a trap.	it is a good sign that they were looking at me to what I was doing with the window.	
Children want to play with it, but also want to make their own arts. Parents steer them to make the art that is given as an example	Nice that the concept offers both example and freedom for personal designs.	
Children playing works contagious to other people who are smiling and looking at them playing! Everybody that noticed her playing had a smile on their face and could look at the artwork she was making. This was a smile that said 'cute'!	Adults like to look at children playing with the triangles.	Making shapes is most fun and attractive for children, and adults like to look at them playing. When children are making something, the interaction is more cute than excited / enchanted / amazed.
Kid goes on the picture with her artwork; dad makes pictures of her posing.	This concept invites people to make a picture	Having children making an artwork is interesting for the parents to put on the photo.
Dad: 'for parents it is essential that your kids have something to do before the flight! We have travelled a lot and we saw nice playgrounds. Try something with wood and the shape of the aircraft, kids are really excited		

about that. For children it is also better to have carpet or another soft floor."		
"We need distraction in type of a challenge, we want something to think about. For example about the aircraft and how that works, that's what keeps me busy during a flight!"	Adults want a challenging design / amazing effect to think about. Connecting them with the aircraft could be an opportunity.	The concept should amaze adults, who want to wonder about something 'how does that work?'
"This idea is amazing, she immediately saw it and wanted to play with it."	The concept draws attention and invites children to play with.	Colourful object on the window draw the attention. It triggers children to interact.
"It is a very personal game, she can make her own stuff."	The fact that you can make your own artwork	The concept should be adaptable to make your personal artwork.
Also other children were looking at the girl playing, but did not join her as she used all the triangles. That's a shame as they might wanted to.	There are not enough stickers for everybody to play at the same time. The effect might have been bigger if there were more.	This concept is not usable by multiple passengers at the same time.
After making a couple of artworks, the girl left and the artworks were still on the window. Other children didn't (dare to) play as well?	Other children didn't start playing because they didn't want to change her work / break it.	The concept should refresh / change after a while so others can create again
After 5 minutes they came back, the girl took her sister with her! The girl started making drawings on the window with her breath, she liked being busy with creating something on the window!	They liked the activity; Children like the game so much that they are getting their friends / family to play along.	The creativity worked contagious.
Families with children have already started boarding, from this moment there was no one looking at the product anymore because they were too focussed on listening to the announcements and getting their stuff together.	The best time to distract people is before boarding starts, as soon as announcements are made people don't want to be distracted anymore.	

One child is busy all the time with the window but doesn't understand what to do with this game (with the earlier situation, the dad came with the girl to ask me if she could play with it) Maybe it is not inviting or explanatory enough?		Concept needs to be more inviting to interact
Other passengers were busy with the aircraft outside, making pictures and looking to it.	This could also be a good thing to interact with, as people are interested to know more about their aircraft and the activities on board.	Passengers are interested in the airplane outside.
The stickers did not colour the floor or the area. Only if a complete window would be in that colour, it would have impact.		Big surface is needed to make impact with colour in the room.
"You should use other stickers, maybe the material (rubberish) that sticks itself on the window?" Some stickers fell off, and the sheets curled a bit.	The stickers should stick better and completely instead of just only the middle.	Material should be <u>hard(er)</u> and stick better.
The stickers could be taken with them on the plane / are loose.		Concept should not be loose / easy to 'steal'
30 stickers were not enough for more people to play with, they disappear in the big environment.		The window sticker must be translucent / see through.
"I am not playing myself because it looks like a game for children, but the material looks very nice! It's fun that it's still translucent and colourful!"	People who are not playing themselves but looking at the girl playing and laughing about her like the effect and colour of the sticker game.	The effect of the coloured triangles is felt by other passengers, but it was not yet big enough to change the ambiance.
"Yes I like to look at what she is doing, because it distracts me. Adding colour in the Gate is a good idea, maybe do more than only yellow?"		

Research existing window art - Danielle Kwaaitaal		
Data	Information	Conclusion
Some people look at the stickers, but most people look outside until the sticker appears and then people will look straight forward again.	This window art is not drawing the attention of the passengers.	The concept should draw the attention instead of 'just be there'
The sticker only makes the room darker instead of more colourful, the shadow doesn't colour the room.	This window sticker does not change the ambiance by coloured light.	Window stickers with art make the ambiance darker and are not interesting enough to entertain. (20)
Combination of window and sticker (like in the hall towards G-pier) works better than completely sticker because that is not see through and people want to look outside!	The window sticker must be translucent / see through.	If using a window sticker it must be translucent / see through.
None of the artworks at Schiphol is interactive. They are all just there and fill up the space somehow, but are not moving or reacting to passengers.	None of the art on Schiphol is drawing the attention of the passengers by interaction	There is no art on Schiphol that passengers can interact with, that they can touch.

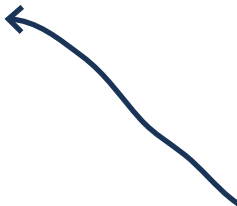
Prototype 2 - Making Amsterdam Houses with tape 		
Data	Information	Conclusion
<i>It's nice to look at, I like the colours and something playful in the room.</i>	People like to look at the concept, the colours add to the ambiance.	Everybody likes the houses and likes to look at them and at someone being busy making it.
<i>I like that it has colours and these houses could also be from Curacao, that's where we are heading.</i>		
<i>I'm fine sitting here and looking at it, thanks.</i>		
<i>Nice to see what you are making, but I don't want to do it myself.</i>		
<i>No thanks I don't want to play, it looks cute though...</i>		
<i>Beautiful houses haha!</i>		
<i>it works distracting to look at you being busy with the tape, and it looks very nice actually.</i>		
Only people who sit closely can see the houses and feel the effect. The colours of the tape work well in the room, but the poster gets completely faded away by the sun (light from the back)	The colours of the tape are felt and seen in the room.	
People look at it, but don't do something themselves.	It is not triggering to play with	
<i>I don't like that I have to bow, that feels a little bit too intensive. It would be better if it would be on eye height.</i>	The concept requires some intensive attention, time or energy from passengers who don't feel like it.	The concept should not ask too much from people, but should be easy to do (not too much bodily activity).
<i>Too active. We are preparing mentally for the flight...</i>		

<i>Oh no sorry we are almost boarding, building such a house would take too long</i>		
<i>But we are sitting here with a lot of stuff and we can almost start boarding.</i>		
<i>Pfff, I would get out of my chair if there is something really special to see or to do</i>	Passengers want something more special	The concept should be more special / have a special effect.
<i>Only the boarding would get us walking.</i>		
<i>I like to see when others do it themselves. I am not that creative.</i>	Passengers feel like they need creativity for this activity and mention not to be creative. They don't want to join...	The concept should not ask too much creativity of the passengers.
<i>my creation would look ugly and awkward I think haha.</i>		
<i>I don't really feel creative at the moment and I've got all this luggage with me.</i>		
<i>but I don't want to do it myself I'm sorry. I am not very good at making these things, at home maybe but not here.</i>		
<i>But it's more for kids I think.</i>	Passengers think this game is for kids	The concept should either be for kids and look like it, or not look like as if it is for kids.
<i>It also looks as if it is meant for children.</i>		
<i>We don't want to get the attention when being there.</i>	The window draws too much attention for people to stand there and do something themselves. People don't want all the other passengers to look at them.	Not every stimulus seekers wants to draw the attention.
<i>People are looking to what I am doing, but they don't really want something themselves. The people who want</i>		

Prototype 3 - Leaving a travel tip on the window		
Data	Information	Knowledge
<i>"Really interesting to see what you are doing, my sister in law was very intrigued by you being busy at the window. Good place to do something."</i>	Being busy at the window draws the attention and people like to look at what's happening there. Curiosity awakens!	Window is a good place for interaction
<i>"I prefer to give a local must see, because it makes more sense in this environment!"</i>	The local travel tip is associated with Schiphol. Good place for such a concept	The concept should align with Schiphol and 'make sense' in this context.
<i>"It is more connecting you to other people and maybe if locals from the destination write down something, you can still actually use the tips if you're at the same gate going on holiday"</i>	People feel connected to other passengers, by seeing what they do and read what they write down.	This concept connects people by sharing information.
<i>"I liked about the concept that it connects you to people"</i>		
Nice to read what other people do: "It's interesting to learn more from the world " "It's nice to read what others like, although it's very standard what they wrote."	People like to read about and learn more from the world	
<i>"I am really curious, what are you going to do with the input people gave? I think it is very interesting to read about what others mention"</i>		
<i>"Good idea to leave your own local tip"</i>		People like to leave something 'personal'
The father of the children that joined made a picture of them together with their tip.		Parents make pictures of their children when they do/make something

<i>"It seems important that you are very kind and cheerful in getting people to interact with it, would it also work if there is no one accompanying the game?"</i>	One participant mentioned that she liked me and that she thought it was very nice to talk to me, because I was so kind and happy.	Human to human contact is an important trigger in this concept.
The poster is not readable from a distance, the tips are also hard to read. <i>"I didn't know I was allowed to do this, therefore I didn't start myself"</i> <i>"It looked very sketchy, didn't know what it said"</i>	Not easy to read the text, only from close.	Bigger surface or brighter colours are needed to feel and see the effect in the gate and therewith also be a trigger.
The colours of the pencils are not bright enough to see an effect in the gate.	Colours cannot be distinguished from a distance.	
As soon as the announcements start, passengers are too busy with boarding and don't feel comfortable anymore with joining a test.		The concept should fit before boarding starts and maybe even give a sign or quit when boarding starts
People who don't want to join do keep on looking to what is happening.	Passengers who don't want to act, do want to look!	Stimulus avoiders are getting distraction from seeing other people busy.

<i>didn't look like something that I was allowed to do, writing on the window..."</i>		
People who don't want to join do keep on looking to what is happening. They are doing their own things (phones, books etc) but sometimes they look around and their eye falls on the concept and they look at it for a while and smile.	Passengers who don't want to act, do want to look!	Stimulus avoiders are getting distraction from seeing other people busy, but are not distracted too much from the things they are doing.
"I like that I can just look... and now I can choose when I want to look at it or not!"		



Prototype 4 - Drawing on the window

Data	Information	Conclusion
<p><i>"I am not creative at all, I don't like drawing"</i></p> <p><i>"I prefer the drawing because I do this all the time!"</i></p> <p><i>"When you don't really like drawing, or you're not very good at it, that one is less fun..."</i></p>	Drawing requires more creativity; this could be a good and a bad thing depending on people's skills.	Drawing requires creativity or expertise in order to experience as fun / relaxing.
<p><i>"Drawing is easy but that makes it less special or interesting, you don't have to think about it."</i></p> <p><i>"Drawing is easy because I can't draw so I'll just make a square, that makes it less interesting."</i></p> <p>People who can't draw, also don't feel like drawing; they make a small square and then hand back the pen.</p> <p><i>'I prefer the must see, that is more challenging!'</i></p>	Drawing is not challenging because it is either for creatives or it is 'too easy' like making a square.	
Drawings are more appreciated by children , who make complete artworks or ugly stripes and then don't care about it. Adults just add something easy and mention that 'they can't draw'		Drawings are better for children, who are used to drawing and don't care about the result.
From all the children that joined (4), the parents made pictures of them while making the drawings, half of them (2) even posed together with the drawings.		Most parents make pictures of their children when they do/make something
People look at it, even walk specifically to the window, but are not intrigued enough to start playing with it themselves.	It is seen in the Gate that there is something going on, but people have to walk closer to actually see it. Then they are not triggered to draw something themselves.	The concept doesn't trigger passengers to play by themselves. The concept is not easy to see from a distance (>2 m)
One woman that is sitting next to the drawings is looking at them for a while, but she is not triggered to play. <i>"It</i>		

Interaction prototyping FLIPPING COLORS

A. Let someone enter the room and explain the Gate situation. He/she is already for 20 minutes in de Gate and is bored, need for activity. This thing hangs in front of the window (explain how it should look like); you can use it to your likings.

- what do you think it is?
- what do you think you can do with it?
- Interactions that should evoke are ... ?
- What does this product add to the gate experience according to you?
- How do you think passengers feel while playing?
- And while looking?
- In what way does this product influence the ambiance?
- What does playing with this product mean for you?

B. Showing a map to help them with potential words: artificial, energetic, committed, balanced, relaxed, warm, passionate, sincere, excited, elegant, easy, glamorous, personal, inviting, enchanting.

Results

Participant A

- Moving quickly over all tiles
- "Things that move by the wind; changing colours that move and being able to stare at it as if it is a campfire."
- "If I would see the light coming through I could make drawings on it, especially if it makes a shade on the ground"
- While playing
- Curiosity, because if you don't know how it works you want to find out how it works
- Relaxed, because it is a soothing activity
- The colours feel warm
- Enchanted could be depending how the light will come through
- Inviting to find out how it works
- While looking
- Also relaxed and could be enchanting.

Participant B

- They move apart from each other, I thought they would move together
- Maybe I could make something with the colour combinations, flipping the tiles
- At only one window it would have a nice colour!
- Children might make drawings with the squares, but I would be done earlier with it and prefer looking at the light coming through.
- Would be more fun for me to make something complete, a puzzle or something, that's written on the tiles.
- It's excited and warm because of the colours. It's not very easy, because you have to move each tile again.
- It was enchanting and fun to make your own thing.
- 'Het je eigen draai eraan geven'
- When looking at it, it feels inviting because you want to play with it yourself if you're looking at it.
- Committed when you're busy with it.

Participant C

- I would make a creation like you make on 'fluweel'
- It would be one movement for me, I would not per se flip each tile myself.
- It might be an interactive blind? A nice and beautiful blind?
- When looking outside you see the airplane, and you also want to see that so you don't want it to block the sight?
- It adds the same as the houses of the Business Lounge of KLM at the wall; it makes a wall interesting! And in this case even interactive
- Inviting because you see that it is movable, so just slide through it with your hands quickly.
- It creates an extra dimension that makes it excited
- It's energetic and playful, I think children will actually play with it for a longer time.
- I don't think people are very creative themselves to actually make something beautiful. But if you give an example they could copy it?
- Or what if you connect them to motors, it might go into a default phase that is already an artwork?

- What if you give the product an identity? Like a stubborn child that flips back in the default he wants. Or something that doesn't know what he wants.
- It is interesting that it is a new shape of interaction, not digital but also not analogue... I would not add screens that would ruin the interaction and freedom.

Participant D

- I think it would move as a reaction to my movement
- It is definitely adding some fun and aesthetic to the Gate area
- Passengers would experience this as amusement / pastime
- Playful and active when you have to move a lot.
- The colours are inviting and excited.

Participant E

- You can turn it, maybe someone wrote a message on it?
- It looks very rotatable, I would wave my hand and let it turn
- You can make different shapes like a heart or emoticon?
- It is pastime / amusement
- I'm not sure if adults would do it, I would personally just check what it does secretly but not obviously play with it.
- For me it would be more interesting if it is more than only turning the tiles
- In the dark it would be cool when adding some lighting?
- If you walk to your gate and you see it somewhere it would get the attention. It is a cool object!
- It definitely adds warmth! Sitting at the Gates is boring and ugly, but this would make it more comfortable to be there; it adds to the atmosphere!
- For children it is even better because they can also play with it and use their fantasy
- It is relaxed, a little dreamy even like 'wooooh' (when waving past the tiles)
- Warm colours like the sunset, a warm evening sun.
- When looking at someone else play gives you a feeling like 'yeah nice, satisfactory to see, a little enchanting indeed'

Learnings

The contrast between the tiles should be big to 'make' something with it (words / shapes) . Clearly different colors filter or different transparency levels.

Warm (5/5) even without showing the sheet. Everybody mentioned that it adds to the atmosphere!

Excited (3/5); because it is cheerful and fun to interact with

Relaxed (2/5); because it is a soothing activity and relaxing to look at

Personal (0/5); nobody mentioned this probably because they didn't actually come up with the possibility to make something out of it like words or shapes before seeing the color differences clearly.

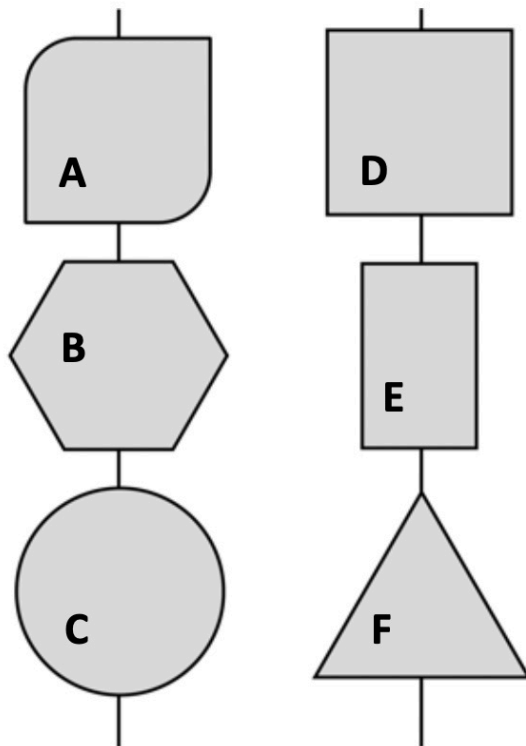
Other interaction qualities were inviting (4/5), enchanting depending on the effect (3/5), dreamy (1/5),

Everybody saw this as a type of distraction / amusement / tijdsverdrijf (to keep themselves busy with something 'nice')

The concept looks like a wind catcher / easy to move with one hand at the same time thing.

N. SHAPE DESIGN USER TEST

Participant	First touch	Reaction
1	A	"It looks like something I would touch" Not too sharp, not too bolt.
2	D	"Most easy to touch this one?"
3	A	"Looks like a leaf, something organic looks easier to move"
4	A	"Maybe because this one has rounded corners, that feels more kind"
5	C	"I was just very curious how this would look if I would spin it"
6	A	"This one looks easiest to move, like a wind catcher"
7	A	"I don't know why this one...maybe because it is the most organic shape."
8	A	"I like this one, that looks like a leaf from a tree!"



O. FILTER DESIGN USER TEST



Translate the atmosphere and feeling you get when looking at this vision, into characteristics of light.

1. Choose two filters that you think fit best into this situation:

Filters H & B (2), H & E (2), F & H (2), H & D,

2. Which filter gives you an enchanted (NL: betoverend) feeling?

FilterB (6), D (2)

3. Which filter is most warm?

FilterH (6), E, C

4. Which filter is most excited?

FilterE (2), B (3), D (2),

5. Which filter is most relaxed?

FilterB, G (2), C (3), E, F

6. Which filter is most personal?

FilterE (4), H, F (2), C

7. What filter combination would you make to reach all of the above?

FiltersE & B (2), H & B (3), C & H, F & H, D & E

P. FINAL USER TEST

User test Answer Sheet

Friday 24 January '20

- Do you want to join a prototype test that is designed to improve the gate experience?
 - No: can I then ask you some questions about the prototype while staying seated?
 - No: okay no problem, have a good day.
 - Yes: let's start...
 - Yes: for learning purposes I will record the test by audio, video, photo. I need your permission to take photos and videos and to use them for my project. Signing the consent file;
 - Option A: everything is well, sign Schiphol
 - Option B: rather only for study, sign TU Delft
 - Option C: no consent, proceed without filming.

Participant

Type of participant: Stimulus seeker / Stimulus avoider
User / non-user
Child / Adult
Man / woman

Start

- How do you feel at this moment?



- How do you rate the waiting experience?



Only for non-users

- Why do you **not** want to play with the concept? _____

- IF fear of missing boarding: Would you play with it if it would give you a sign when boarding starts? ____ Yes _____ No _____

- What would be needed to get you playing with it? _____

Introduction concept

This/that is the product that I am designing to improve the experience in the gates with; it's called FLIP.

- What do you think it is? _____

It is an interactive artwork that you can touch to change the lights and colors. Passengers can play with it and distract themselves and others from the boring waiting time. But even if no one is playing with it, it is still nice to look at as a distraction. This is a scaled version; in reality it will be as big as on [this picture](#).

Interaction

- Non-user: Besides just looking at the product, have you seen people play with it already? can you imagine how that would look and feel like from here?
 - Do you feel too much distracted by the concept, so you cannot do what you want to do?
Yes, because _____
No, because _____
- User: You can do with it whatever you want, please think out loud while playing with the concept. Just enjoy yourself for as long as you want! Also, if you have any questions, I can answer them 😊



During / after interaction

- I am curious to your experience with the concept while playing with it / looking at it...
 - on a 5-point scale from not excited to very excited, how do you feel about the gate experience when interacting with / looking at this concept? Why?

	1	2	3	4	5	
Not excited	•	•	•	•	•	Very excited _____
Not warm	•	•	•	•	•	Very warm _____
Not bored	•	•	•	•	•	Very bored _____
Not functional	•	•	•	•	•	Very functional _____
Not relaxed	•	•	•	•	•	Very relaxed _____
Not amused	•	•	•	•	•	Very amused _____
Not personal	•	•	•	•	•	Very personal _____
Not enchanted	•	•	•	•	•	Very enchanted _____
Not restless	•	•	•	•	•	Very restless _____
Not dreamy	•	•	•	•	•	Very dreamy _____

- Did the presence of FLIP improve the ambiance of the gates?
 - Yes, by _____
 - No, by _____

Only for users


- Do you feel so much immersed when playing with the concept, that you could forget about boarding?
How do you feel about that?
 - Yes, I'll forget boarding and I _____
 - No, I won't forget boarding and I _____
- Would you want to get a sign by FLIP the moment that boarding starts?
 - Yes, because _____
 - No, because _____
- Would you play with FLIP if I would not have asked you to?
 - Yes, because _____
 - No, because _____
- Any recommendations for what I could change to FLIP to trigger you to interact?

Final questions


- If you had to give a grade to FLIP, based on your experiences so far, what would it be?

0 1 2 3 4 5 6 7 8 9 10


• • • • • • • • • • •


- How do you feel after interacting with FLIP?

1 5


- How do you rate the waiting experience now?

1 5


- There is one question left but I would like to save that one to ask when you are about to board. Could you give me a sign when you are ready for boarding?
 - Did playing with / looking at FLIP influence your perception of waiting time positively?
 - Yes: waiting time seemed to be shorter / felt more fun / felt more occupied
 - No: no difference felt / other _____

A - Woman 65y Dutch		
DATA	INFORMATION	KNOWLEDGE
I think it is a window decoration. Maybe I could let the tiles turn and there are also lights I see...	From a distance it looks like decoration instead of something you can interact with	From a distance the different colors are not seen so it is not clear that you can change the colors yourself. This is seen when passengers are closer.
Oh wait a second, if I turn it it changes color?		
I would not interact with it myself because I thought it was window decoration.		Concept could look more like something to interact with from a distance.
I think if you hang it low, a lot of children will play with it. I don't think that an adults will play with it.		The concept should also be available for children and at lower height.
There are always curious people that want to see how it works, I won't do that myself.		Some stimulus avoiders are not attracted to it or it does not draw their attention when they are busy with their own thing. The concept does not draw too much attention as it was not noticed when sitting to it with their back.
"I think a lot of other people will be amused by it and especially children, but not me. I was just sitting with my back to it and making my puzzles."		
Niet opgewonden, wel vrolijk.	Excited was understood as aroused, that was not what it evoked. It did evoke excitement as in cheerful, nice looking, funny.	The concept does not excite everybody
The colors are warm and relaxed.		
It's not really functional, it's more something funny...		The concept is experienced as something 'funny' in the gate environment.
"Yes it adds to the ambiance with its colors especially when it will be bigger"		Bigger surface will have more impact on the environment than it already does.
"I can imagine that children can completely immerse themselves in this game, but they don't have to pay attention to boarding."		Children get immersed, adults less. But if they do then a sign would be convenient.
If people are very much immersed by it, it would be convenient to give a sign.		

Hang it lower for children!		
Yes it's a funny thing... After seeing it, because I was with my back to it, it improves the waiting a little yes.	Being busy with it could improve the waiting, but if you are not seeing it then it does not change anything to the perception...	It does not disturb people and only adds to the ambiance and waiting time although only a little..
Well I am not going to play with it myself, because I will finish my puzzle and read the paper so I will not notice a difference in the waiting time.	Compared to sitting in the gate for an hour, it will not decrease the perception of waiting time.	For not interested and non-players it will not reduce the perception of waiting time.

B - Family with 2 little boys		
DATA	INFORMATION	KNOWLEDGE
"Look that is our airplane! See how it changes in orange now!"		The colored filters are intriguing; they change the world behind it.
"What colors shall we make?"		
Child: "Wow, it gets another color this one! It changes all the time"		
Child: "I also want to play with it!!!"		Playing works contagious.
Especially for children it is very nice, you should hang it lower for them!		The concept should also be available for children and at lower height.
I think it is something we can play with and change the colors.		The concept looks touchable and playful.
For children this gate environment is extremely boring	Children need distraction maybe more than adults	
It gives rest to play with it. You could even add extra features like smell or sounds, to make it more relaxing.	It is a soothing activity that gives rest to the mind	
We would play with it without you as well, because the children already saw it and wanted to see what it was and eventually they really liked it.		The concept draws attention and converts this into curiosity.

I don't need an extra notification when boarding starts because it will take a while, I'm glad that I could forget about for a little while.	Notification not needed, boarding takes long enough.	
--	--	--

C - Man 50y Dutch		
DATA	INFORMATION	KNOWLEDGE
"I see it as how you can look to the world in another way" "It feels like looking from another perspective"	It changes the perspective on the world.	The concept connects with the outside world.
"I feel the urge to create stories around it...about what it does. It makes me curious"	It makes people think about it.	It already distracts without even touching / interacting
Observation: children don't think about making something with it, they just flip the tiles. Only when they know they can make something they will try.		
Solar power would be cool!		More sustainable and challenging or 'interesting' to use solar power.
It's personal because we can do our own art.	As assumed	Personal check
When I arrived I immediately saw it and it intrigued me.	Concept draws attention	Concept is intriguing
I would interact with it myself because I noticed it and was wondering what it was!		
Yes the ambiance improves because of the colors, but also because of the glassy look, the material. It's nice.	Glassy look also adds to appearance	
I might forget boarding if it is very big, so than a notification would be nice.	Bigger size requires more attention	
He just touches it, he already thought he could. I was not sure if I would be allowed to touch it because of the cables, but if it would be bigger than I would try to see what happens..	Not sure if allowed to touch because of the wires and size.	Concept must be bigger to trigger touch. Concept must not have wires to trigger touch.

Bigger and with lights that <u>could</u> be nice. I would also add some rules to it, how to play with it.		Rules or explanation are needed
I don't know if I played with it or because I spoke to you, but I am definitely less bored. It improves the waiting experience.	Playing and talking both distract and helped in not being bored anymore	Concept distracts and improves waiting experience
The waiting time feels shorter, and also it makes us think of something else than our travel. We like to do something. My son really likes it.		

F - Russian guy 45y business

DATA	INFORMATION	KNOWLEDGE
"I think it will replace the window"		
"Yeah so I can change the colors of the art."		People understand the mechanism quickly when seeing it from close.
"Yeah maybe some people really like it, what they want to see the most are the planes. They can see it still."		The transparency of the product help in still seeing the
"It feels warm"		
"No it has no function I think"		Art has no function
Yes it's personal because someone may like it and someone else might not.		Passengers can have personal preferences for specific design.
It does not really improve the ambience, you have to make it bigger for that.		Concept needs to be bigger for more impact on the ambience and especially for the lighting.
I will not forget boarding because I really want to go home, so nothing can make me forget about boarding. I keep an eye on the gate all the time so I don't need an extra sign.	Pax are too eager to go into the plane to forget about boarding.	
No I would not play with it myself because I would not notice it really, maybe if I sat next to it I would look at it and wonder what it would be. But I am sitting further away and then it does not trigger me to come and look.	Flip does not draw so much attention that people turn around to look at it. If they are already faced towards it, it will capture their attention.	It is a moderate distraction

Waiting experience gets better, waiting is not fun I don't like it but this thing keeps me occupied.	Flip occupies the time of passengers	Improves waiting experience
--	--------------------------------------	-----------------------------

G - Argentina women long TRF		
DATA	INFORMATION	KNOWLEDGE
"I would like to change the colors, make it more chaotic because I don't like repeat / structure"	Pax want to make their own pattern to look at.	People are amusing themselves when changing the colors for a couple of seconds. It is excited to change the colors yourself.
The most excited for me is that the colors change!		
"No, I relax while I dance on music, but not from doing this"	The concept did not immerse her enough, like dancing can do.	It does not evoke relaxation for passengers who do not like it or who are not immersed by it. The lighting will help in making it more relaxing
"This would be more fun with other people, but I am alone"		Concept needs to be bigger
"Yes it is beautiful to look at, it depends on the state of the mind but I really like it."	If you feel like being distracted or looking around you will appreciate it more	Beautiful for open-minded stimulus seekers
"After a lot of hours flying this is a good way to spend my time, to fill my time with."		It occupies waiting time
"I would look and try something out"		Adults look and try something instead of actually playing with it
"It's always nice to get a notification when boarding starts"		
"You can put your energy in it, like when stroking a cat"		Relaxing activity because it asks for low-key attention / energy
"It would add more to the ambiance if it would be bigger, now it almost disappears when being far away...."		
"It is not easy to say if I feel better, because I don't know if I feel better because of playing with it or because I was very bored there... But now not bored anymore."		
"Waiting time is better if you find something to do."		

H - Japanner in winter jacket 25 years		
DATA	INFORMATION	KNOWLEDGE
"It looks like a <u>windturbine</u> ." "It definitely looks turnable"		It looks as if it will rotate itself
"Ahh so it's going to be sunlight filter, if the sun shines?"		
"Oh now I see that there are two colors, even more and you can adapt them"		It was not clear from the beginning that you actually change the color of the light filter.
"It's the first time that I hear from something like this, I really like that!" (excited)		Innovation is excited.
Yes it adds a lot of color, there is only the fish in here that has color.		The gates are boring and this concept makes it less boring because of different and remarkable colors.
With this thing the gate is definitely less boring! Because everything is the same color so this stands out.		
It could be more functional, if this changes and it also tells you something. For example if you can make letters or signs..		
It is relaxed because the lights are very bright so this filters it nicely also with a little color that is cool.		*all these conclusions are linked to already existing conclusions and will therefore not be discussed here.
It is personal yes, because you can do whatever you want to do.		
It catches my attention and from everybody here, because you don't know what it is. You should add so that everybody knows what it is.		
Not restless because you are going to sit in the plane for many hours, so you want to do something!		
In this gate it definitely improves the ambiance, it needs more color!		
I think it is something that people really like to see, and take pictures with it.		

I don't need a notification, but it could be nice.		
I would look and try somethings, but I don't think that I would play...		

I - American girl TRF		
DATA	INFORMATION	KNOWLEDGE
"I saw it briefly from a distance and I saw someone playing with it, it intrigued me"		Concept draws attention and makes curious
"I think you can see the airplanes in different colors"		Connecting with outside
"I can imagine that with lighting that it will reflect as well" "and when it is sunny I really think that it will be warm light even more, while it is already nice and bright."		
"I really like art and conceptual products"		
It feels functional because you can play with it and you can basically make it your own.		
Yeah it feels like eh... tranquility, when playing and looking.		
It brings people together, maybe two strangers at the airport who both play with it...		
The colors get you, but not too much, it was not disturbing. It is dreamy indeed.		
I really like bright colors that attracted me.		
Yeah the ambiance improved because it brought together lightness to this place and it's something that keeps you occupied and of course the color.		
Yeah while playing with it would forget the boarding, maybe just something like a timer or clock so you can keep a vision on time.		

I would not play with it myself, because I am travelling through and I am not really busy with my surrounding.		
I would be more attracted if it changes on its own, like when it reacts on the weather and the sun throughout the day. Then it will attract the eye a bit more.		It could draw more attention if it would move from itself.
Waiting time improves because I was there just doing nothing, this kept me occupied.		
Perception of time was improved because you can play with it.		

J - Belgian couple played spontaneously		
DATA	INFORMATION	KNOWLEDGE
"I really like it, so you are the artist of this?"		
"It is really clear that you can touch it, also because of the name FLIP"		
"I thought it was something with electricity, because of the wires. Would be better without them."		
"We are really interested in modern art, so that's I guess what attracted us to it"		Passengers often associate FLIP with art, but then don't know what to do with it for a longer time or look at it for a longer time. The lighting might already help with that. "We are really interested in modern art, so that's I guess what attracted us to it"
"We are very tired so that is why we feel bored"		
"There is balance between all the colors"		
"People could come into contact with others, if they both play."		

"It is disruptive, it is something new and that's what I like"		Something new in the environment that is always the same is liked.
"Interacting with it brings you back in the 'here and now'."		
"No we will not forget about boarding haha that is impossible"		
"It depends of the people, if I would be alone or with children than the experience would be different. But it makes the waiting more fun definitely!"		
"It reduces the perception of time because you have something to do, and something to look at. It would also be suited for doing meditation, focussing on it or something."		

K - couple that did not interact with it		
DATA	INFORMATION	KNOWLEDGE
"I didn't want to walk over there, because I don't know what it is"		
"I saw a wire so I thought maybe to charge your phone?"		
"When we arrived we saw someone standing there, so we thought it was occupied"		
"I didn't realize what it was and there was somebody already, so because it was occupied I didn't even think about going there"		FLIP draws the attention and converts this into action only if people feel like it, are nearby or passing by and at the moment that FLIP is not occupied.

"I would want to see more of them so I could also check it out if someone else is playing there"
"I think it's playing with the lights, Flip them around." "Maybe you can create shapes with the colors?"
"We've been to a few airports and this is the emptiest, so it's nice to have some new initiatives here." "and it's nice to have some color around"
"Have you considered designing the tiles to be bigger? Than it would be more fun maybe to actually flip it around, more of a challenge"
"It's a shame somebody all changed them to orange, but that makes it personal because it's what he likes. Not per se what we like..."
"It doesn't change something for us from this distance with this size or amount"
"Also when there's more sunlight it will have way more impact on us as well"

	1	2	3	4	5	Average	
Not excited	A (thought excited meant aroused)		F - G - K	E - I - J -	B - C - D - H	4,1	Very excited
Not warm			A - K	B - C - E - G -	D - F - I - J - H	4,3	Very warm
Not bored	B - C - D - F - G - I - K - H	A - E		J -		1,5	Very bored
Not functional	F - H	A - G -	D - J - K	B - E - I -	C	2,9	Very functional
Not relaxed			D - G -	A - B - J - K	C - E - F - I - H	4,3	Very relaxed
Not amused			A - K	B - E - F -	C - D - G - I - J - H	4,4	Very amused
Not personal	D -	A	B - G - I - K	J - H	C - E - F -	3,5	Very personal
Not enchanted		A	I -	B - D - F - K	C - E - G - J - H	4,2	Very enchanted
Not restless	B - C - J - K - H	D - E - G -	A - I -	F -		1,9	Very restless
Not dreamy	D -	A - G - K		B - F -	C - E - I - J - H	3,7	Very dreamy

1	2	3	4	5	6	7	8	9	10	Average
						A - F - G - K	B - I - J	D - E - H	C	8,1

How do you feel?	1	2	3	4	5	Average
Before interaction		B - D	A - E - G - J - K	I	C - F - H	3,5
After interaction			A - K	B - E - G -	C - D - F - H - I - J	4,4

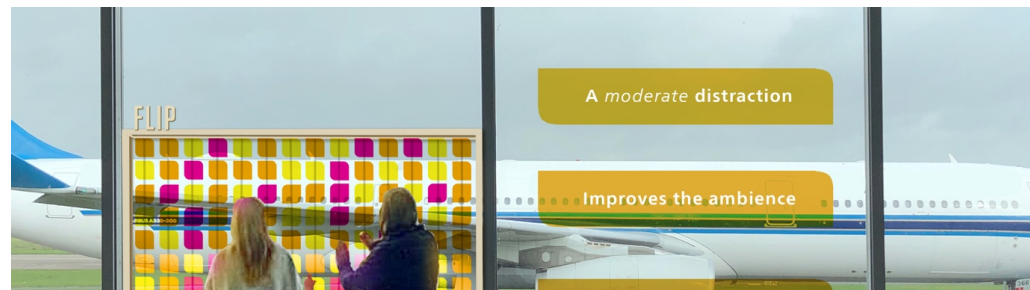
Experience waiting time?	1	2	3	4	5	Average
Before interaction		B	A - E - K	C - D - G - F - H - I - J		3,8
After interaction			A - K	B - E	C - D - G - F - H - I - J	4,5

Questions	score	Yes	No	score
Adds to the ambiance?	73%	A - B - C - D - E - H - I - J -	F - G - K	27%
Would forget boarding?	30%	B - E - I -	A - C - D - F - G - H - J	70%
Want notification boarding?	40%	A - E - I - J -	B - C - D - F - G - H	60%
Play without me?	70%	B - C - D - E - G - H - J -	A - F - I -	30%

Q. EXPERT FEEDBACK FORM & ANSWERS

Stakeholder Feedback Form

For my graduation project I am set out to improve the Passenger Experience at the G-gates of Schiphol. This can be done by reducing the perceived length of waiting time, since waiting is the primary function of this area. A more positive state of mind of the passengers can improve their perception of waiting time. Observations and in-depth interviews with departing leisure passengers revealed that the distraction offered at the G-gates is still limited and that the ambience could use some improvements as well. Leisure passengers want to experience *excitement* at this point of their journey; holiday starts here! Also, the gates could have a *warmer* ambience, together with a *relaxed* vibe and a more *personal* touch. The aim of this concept is therefore to evoke interactions that are excited, warm, relaxed and personal. These positive interactions can reduce the perception of waiting time on the long-term.



Meet FLIP, an interactive window artwork that offers a distraction for leisure passengers who are waiting at the G-gates of Schiphol. It offers something fun to do for passengers who feel like it and it improves the ambiance of the environment with bright and warm colors that moderately influence the lighting scenery around it. Passengers can flip the transparent colored tiles to change their colors and play with the daylight coming through or with the external light source from the sides (best seen in the picture on the next page). By flipping the colors, they can create their own color pattern or even make shapes and letters if they want to. FLIP is not only a distraction because it offers something to do for stimulus seekers; it should also be beautiful and exciting to look at for stimulus avoiders who find distraction in looking to it, with or without someone playing.

Prototype scale model (1:4)

To test whether passengers like the concept and if it actually evokes positive emotions and improves the waiting experience, a user test has been set-up at the G-gates. These are pictures of how that looked like, and how the concept looks like (respectively during a sunny day, cloudy day and nighttime).

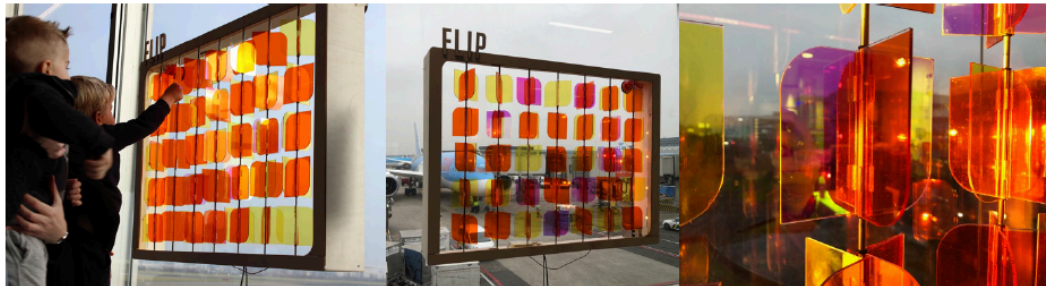


Figure 1 - Scale model (1:4) as experiential prototype

Questionnaire

Now you have seen the concept and you know what it should do, I hope you can imagine how it could look like in reality and what effects it could have. I am really curious to your perspective on this concept, with a special focus on your expertise in the field. Could you answer the following questions for me;

1. What are your first impressions? Can you explain them?

Development / implementation: Like the colors, calm, warm, fresh and bright. The orange above seems quite small and therefore looks like an extra placed item. If you would for example cover a whole window frame from top to bottom, it can brighten and warm up the whole area with a more robust character and have more possibilities for the passenger to actually create something

Upgrade pieren manager: Het concept lijkt mij vooral leuk voor kinderen als tijdelijke afleiding en zou op een enkele locatie toegepast kunnen worden. Grootschalige uitrol op alle gates is niet mogelijk i.v.m. doorzicht naar buiten dat wordt geblokkeerd. Ik denk dat het een leuk object is op een enkele locatie als om even te vergeten dat je op de luchthaven bent, maar denk niet dat het fundamenteel bijdraagt aan het verhogen van de NPS voor alle passagiers.

Asset service manager: Leuk concept! De wachttijd van een passagier kan hierdoor zeker beïnvloed worden. Men zal de 'Flip' draaien wat voor interactie zorgt. Daarnaast zal de sfeer ook aangenamer worden, door de vrolijke kleuren. De lichtinval zorgt er ook voor dat op elk moment van de dag de schittering anders zal zijn.

Asset service manager:

- Your conclusion about color and a warmer ambiance, I can agree
- I like the idea and it gives the grey background a happy look & feel

Asset material: It looks very colorful and it is a nice touch to make the area more interesting and fun.

KLM GA: Mijn eerste indruk is leuk! Ik ben altijd in voor een spelletje of hersenspinsel

KLM GA: Ziet er erg leuk uit. Nodigt uit om van dicht bij te bekijken.

PX: Warm colors, but do they 'fit' in the context, with the rest of the environment (interior / planes etc)

PX: Uitnodigend en gezellig – warme kleuren en het maakt nieuwsgierig.

2. Could you mention some unique points (strengths) of the concept and explain them?

Development / implementation: How cool would it be if the flips would also create a 'shadow', reflection in the pier on the floor when (day)light shines through it.

Upgrade pieren manager: Ik denk dat mensen wel sneller een huiskamer gevoel krijgen. Daarnaast valt het kleurrijke object mooi op in de Schiphol stijl. Uit onderzoek is gebleken dat passagiers zo kort mogelijk willen wachten om de reis te vervolgen. Dit object kan bijdragen aan het verkorten van de wachttijdperceptie.

Asset service manager:

wachten om de reis te vervolgen. Dit object kan bijdragen aan het verkorten van de wachttijdperceptie.

Asset service manager:

- Interactief voor alle passagiers
- Kleurrijk
- Sfeerbepalend

Asset service manager:

Asset material: It stands out, because of the vibrant colors. It makes the area livelier. As mentioned, it will entertain the passengers while waiting.

KLM GA: Het zit op het raam dus neemt geen ruimte in beslag. En geeft kleur aan de omgeving. Tevens kan je ook nog vliegtuigen kijken.

KLM GA: Mooie warme kleuren die in de omgeving naar voren komen. Het raam nodigt uit om aan te raken en mee te spelen of om gewoon naar te kijken als het licht er mee speelt.

PX: Interaction. Playful, engaging without having to complete a 'task'.

PX: Een van de weinige dingen waar je aan mag aanklooiën (m.u.v. de functionele dingen), brengt ook kleur aan in een anders erg wit-grijs-zwarte, klinische omgeving – denk dat daar ook de aantrekkingskracht in zit. Als object straalt het dan nog uit op de hele omgeving

3. Do you see any weaknesses and/or opportunities? Can you explain them?

Development / implementation: If not made from the proper material, it can be fragile and therefore break easily. Realize that millions of people will use this per year, kids as well. Therefore, if you want this to be a success and be an addition to the passenger experience be super sure that you make this of strong, sustainable and hufterproof materials. Because once it is broken (and let's face it, things do not get fixed fast at Schiphol) you will get the opposite effect on the passenger experience.

Upgrade pieren manager:

Verminderd doorzicht naar buiten. Passagiers willen doorzicht naar hun vervolg processtap, dat is bij het boarden ook het vliegtuig. Het object kan niet direct naast zitgebied worden geplaatst, omdat passagiers hier rustig willen zitten en mensen 'druk bezig' zullen zijn bij het Flip object.

Asset service manager:

- Het formaat van het bord moet niet te klein zijn, zoals weergegeven op de foto
- Er moet goed gekeken worden naar de plaatsing van de 'Flip', in verband met het uitzicht naar de vliegtuigen toe
- De 'Flip' moet niet te hoog geplaatst worden, zodat alle leeftijdsgroepen het kunnen gebruiken
- Qua schoonmaak is de 'Flip' een extra object, wat qua handelingen veel tijd in beslag zal nemen
- Alleen het plaatsen van de 'Flip' zal niet voldoen bij de passagiers voor een verbeterde ambiance. Daarvoor zal ook gekeken moeten worden naar het interieur in de ruimte.
- Zijn de 'Flips' te vervangen, indien er schade ontstaat? Door de grote hoeveelheid passagiers bestaat er een grote kans dat de 'Flip' in aanzienlijk korte tijd defect zal raken.

Asset service manager:

- People who are (a bit) color blind will not see the difference in colors
- Have you thought about hygiene – dirty hands etc.

Asset material: From a cleaning point of view, I wonder how often it should be cleaned because of all the fingerprint and dirt it will attract and how labor intensive the cleaning of FLIP is because of all the single tiles that need to be cleaned individually. From a maintenance point of view, I would construct it modularly in such a way that when one tile breaks, it is easily replaceable.

KLM GA: Hoe hufterproof is het? Hoe makkelijk maak je het schoon? Dit zijn vragen die op een luchthaven altijd mee spelen.

KLM GA: Meerder FLIPS lijkt mij interessanter dan 1 enkel. Je zou dezen dan verspreid door de wachtruimte kunnen plaatsen.

PX: Are the individual elements big enough to really color the floor during sunny hours?

PX: Groter! Helemaal van boven naar beneden

Misschien kleinere bladen zodat er meer 'pixels' zijn om iets te schrijven/tekenen

Minder ruimte tussen die bladen zodat er niks kan blijven knellen of er troep achter gaat verzamelen

4. Do you see any limitations for implementing FLIP in the way that it is designed right now? Can you explain them?

Development / implementation: When 3. Is taken into consideration, I see no obstacles apart from the architect or Don Murphy who might not personally like it and therefore object to it.

Upgrade pieren manager: Ontwerp moet voldoen aan de brandveiligheidsnormen en zijn afgestemd met de architect van Schiphol

Asset service manager:

- Het is niet mogelijk om nu aan de achterzijde van de 'Flip' de glasbewassing uit te voeren.
- Is er al nagedacht over het reinigen van het object, zoals het er nu hangt?
- Bij welke afdeling komt het object in beheer?
- De kabels aan de onderzijde zijn niet juist weggewerkt

Asset service manager:

- Is it easy to clean for cleaning companies, daily cleaning will cost a lot ☺
- The window has to be free for window cleaning, have you thought about the construction, easily to remove?

Asset material:

KLM GA: Nee ik zie geen beperkingen. Je kan het zo groot of klein maken als je zelf wilt.

KLM GA: Bij veelvuldig gebruik van FLIP kan het misschien snel stuk gaan.

PX: Slijtage, schoonmaak en onderhoud – wie is straks ‘eigenaar’ en wat als iets breekt, vooral schoonmaak achter de unit zelf. Veel interne architecten zijn tegenstander van ramen blokkeren en hebben wel invloed. Moet echt sterk gemonteerd zijn (idiot proof).

5. In what way can these limitations be overcome?

Development / implementation: Make sure you align all the necessary parties, people within Schiphol Group who need to have a say about this, in an early stage. Usually when people are involved, can do their say, they tend to be more willing and cooperative.

Upgrade pieren manager: Ik kan me voorstellen dat ook andere locaties mogelijk zijn waardoor het doorzicht op de VOP niet wordt beperkt.

Asset service manager:

- Indien de ‘Flip’ te verwijderen is, kan de glasbewassing in zijn geheel uitgevoerd worden.
- Er dienen duidelijke afspraken gemaakt te worden over het beheer en reiniging van het object. Ook de kosten hiervan moeten belegd worden.
- De ‘Flip’ passend maken in gehele raampartij, zodat de kabels in de kozijnen weggewerkt kunnen worden. Geen idee waarom dit ook nodig is?

Asset service manager:

Asset material:

KLM GA: Door goed materiaal te kiezen kan je je beperkingen indammen.

KLM GA: Gebruik van stevige en duurzame materialen is dan noodzakelijk.

PX: integrate in the maintenance and cleaning contracts.

6. Do you have any other recommendation or suggestion to take into account for the final design?

Development / implementation: Make it big. Cover at least a whole window and more windows spread out of the Pier. Big impresses and gives an experience boost.

Upgrade pieren manager:

Asset service manager: Wordt er rekening gehouden met de kleurstellingen van de ‘Flip’? Nu is er gekozen voor rood, oranje, geel, paars, roze wat voor een kleurrijke warme ambiance zorgt. Mijn advies zou zijn om geen koele harde kleuren te kiezen, aangezien dit een negatief effect kan hebben op de passagier.

Asset service manager: Please make the construction ‘huffer proof’

Asset material: The placement of FLIP should not prevent the windows from being cleaned. It should be placed at least 60 cm from the window in order to clean the windows and possibly even further away if the windows are higher than 2 meters. Or FLIP should be easy removable while cleaning the windows

KLM GA: Zorg voor een uitdaging voor jong en oud. Iets wat je samen kan doen.

KLM GA: Misschien is een soort boter, melk, kaas en eieren/4 op een rij FLIP ook leuk. Ik denk dat het interactief bezig zijn voor passagiers (jong en oud) de wachttijd gevoelsmatig ook verkort.

PX: Stand out while fitting in with the design.

PX: Uitlegkaart met verschillende mogelijkheden wat je erop kan. Uitnodigende boodschap. Iets van/met schiphol erin verstoppt!!! Bijvoorbeeld dat je er de luchtverkeerstoren kan maken als je de juiste flappers draait.



IMPROVING THE PERCEPTION OF WAITING TIME

F.S. van Gent

March, 2020