## Design for Social Interaction in Public Spaces



## Introduction

Dear reader,

This is a report about a project 'Design for Social Interaction in Public Space' of the Out of Control Theme at the Industrial Design faculty at the Technical University of Eindhoven. This document describes and visualizes the process and final outcome of my first master project.

The purpose of the project was to find ways to design a physical locus of interaction, a specific physical device or installation that opens the 'digital' action possibilities of a public space to the physical. For this project we were also asked to travel to China for a workshop to explore the concept of the patina of culture by means of designing an interactive installation.

This workshop was a create opportunity to experience my research part in practice. Except

the fact that the workshop was a create learning experience, it was also an amazing experience on social aspect, while working in a multicultural team.

I have always been inspired by human beings. I can sit in public space and watch the crowd passing by for hours. It is the way they behave, how they interact with the world and each other, it is a study apart.

This project gave me the possibility to deep a little bit into this interesting world of people and their behaviour and gave me the opportunity to design for it.

This project the one after the other question popped-up in my head. Why do people behave as they do? What is the influence of the technological developments on that? Is it a shame that human behaviour has changed since the use of technology? Should we let it go, or should we stop the development of technological possibilities at a certain moment?

I have not been able to answer all the questions, but I have definitely made a start by becoming more aware of the situation. And this experience of becoming aware of the situation is what I want to communicate with my final concept, while giving it a valuable context.

On the next page you can see an overview of my design process. These steps are also the chapters of my report that has been written chronological.

Satisfied about the result of the project and enthusiastic about the future possibilities for the concept, I have written this report with pleasure.

Enjoy reading! Kind regards, Tove





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## THE PROJECT AND MY VISION ON DESIGN

## **Project Introduction<sup>1</sup>**

System and service design is a new challenge in the field of Industrial Design. It breaks the 'one person – one product' dictum in favour of a system of (interactive) products consisting of many 'nodes'. The system under investigation are woven into the social fabric of our lives and form, more than ever before, an integral part of it. Societal relevance is not optional but a necessity for this new field of design.

Currently the cities around us are coming to life in the digital world. How this digital city becomes meaningful to us remains to be seen but the first signs point towards visual solutions that augment the buildings, bridges, statues etc. The augmented layer can be used as decoration, but also as public media where the social interactivity can kick in. The augmentation can happen on existing structures, but also can be an integrated part of design when it is on the drawing board. For this project it is encouraged to find new areas for this system to grow in, within the limits of the design challenge.

The design challenge in this project is to find ways to design a physical locus of interaction, a specific physical device that opens the 'digital' action possibilities of a city to the physical. While the context is the city, it is up to the designer's focus to choose the design challenge within that context. The big challenge of course is to let a 'generic' device grow into different meaningful forms and shapes dependent on the context of use, or the specific location in a city.

On the right page key words are defined by Tove with regards to her vision on design and her interests for the project.

## DESIGN FOR SOCIAL INTERACTION IN PUBLIC SPACE

Emergent behaviour; Connecting people; Public art installations; Growing systems; Public spaces; Digital world; Interaction design; Experience of interactivity; Physical devices

Project keywords defined by Tove

## My vision on design

I believe that design is better and more valuable when you design from the heart. I have a vision on the world, on design and how I think I personally can contribute to improve this world with my design. Sticking to this vision, I always have a clear direction during my design process. If I am getting lost, it reminds me for what and whom I am desiging.

#### Our world

The knowledge of the Western world, our knowledge, in the field of science and technology is huge. This leads to a high rate of innovation. What could not be imagined ten years ago, is now part of our lives, like the mobile phone and the internet. This is great and offers many opportunities and realizations of our dreams for the future. But this wealth also has its negative aspects. It makes us spoiled. We take the facilities we have for granted and we deal with products like everything is replaceable, while other people in this world might not even be provided with the basic necessities of life. This way of life is not sustainable at all and leads to a societal problem.

Victor Lebow was a 20th century economist and retail analyst. He put our societal problem intro words: "Our enormously productive economy demands that we make consumption our way of life, that we convert the buying and use of goods intro rituals. That we seek our spiritual satisfaction, our ego satisfaction, in consumption. We need things consumed, burned up, replaced and discarded at an ever accelerating rate."

This Western behaviour concerning consuming, had a big influence on the balance between Planet, People and Profit. Our society is out of balance. Profit is leading at the expense of our care for people and profit.

#### I aim for

I aim for more balance in our world. A world, which is not only about profit, but a world in which care for people and care for the environment are as important as profit. In this world live billions of people with different backgrounds, different experiences, different cultures and different views on the world. By sharing our differences and teaching each other, we could all benefit from the variety in our beautiful world, and work together towards a more balanced world.

With design, my goal is to bring people closer to each other, by means of physical and tangible design. I do not want to bring them together in a forced way, but by means of design, I will trigger an encounter. I will build bridges between people to provide opportunities for social- and cultural interaction.

So, I create the opportunity for people to enrich each other with knowledge and inspiration. By combining knowledge and experiences from all over the world, we will improve the quality of life.

## VISION ON DESIGN

## RESEARCH Literature Field

### DESIGN GOAL Requirements

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# RESEARCH

Field research to get an understanding on how technology influences social interaction in public spaces. Literature reseach to deep into the subject of the observed situations of the field research.

## Field research

In the previous chapter about my vision on design you can read about my interest to make use of design to trigger an encounter and to connect people. To build bridges to provide opportunities for socialand cultural interaction. The context of this project is 'the public space', which is an interesting spot to bring people together, as all kinds of different people make use of it; differently in background, knowledge and experiences. To get an understanding on how technology influences social interaction in public space field research was done.

#### Naturalistic observation

In three different environments people were observed in their natural environment. Using this method there is no pressure for the people to behave a certain way, as they would feel if they knew they were being studied. Scientists often are fond of this method because people are acting naturally and not acting how they are expected to act.<sup>2</sup> Conducting the field research, jot notes and proper field notes were written down. (Appendix.A) During the observations no pictures were made, to make sure not to interrupt people in their behaviour. To visualize the observed situations, a mood board has been made with pictures from the internet, see page 16.

#### Conclusion

The digital world makes the entire world smaller. Technology makes it possible to connect with anyone around the world. Internet allows us to connect and virtually meet anyone, anywhere. Wherever we go, we have the ability to connect with anyone, anywhere, anytime. With the result, that we no longer require to be face to face with someone. Moments that were used to be social interaction moments in the physical world are taken over by the digital world, like shopping versus online shopping, meetings versus chat rooms and flirting in a bar versus online dating. With the result that the way people interact with each other changes, like people do not prefer to be face to face with someone anymore.

An interesting phenomenon in public spaces is 'the happening of the unexpected', which influences our behaviour in public space. Most people do not make any connection with other people on the street while being in a public space. But as soon as something unexpected happens and people do share this experience, the threshold to make contact with others seems to lower, with the result that people give each other a look, a smile or even do start a little conversation.

#### Example

A man enters the train and he sits down next to a women without even looking at her. During the trip he only minds his mobile phone. Suddenly the train stops and it takes a while before any information is given about the cause. The conductor passes by and tells that there is a technical problem, which might delay the trip for about an hour. All the people in the train compartment suddenly share the same experience: a delayed train which mixes up their schedules. This experience causes that people share something, it gives something in common, with the result that people have something to talk/ complain about. The man next to the women sighs and he starts to talk about his meeting which he will be late for. Fifteen minutes later they are still in a conversation, not complaining anymore, but having a friendly talk about life and their daily activities.





This moodboard visualizes the observed situation in a general public space.

















This moodboard visualizes the observed social behaviour of people in a public space when they share a experience.





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## THE DIGITAL WORLD, SOCIAL MEDIA AND ITS EFFECT ON SOCIETY

## RESEARCH SHOWS..

## the digital world affects the physical world

society changes because of social media

the effect of social media in public spaces

## Digital world affects the physical world

As human beings have developed new and fast ways of traveling (jet airplanes), the world became much smaller. But since the technology of internet, allows people to connect and 'converse' from those distant points without traveling, the world has become even smaller. Video and audio technology allows people to talk and to see each other even when they are thousands of miles apart.

The digital world that we live in today are the result of many innovations and technology advances. All of these things contribute to the changes of the world from what it was before, in both positive and negative ways. Some examples of the impact of internet on our society:

#### Service commerce

The days before the internet, seeking out anything from a new home to a train journey, from opening hours to a new job was something of a chore, requiring a great deal of time, effort and patience.

Nowadays, the internet has simplified everything to the extent where you are never more than a few minutes away from what you need. Individuals are able to manage their own affairs such as banking without having to visit a branch and can find anything ranging from directions and translations to price comparisons and job listings almost instantaneously.



#### Shopping

Since stores also sell their products online, there is an increasing numbers of people drawn by the sheer convenience of online shopping.<sup>3</sup>

Online shopping saves time, as there is no need to go to many different shops to find the desired product and to fall in line. Thereby, websites don't close like traditional shops, so there is the ability to show 24/7. However, online shopping might be very comfortable, it comes at the expense of personal contact with the brand and people in the store. There is no need to talk to a seller in the store or any other real life conversations and encounters. Media consumption and distribution

Most of the housings still do have a number of bookshelves containing an assortment of novels, magazines and films. But it is doubtable if this will still be the same in a few years.

Internet speeds have been progressively improving over the last few years, making the streaming of high resolution media or the download of large files very viable. As a result, literature, games, films and television have outgrown the need for a costly physical medium such as a book or disc, and are accessible in an instant on the likes of e-book readers and catch-up services.<sup>4</sup>





#### Children and entertainment

Fifty years ago, kids played outside more because there were fewer reasons to stay indoors. No internet; no Facebook, no smartphones. Most kids came home from school and immediately went outside to see their friends till it was time to eat dinner. Today, much has changed. There are many more distractions: hundreds of TV channels, laptops and various portable devices that makes children stay inside. This at the expense of playful active exercises, rubbing shoulders with nature and encountering other kids at the street.<sup>5</sup>



#### Communication and networking

The internet has revolutionised communication and networking to the point where few people in the world cannot be reached in a few seconds at the click of a button. Gone are the days of sending letters and waiting days for a reply, being the only person in a specific area with a specific interest or the inability to speak to people face-to-face without being in proximity of them, replaced by the instant contact method of email, special interest forums and communities for everything imaginable and videoconferencing through the likes of Skype respectively.

It's made the world more efficient on paper, though the amount of time workers spend reading the everyday happenings of their acquaintances or browsing the assorted memes they became bombarded with on a day to day basis probably evens things out.

'Sharing' is all the rage these days, as other sites such as Facebook and LinkedIn allow people across the globe to broadcast every detail of their lives with the rest of the world through the mediums of text, audio, photo and video.<sup>6</sup>



## Society changes because of social media

Social media refers to interaction among people in which they create, share, and/or exchange information, ideas and interests in virtual communities and networks. Online social networks have emerged the new way in which people connect socially. The social media leader currently being Facebook with over 1.2 billion members.<sup>7</sup>

Social networking is a tool used by people all around the world. However, it is uncertain is this type of technology might be doing more harm than good. It is not only changing how we communicate, but how we interact with each other in daily life. Sarah Zay, of USA Today, stated that "With the rise of websites such as Facebook, social networking may be on the verge of replacing traditional personal interactions for the next generation".<sup>8</sup> Traditional interactions will continue to be at risk if we don't realize the effects of our social media. Social networking affects our lives in many ways, including our communication, self- expression, bullying, isolations, friendships, and even our very own sense of humanity.

In an interview on the use of mobile phones in 1999 by Frans Bromet,<sup>9</sup> every single interviewee argues never to need and/or use a mobile phone. Now, fifteen years later, we depend upon it, we cannot imagine a live without the digital world. This psychologically powerful device and its access to the entire world has changed the way we interact with each other.

With the constant use of these social technologies, less people are communicating in person. Many people are becoming more isolated due to the lack of personal interaction. It is becoming easier to go through life with less personal confrontations and conversations. Many people are becoming used to only conversing through their computer. This trend has continued and lead to an, "Interesting number of developing adults that function well in a keyboard setting while failing at human interaction"<sup>10</sup> "We are shaped by our tools. And now, the computer, a machine, on the border of becoming a mind, is changing what we do and shaping who we are." Sherry Trukle, professor of the Social Studies of Science and Technology

## Social media in public space

Since the introduction of the smartphone, the use of apps and mobile internet has increased enormously. We used to stand at a platform waiting for the train, while talking with friends or listening music and watching other people. Nowadays we wait for the train while we only pay attention to the screen of our smartphone, reading tweets and posts or chatting with friends on Whatsapp. Even on parties, at home, at work, during meetings we interact with our mobile phone. We are minding more and more everything that happens in the digital world on the mobile phone, than what happens in the real world at that particular place people are at that moment.

The digital world takes over the physical world at the social level. Tinder makes it possible to meet new people. Facebook and Twitter make sure that people keep up to date of friends activities and opinions. With Instagram people can share their pictures and watching Youtube people live coverage streams of everything that happens in the world.

Technology makes it very easy to not have personal contact. As Sherry Turkle argues "We fear the risks and disappointments of relationships with our fellow humans. We expect more from technology and less from each other."<sup>24</sup>

Social life has been moved from the physical world to the digital world. Which actually means that there is no need to interact in the physical world. Public spaces used to be meeting points to encounter strangers, places to have a chat with someone to get up to date and to just have some social interaction. As all these actions take place in the digital world now, the attention of people in public spaces has moved to their mobile phone instead their environment and the people around them.



## **Research conclusion**

The impact of technology on society is deep. It is both positive and negative. Technology has largely influenced every aspect of living. It has made life easy, but so easy that it may lose its charm one day. Everything has become so easily available due to technology that it might lose its value.

The extreme use of technology, with in particular the use of internet has a big influence on our physical world. More and more physical objects and actions are replaced by the digital world, like books are replaced by e-books and we learn less from books, but search for answers at the internet using google.

Even social interaction takes more and more place in the digital world, at the expense of social interaction in the physical world. The question remains, is this something that should be accepted because of the technological developments or should this be seen as a risk as it destroys the social beings that people actually are.

The technological developments, internet and social media make things possible that really contribute to the development of society and the world. A lot of new things are possible and can be learned. However, people should stay aware of these developments and should not get lost in it and participate just because it is possible. The digital world should not take over and replace the physical world. People should benefit and learn from it, but not at the expense of the physical world and its benefits that might be neglected and underestimated.

We should benefit and learn from the developments of the digital world, though this should not be at the expense of the physical world and it's benefits.

## VISION ON DESIGN

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# DESIGN GOAL Out of

research conclusions a design goal has been formulated. With regards to this design goal, key requirements have been defined and further researched.

## Goal

The digital world should not replace the physical world, therefor I want to blur boundaries between these two world. Merge them and mix benefits of both worlds.

I want to design a physical connecting experience to disconnect people from the digital world for a moment. A design that makes people look up from there mobile device to look around, to see the digital connections in the physical world.

With regards to my vision, the project description and the research, some design requirements are set:

- The design should be an experience in public space
- The design should merge the digital and physical world
- The design should be tangible

#### Identify key requirements

To realize my design goal I focus on three aspects of design that are important to me.

- The requirements to design for public space
- The experience the design should convey
- The form and sense of the design

To create a deeper level of knowledge on these aspects, some more research and user involvement has been done before the ideation. The result of this research is a source of inspiration and a list of more concrete requirements for the final design.

## Interaction design for public space

Designin for public space, a lot of different aspects should be taken into account. The material, valdalism and the environment. And how do you trigger people to interact with an installation in public space? What are the elemants that should be taken into account?

#### Visualise a network

A social network is not visable neather tangible. How do people imagine a social network to look like? How does the movement and form change, when the network changes? Is there a difference in how people imagine a social network to look like?

#### Create a connecting experience

What is an experience? How is an experience designed? Is it possible to design this, or is it something that happens with the design when people interact with is? Are there predefined aspects that can be add to a installation to make it an experience?

## Interaction design for public space

Public spaces are environments with a social and open setting which are easily accessible for a variety of people. Common examples of public spaces are roads, parks and squares. Public space is defined as a social space with its accompanied values and standards derived from this social approach towards an environment. Rules and guidelines are shaped through country laws and cultural norms, subsequently applied to behaviour and attitudes in public space.

When approaching public space in regards to design, a lot of different aspects should be taken into account. Henri Lefebvre<sup>11</sup> discusses public space as a not neural and pre-existing but a continuous space with ongoing spatial relations. It can be seen as a collection of events and actions, in which a design is more than just one of the designs in the environment. It is a design which can only exist together with relation to other objects in that space and is used simultaneously with these objects. So, a design should be conscious designed for a specific public space.

The second challenge with regards to interactive design in public space is the engagement of the visitors of that space. For this engagement, a certain motivation is required. The motivation is strongly based on curiosity, the need to understand what is happening in their current environment.

Researched by Dennis de Klein<sup>12</sup>, this motivation can be triggered by an intervention in the current environment. Like a temporary object in context for which people are required to create new spatial relations or as something new and unique, as an object with possibilities which are not common in the context.

The intrinsic motivation is the first step of the visitors behaviour to create the connection with the design. The second step is overcoming a certain threshold, which varies among visitors. This threshold can be overcome in three ways<sup>13</sup>.

1. Visual communication:

A description on what the tool is, what it is used for and how it is used through step-by-step text, images or icons e.g. a manual.

2. Verbal communication through tour:

A description on what the tool is, what it is used for and how it is used through explanations and expressions by another person.

3. Behaviour of predecessors:

Perceiving others interacting with the tool and translating on how they interact and what effect is on the tool.

#### CONCLUSION

According to Lefebvre's theory<sup>14</sup> a design cannot be placed in any public space. It is important to take into account the actions of the context and the other objects in the space.

It is clear that communication of the design to visitors is the most important aspect of design for public space. It is a challenge to create within the design a trigger to motivate people to participate, to get their attention. Having their attention, there should be a medium or aspect which helps to lower the threshold of participation.

## Visualise a network

A social network is not visible neither tangible. How do people imagine a social network to look like? How does the movement and form change, when the network changes?

A creative workshop was organised to gain an insight in how participants imagine a social network to look like. For this workshop craft supplies were offered and six participants were asked to visualize their social network, Thinking Aloud<sup>15</sup>. The essence of this method is the user giving verbal feedback while doing the assignment. This method worked well because of its capabilities to gain very direct hands on feedback and to get an insight in participant's thoughts.

The participants were totally free in approach, they only got 2 assignments:

- visualise a social network

- visualise the movement of the social network as it will expand

#### Conclusion

Concluded from the workshop a view aspects were outstanding when visualising a social network. A network exists out of dots representing the people in the network. There is a difference within the connection. Close friends have either thicker or shorter connection lines. Different connections can also be visualized by different colours.

Moving one in the social network, the entire network moves along. Objects defined as other persons in the network stay, but their lines are flexible to stretch and move.




## Design an experience

How is an experience designed? Is it possible to design this, or is it something that happens with the design? As observed during the reseach, an experience seems to create a kind of connecting between people as they share this experience.

This includes all aspects of experiencing a product - physical, sensual, cognitive, emotional, and aesthetic.<sup>16</sup>

Jodi Forlizzi and Katja Battarbee distinghuigs three types of experiences<sup>17</sup>; experience, an experience and coexperience. The first, experience, is the constant stream of "self-tak" that happens while we are conscious, for example: walking in a park or doing light housekeeping. An experience is more coalesced, something that could be articulated or named, for example a dinner party or a news hour seen on television. Co-experience is about user experience in social contexts, certain experiences that people find worth sharing with others. Co-experience reveals how the experiences an individual has and the interpretations that are made of them are influenced by the physical or virtual presence of others. Researchers have examined how mutual understanding and context for action shaped the flow and construction of experience, particularly when interacting with technology.<sup>18</sup> Interactive technology systems can play a large role in supporting co-experience, through providing mediated communication channels and the possibility to create, edit, share and view content with others. These systems enable co-experience by providing new channels for social interaction, but can also constrain it by disallowing particular actions or making them cumbersome.

Rune Veerasawmy introduces crowd experience as an emergent field in interaction design research.<sup>19</sup> He identifies three distinct qualities of crowd experience, which interaction design research can benefit from, when designing digital technology for crowd experiences: imitation, emergence, and self-organization.

The process of imitation is central to the social dynamic of crowd experience, because of its promotional function of arousal and excitement. Crowds are constituted by the processes of imitation and suggestive behavior that invites, and might even attract people to take part in the crowd activities.<sup>20</sup> Joining a crowd often promotes a certain responsiveness and willingness to participate in the suggestive behavior emerging in the crowd. The process of imitation may be characterized as a process of contagion, where excitement, emotions, and arousal spread through the crowd.<sup>21</sup>

#### CONCLUSION

Designing technology to support imitation, emergence, and self-organization as qualities of crowd experiences is a rather paradoxical task. It is paradoxical in the sense that emergent behaviour and crowds' self-organizational activities are something that emerge rather spontaneously and autonomously within the crowd itself, and are not something that can be managed, controlled, or designed. This leaves us with the paradoxical and challenging task of actually designing technology for crowd experiences that promotes and supports these qualities. However, to address this paradox, we must revisit the understanding of experience as proposed by Shusterman and Petersen et al.<sup>25</sup> In pragmatist aesthetics, experience is not a priori "something in the world", but a potential that is released through dialogue, as we experience the world.

CHINA WORKSHOP IPOC

# CHINA

Three week DESIS-Lab workshop in Taicang, China to explore the concept of Interactive Patina of Culture (IPOC) through designing an interactive public installation. I have participated a three week DESIS-Lab workshop in Taicang, China to explore the concept of Interactive Patina of Culture (IPOC) through designing an interactive public installation.

Inspired by the concept of 'having face' within the Chinese culture, an interactive installation was designed which gave people in the public space the opportunity to draw a mask on each other's face.

The concept actually covered a double layer. The drawing of the mask on a (strangers) face in public space is the literal visualisation of Chinese people wearing a mask, to protect their face, to keep reputation. But while participating the interactive installation in public space, people open up a little bit to each other while having fun in participating. So while participating the installation and drawing masks, the attitude towards the other changes a bit, so the face changes a bit. During this workshop I have experienced how people are curious by nature. While we placed something in the middle of the public space, we immediately had the attention of everyone passing by in the public space. People even walked a bit closer to have a better look.

But participating and interacting with the installation seemed to be a serious next level. But as soon as two people did interact, others were also willing to participate. I did recognize this 'behaviour of predecessor' from my earlier done research (see page 38.

The action of drawing on someone's face with body movements was for all participants a new experience, which made the experience very successful. Being unknown with the interaction, people started very carefully, but getting more familiar with the movements, they became more and more fanatic. However, there was a difference in experience between the participants, as one participant was the drawer and the second participant was the one who was painted. The last persons participation is less active as the participant who has to paint.

#### Conclusion

When designing an interactive installation for public space, it is very important to take into account the visual aspects of the design. First, this visual communication makes people curious and triggers participation. As second, it causes visual engagement for the people who do not interact with the installation and so as well do receive the message of the installation.

To keep the interactive installation interesting, even after a few times participating, the interaction should be dynamic, changing and unpredictable.



### VISION ON DESIGN

## RESEARCH

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#### DESIGN GOAL Requirements

CHINA WORKSHOP IPOC

Brainstorm IDEATION Evaluation Reframing

# DEATON

Based on the gained knowledge, design requirements and experiences; ideas were generated, reframed and evaluated, resulting in a final idea.

## Ideation

6 Degrees of separation is a is the theory that everyone and everything is six or fewer steps away, by means of introduction, from any other person in the world, so that a chain of "a friend of a friend" statements can be made to connect any two people in a maximum of six steps.

Using social media, this connection between people is easy to ascertain and to visualise. But in the physical world, in public space, the relations between people are not known, hard to ascertain and not visualised. Visualising a social network in public space should trigger people to look around and observe and perceive their environment and the people around them more aware.

Based on the research, the design requirements, the creative workshop on visualising a social network, the China workshop experience and inspired by the theory of 6 degrees of separation, five different ideas were generated. All the ideas are practical concepts to reach the goal of disconnecting people from the digital world for a moment and to provoke a moment of social interaction.

The concepts vary in aspects as active- or non-active participation and single or multiple participants. But all the ideas do represent a short, not disturbing action which is dynamic and so should be interesting even when interacting with it multiple times. For the ideation a broad target audience has been taken into account, so everyone using a public square can participate, which might causes interesting encounters.



1. People take a little object from the wall

2. Connect with others in the public space

3. Magnet system clicks object to cirkel

4. Cirkel visualizes all connections of participants. Laserlight in different collors shows different steps







- 1. Two people log in on Facebook
- 2. Number of steps is determined
- 3. Depending on the amount of steps, a nice, funny, inspiring animation is projected



1. Two people log in on a social network medium

Dennís meets Vera ín the shop. Her fríend ís Job, who ís the brother of Moníque.

2. A story will be projected on the wall about the steps of their connection



1. make a polaroid picture



2. place the picture on the wall and connect to the people you know



3. Connections are projected



4. The wall full of pictures and projected connections makes the network visible and tangible

#### Discussing ideas with users

In an informal setting the five ideas have been discussed with several public space visitors varying in age and interests.

The overall most remarkable note is the issue of privacy. Not everyone is willing to log in on his or her social media profile in public space, as it is unknown and therefore maybe not safe and trustworthy. On top of that, making a personal social network visible for everyone in public space is also not desirable at any time.

Overall comments per idea:

1. The installation is a fun and interactive design, but for a public space it might be to active, as participants are required to approach strangers to participate. Thereby, after interacting with it one or two times, it will not be very interesting anymore for the third time.

2. The projections of this installation are triggered without any participation of the visitors of public space. It is the question if participants do notice the connections and if they will get the message.

3. The most remarkable note about this installation has already been made in the first paragraph, about the privacy issue of login in private profile in public space.

4. Same remark as the remark of installation 3.

5. The installtion is a fun way to experience a social network, but it is not desirable at any time to share all your connections with other people in the public space due to the privacy issue.

## Reframing

The generated ideas were based on the design goal and requirements, without a specific context or user group and so the design goal actually does not have a specific direction. To give the design goal a more concrete direction, the values of the generated ideas has been highlighted to reframe the ideas to a more valuable context and user group.

The overall values of the generated ideas:

- By making use of the '6 degrees of separation' theory, it is possible to connect people via – via, which makes the connection more reliable, trustworthy.

- Having this path of connections, including a picture and some background information, it makes it easier to connect or approach unknown people.

- Connecting to people in the digital world is easy as it is most of the time just one mouse click. With regards to an installation that stimulates physical connecting experience makes a meeting more personal, which is out of the ordinary nowadays.

From public space to professional environment

The value of making connecting easier and more comfortable has been placed in different contexts. Placing these values in an environment where het all is about connecting, the most suitable and valuable context for the idea is a professional environment.

#### **Evaluation of new context**

To evaluate the new context of the ideas, it was discussed with several people having experience with professional environments.

According to the reactions of the interviewee, especially idea 4 (page 48) seems to have potential in the professional environment.

Mark Kwikkers is founder of EYE (Eindhoven Young Entrepreneurs shares) and organizes networking drinks for young entrepreneurs. He has created a tool to make connecting easier during the drink, which visualizes the interests and activities of all participants. The disadvantages was that people had to deliver the information on forehand. So he emphasised the value of customising the shared information at the event itself. Dennis de Klein has participated the EYE-drink several times. He shares his experience about participating networking drinks, that it is easy to stay with the people you already know and sometimes to join another group as there is at least one familiar face. Visualise the connections of all participants would make it easier to approach other people, as there is a visual which serves as a beginning for a conversation.

Ton Voogt is founder of TonVoogtConsultancy. He frequently visits conferences all over the world to gain knowledge and inspiration. At these conferences, most of the time he just knows a few people, but is interested in talking to some people he does not know personally. He agrees that the idea would add value to the environment of a conference, but adds the comment that the connection that will be made might be influenced by the strength of the relations between people.

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# CONCEPT

With regards to de ideation process, the reframing of the context and the evaluation with experts, the puzzle pieces fell into places resulting in a final concept.

# Connect.

Connect. is an installation that triggers a physical connecting experience by bluring boundries between the physical and digital world. It stimulates and makes it easier to approach not (well) known people in a professional environment, by means of connecting via – via.

Connecting to one or another via-via is not a new concept. Nowadays this mostly happens in the digital world using e-mail or social media. The use of these media is less personal and therefore less confrontational and more controllable and comfortable. The growing popularity of the digital world is at the expense of the physical world and the social behaviour of people. Connect. is a tool which participants in a professional environment can interact with. Interacting with the Connect.wall means the participant shows his attending at the event and shares his professional connections with fellow participants.

This installation makes it easier for participants to figure out connections within the social network at the professional event. By means of this information, it makes it easier for participants to start a conversation with a not (well) known person, as there is installation and the figured out network to use as start up for the conversation.

As second does the installation triggers conversations between people who are interacting with the Connect.wall as it is an unfamiliar tool that creates an experience. Sharing the experience of interacting with it makes it easier for people to start a conversation.



### How does it work?





## **Business position**

The Connect. installation has been made for a professional environment, to increase the experience of a physical connection. It is a valuable design for the market as it is a unique translation from digital to physical. Placing this installation at an event or congress, it will give the event a more personal touch.

Connect. is not a product to sell, but an installation that can be borrowed by professional organizations. As visualized in the business model on the next page, the Connect. company does lend the installation in exchange for money. The service of the Connect. company is to install the installation at the events location.

After the event the Connect. installation collects a lot of data of all participants. This data is valuable and the property of the Connect.company, but will be shared with the event organizer. Having the Connect. installation at the event, the organization does offer an the visitors an extra experience and the comfortability get easier in touch with other visitors.

LinkedIn is the partner organization that gives permission to use the collected data. In exchange they get exposure and reputation which will leads to more subscriptions.

For the final business plan there should be done more research into the opportunities for other contexts of this installation and its values. Also the user benefits good be explored further. This you can read about in the chaper 'future design', page 77.



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# PROTOTYPING

To explain and communicate the essence of the concept, a prototype has been made. The challenge of this aspect in the design process was to make sure that the key elements of the concept would be emphasised.

## Prototype

The most important thing for the prototype was the experience that it should convey and the message that it should communicate. Therefore the following aspects were chosen to emphasise in the prototype:

- The experience of perceiving the design.
- The interaction with the installation.
- The visualisation of the network.

- The visualisation of the shortest route within the network between person A to person B.

#### Form and Sense

To convey the experience of interacting with a wall, a huge mdf board was used as wall. Points to place the tokens were premade. Using a beamer, the wall was provided with animations of the participants profiles and connections. On the right you can see how there has been experimented with the look and feel of the installation, while visualising the connections and shortest routes within the network. Experiments were done with different line colours and thicknesses to find the best way to make a difference between amount of steps between a connection and the intensity of a connection.







#### Interaction

For the interaction with the prototype there was tried to make this as realistic as possible within the available time. All the participants of the 'congress' have been made up and a social network has been preprogramed. Placing a premade business card and activating a personal profile was possible, though the profiles were preprogramed. It is possible to touch a person's token to see his or her connections of the participants of the 'congress', as well as touching two buttons to see the connection route between these participants.

#### Technology

The token can be placed on the wall and sticks because of the magnet in both the token and the wall. Pushing the token, a push-button behind the wall is activated. The position of the button has a preprogramed participant profile and preprogramed friends within the network. The push-button communicates its status to the Arduino, which communicates with Processing. For the calculation of the shortest route within the network there is made use of the algorithm of Dijkstra.<sup>22</sup> This is a graph search algorithm that solves the single-source shortest path problem, for a graph with non-negative edge path costs, producing a shortest path three. This algorithm is often used in routing and as a subroutine in other graph algorithms.

The final Processing code can be find in the Appendix B.







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# PROTOTYPING

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# EVALUATION

The installation and the concept have evaluated by means of observations and interviews . For the evaluation, a distinction is made between the perceiving and interaction part of the installation and the concept itself.

## **Evaluation**

TTo evaluate the installation and how visitors perceive and interact with it, an analytic framework has been used.<sup>26</sup> The ensuing framework comprises a set of criteria, drawn based on how they can influence public creativity in interactive installations. These criteria were categorized into three phases of user engagement at the public interface:

- perception - interaction - engagement -

The above mentioned criteria will be discussed for the evaluation of the prototype. This is done with regards to the observations that are made while people were interacting with the installation and the discussions afterward with the participants.

#### Perception

This is when the participant first comes in contact with the installation. At this time, the user creates an initial understanding about the installation. The installation might be perceived in various ways<sup>27</sup>: static, dynamicpassive, dynamic-interactive, dynamic-interactive (varying). A key attribute of public installations is how people interpret the installation within the context it is placed. Not all contexts convey the same level of interaction. There is made a distinction between peripheral awareness threshold, focal awareness threshold and direct interaction activities.

Overall, the first moment the installation has been perceived as 'static', but soon after a better observation the most visitors within a distance of a few meter do perceive the installation as dynamic-interactive.

This correspondents with how people interpret the installation within the context it is placed. People just entering the space at a large distance are in the peripheral awareness threshold zone. They are aware of the installation, but do not attend. As the wall of the prototype is extreme huge, most of the visitors do mention the prototype and come closer and enter the focal awareness threshold zone. They do talk about the installation, and watch the installation being used. At this point, users may give the installation attention and try to learn more about it. Almost 80% of the visitors does stay in this zone until they feel comfortable enough to come closer for interaction. At the end, nine out of then visitors did enter the interaction zone.

None of the visitors did enter the interaction zone immediately, as every visitor first observed the installation before coming closer.

#### Interaction

'Interaction' starts when the user has the intention or actually moves in to interact with the installation. In this phase two different behaviours were seen: the honey pot effect<sup>27</sup> and the spectator experience.

In this stage 'the honey pot effect' has been observed,

as there was a progressive increase in the number of participants in the immediate vicinity of the installation as visitors started to interact with the installation. A social 'buzz' was created around the installation in which visitors showed their interest and evaluated the installation. A nice result was the social interaction that took place between the visitors in the buzz without even interacting with the installation.

People in the focal awareness threshold zone had two different experiences, namely the experience of the manipulations: the actions carried out by the participant and the effects of the installation causes by the performer.

#### Engagement

This is the phase when the user moves from interaction into a deeper understanding of or a dialogue with the installation or other actors in the engagement. Overall there was seen that a single participant did interact with the installation, stepped back to watch and then discussed with other visitors the action that happened. This shows that the overall group of visitors did create an understanding of the installation and his or her own actions of interaction.

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#### The concept

The concept has also been discussed separately of the interaction aspects of the prototype with several people having experience in participating events in a professional environment.

For the discussions, the concept storyboard and videos of the prototype were shown.

Evaluating the tokens of the system, a lot of positive comments were given. The use of business cards is a

very professional and easy way to 'check-in' at an event. Definitely if you do compare it to one of the first ideas by using a polaroid picture.

The possibility to control the shared information makes the concept stronger and more trustworthy. Though it should be sure that the owner of the token is the only one who is able to control the shown information and this not can be controlled by other visitors.

The difference in the connection based on connection time and intensity is something to emphasis as it gives the concept more depth.

However, for the overall concept there should be thought of something for people who are not on LinkedIn, or not even on social media.



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Observation

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# DISCUSION AND CONCLUSION

In this chapter the design process, the final prototype and the future steps for the concept are discussed separately.

## Design process

Starting the project, the description of the design challenge was very broad. This had both positive and negative aspects. The freedom of interpretation gave the possibility to involve my personal vision as much as desired, while sticking to the project brief. The risk of doing a project without a clear direction is that it is easy to get lost in the subject and the gained information. The project was started with an observation of the context, followed by literature research to find out more about the outcome of the observations. Some very big aspects were chosen to focus on like: how the development of technology influences society and how to design an experience. These aspects are studies themselves, while now they are used as little aspect of another study. By not going into depth enough I have the feeling there has been missed a lot and therefor the requirements of the design process are not complete.

The sequence of the process was in a satisfying order, as the China workshop took place right after all the research was done. This gave the possibility to experience and explore the outcomes of the research in practice. This learning experience has been of great use for the further development of the project ideas, the final concept and its development.

In the beginning of the project the design goal was too abstract. The goal was to disconnect people from the digital world for a moment. Preferably I would have made a design that would affects every single person in the world, but continuing the project, I experienced that the lack of having a concrete target group did hold on the design process and idea generation. When reframing the ideas to a more valuable context, the ideas shaped to a much more clear direction and goal. Having this clear project direction and thereby a clear target group, the user involvement became much more valuable

as these people knew what they were talking about. This definitely contributed to the development of the ideas and the shaping of the final concept.

The development of the concept and how the prototype has contributed to the future design plans is described in the following headings

## Prototype

The chapter 'Prototype' does describe the steps and considerations that have been made to create the prototype. As the prototype does not cover the concepts completely, there is a discussion about how to use the outcomes for evaluation and further design decisions. Like the tokens did have a pre-set location due to technical reasons. Therefor it was not possible to observe and measure the experience of participants when they would have been free to place the tokens wherever they wanted. I think this aspect would add an extra experience to the installation, thus this should be tested and then implemented it in a second prototype iteration.

In this prototype, there was no difference between line thicknesses based on the intensity of the connection. I did not mention anyone missing this aspect, though I think this is a valuable aspect for the prototype and I do see two reasons why visitors did not mention it. One, it is hard to give feedback on something that is not there. Two, the interaction with the prototype was with fake personalities, and thus the visitors did not have knowledge on the intensity of the connections of the preprogramed people. Also I think the experience would be more exciting as it would really be about the visitor himself, as it is more exciting if this kind of knowledge is visualised about yourself then about someone else you do not know.

The amount of people that did interact with the installation was positively high, even though I noticed some threshold in the beginning. But as the honey pot effect describes, when the visitors see someone else interacting with the installation, the threshold lowers immediately. I think the use of the beamer did higher the threshold as, when visitors stand in front of the installation, their own shadow was visualised as well. Another technological technical solution should be found for this problem, to test if this is really the case. For a second iteration the beamer could be placed on the back.

Even though the experience of the prototype is still not the experience it should be with regards to the final concept, I think I have been able to take all the important aspect to discuss these for further development. You can read about this further development in the next chapter.

## Future design opportunities

Concluding from the evaluation of the prototype and the positive feedback on the concept, I think there definitely is a future for this concept.

For further development the first step should be the technical aspects of the concept. As it will develop as described in the business model (chapter N) it will become a lending system. This means that the installation should be easy to transport and assemble. The size of the wall might depend on the organization that is lending, so the wall should exist out of square plates that can be add to increase the wall.

Having the technical aspects solved there should be done more iterations with user involvement to explore the aspect of users being able to control the given information themselves. It is an open network where people should not feel uncomfortable about sharing information, as it is in a professional environment. This is an important aspect to prevent that people only place a token to benefit from other peoples social networks, without giving any information about themselves.

The core of this installation actually is to convey information. For now this is placed in a profesional environment, but maybe it can also be placed in a social gathering place where people do offer their knowledge, stuff and experience in exchange for something else. Or at a university where students and proffesors get more comfortable in contact with each other.

The last aspect that will be mentioned that should get attention in the future is the involvement of the user. Will it stay a single experience only at the even itself? Or does Connect. stay in contact with its participant, by for example sharing the collected data?

## References

[1] Design for Social Interaction in Public Spaces, Project description DP146, (2013) by Hu J., Frens J., Funk M. [2] Jackson, S.L. (2005). Research Methods and Statistics: A Critical Thinking Approach. Wadsworth Cengage Learning. [3] 6 ways the internet has changed society (2011) http://tigercub684.hubpages.com/hub/6-waysthe-Internet-has-changed-society [4] Antliff, A. (2013), 10 Ways The Internet Has Changed The World. http://whatculture.com/technology/10-ways-the-internet-has-changed-the-world.php [5] Burns, J. (2013), Children urged to put away screens and play outside. http://www.bbc.co.uk/news/education-24670232 [6] Antliff, A. (2013), 10 Ways The Internet Has Changed The World. http://whatculture.com/technology/10-ways-the-internet-has-changed-the-world.php [7] Static Brain (2014) http://www.statisticbrain.com/social-networking-statistics/ [8] Zay, S. (2011), What Sticks & Stones Can't Do, Facebook Will-And More! http://business. highbeam.com/5897/article-1G1-252632518/sticks-stones-cant-do-facebook-and-more [9] Bromet, F. (2013) Mobiel Bellen in 1999. http://www.youtube.com/watch?v=0u0RQk2Z1-o [10] Dvorak, J.C. (2011) Disconnect? Never, Thanks to Cell Phones. http://www.pcmag.com/article2/0,2817,2379126,00.asp [11] Lefebvre, H. translated by Nicholson-Smith, D. (1991) The Production of Space

[12] + [13]	Klein de, D. (2013) Urban Interventions, final master project.
[14]	Lefebvre, H. translated by Nicholson-Smith, D. (1991) The Production of Space
[15]	Somerern, M.W., Barnard, Y.F., Sandberg, J.A.C. (1994) The Thinking Aloud Method
[16] + [17]	Forlizzi, J., Battarbee, K. (2004) Understanding Experience in Interactive Systems
[18]	Dourish, P. (2004) What We Talk About When We Talk About Context.
[19]	Veerasawny, R., Iversen, O.S. (2012) Bannerbattle: introducing crowd experience to interaction design
[20]	Tarde, G. (1962) The Laws of Imitation
[21]	Turner, R.H., Killian, L.M. (1972) Collective Behavior
[22]	Fan, N. (2012) Dijkstra's Shortest-Path Algorithm http://www.youtube.com/watch?v=gdmfOwyQlcI
[23]	Cornock, S., Edmonds, E. (1979) The Creative Process Where the Artist Is Amplified or Superseded by the Computer.
[24]	Turkle, S. (2012) Alone Together: Why We Expect More from Technology and Less from Each Other
[25]	Wright, P., Wallace, J., McCarthy, J. (2008) Aesthetics and Experience-Centred Design
[26]	Mathew, A., Rogers, Y., Lloyd, P. (2012) Post-it Note Art: Evaluating Public Creativity at a User Generated Art Installation
[27]	Brignull, H. and Rogers, Y. (2003) Enticing people to interact with large public displays in public spaces.

# Photograph sources

[A]	http://www.dejoost.com/we-never-look-up/
[B]	http://cargocollective.com/alejandroceron/Mind-the-Crowd
[C]	http://www.jefflindsay.com/photos-people-spain.html
[D]	http://www.treinreiziger.nl/actueel/binnenland/meer_boekenlezers_met_de_trein-145124
[E]	http://www.theguardian.com/world/2012/aug/26/afghanistan-music-festival-organisers-success
[F]	http://onlinelearningtips.com/2013/05/28/why-googling-isnt-all-that-web-information-literacy-in-the-21st-century
[G]	http://technorati.com/technology/article/the-uk-is-a-nation-of/
[H]	http://www.booksforbetterliving.com/9-sizzling-beach-reads/
[I]	http://mijnverzamelingen.blogspot.nl/2013/08/steve-jobsschool-goed-idee-of-niet.html
[J]	http://www.flickr.com/photos/mkhmarketing/8468788107/sizes/h/in/photostream/
[K]	http://everestalexander.files.wordpress.com/2013/09/social-media.jpg
[L]	This businessmodel was made using the tools of boardofinnovation.com

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## Appendix A - keynotes observation

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# Appendix B - Prototype code



+import org.firmata.\*; import cc.arduino.\*;

#### int createdPeople =0;

PVector currentMousePosition = new PVector(0,0); boolean movingMouseObject = false; int personIDMovingObject =0; int lastpersonIDMovingObject =0; float globalScale =1;

```
import processing.serial.*;
import cc.arduino.*;
Arduino arduino;
```

int[][] personenknopjes = new int[30][5];

Cluster cluster; PFont f; void setup()

## {

personenknopjes[0][0] = 6; //arduino input personenknopjes[1][0] = 7; //arduino input personenknopjes[2][0] = 5; //arduino input personenknopjes[3][0] = 100; //arduino input personenknopjes[4][0] = 8; //arduino input personenknopjes[5][0] = 4; //arduino input personenknopjes[6][0] = 10; //arduino input personenknopjes[7][0] = 36; //arduino input personenknopjes[8][0] = 3; //arduino input personenknopjes[9][0] = 38; //arduino input personenknopjes[10][0] = 48; //arduino input personenknopjes[11][0] = 46; //arduino input personenknopjes[12][0] = 42; //arduino input personenknopjes[13][0] = 44; //arduino input personenknopjes[14][0] = 39; //arduino input personenknopjes[15][0] = 51; //arduino input

```
personenknopjes[16][0] = 35; //arduino input
                                                                   size(1024, 512);
 personenknopjes[17][0] = 47; //arduino input
                                                                   frameRate(60);
 personenknopjes[18][0] = 9; //arduino input
                                                                   smooth():
 personenknopjes[19][0] = 31; //arduino input
                                                                   cluster = new Cluster(5):
 personenknopjes[20][0] = 50; //arduino input
                                                                   arduino = new Arduino(this, Arduino.list()[0], 57600);
  personenknopjes[21][0] = 53; //arduino input mischien
wisselen
                                                                   for (int i = 0; i < 29; i++) {
 personenknopjes[22][0] = 37; //arduino input
                                                                   arduino.pinMode(personenknopjes[i][0], Arduino.INPUT);
 personenknopjes[23][0] = 43; //arduino input
 personenknopjes[24][0] = 52; //arduino input
  personenknopjes[25][0] = 49; //arduino input mischien
omwisslen
                                                                  void draw() {
 personenknopjes[26][0] = 45; //arduino input
                                                                   background(100);
 personenknopjes[27][0] = 33; //arduino input
                                                                   cluster.display();
 personenknopjes[28][0] = 40; //arduino input
 personenknopjes[29][0] = 41; //arduino input
```

// randomSeed(20);

f = createFont("Georgia", 10, true);

I will provide you the rest of the code if you send an e-mail to t.j.elfferich@student.tue.nl

