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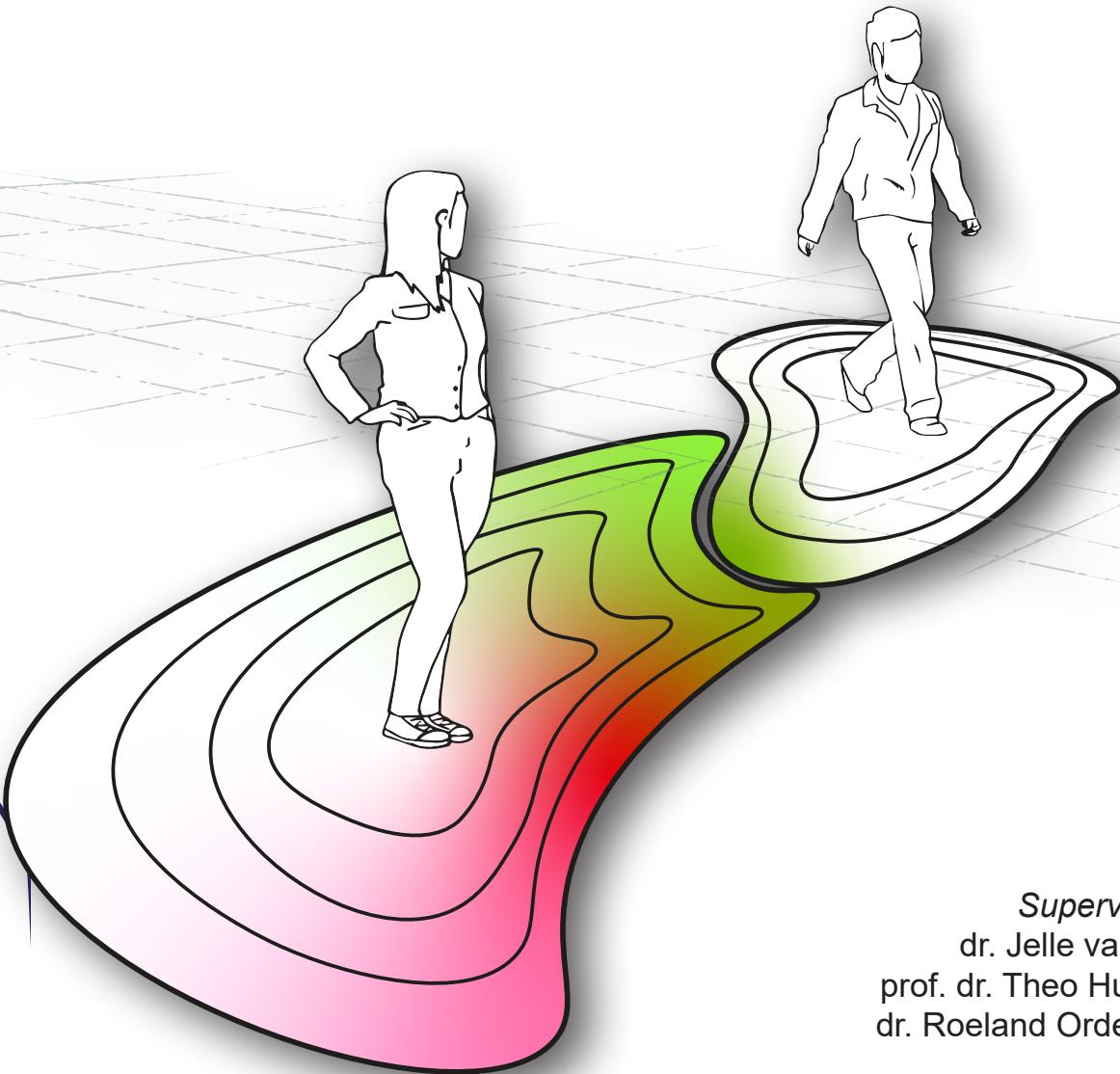
Faculty of Electrical Engineering  
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## Master's Thesis Interaction Technology

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Stimulating critical thinking about the self-sustaining network of relations which reinforce smartphone use:  
a Critical Design study

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# Summary

The smartphone is used across the world in nearly every layer of society. Despite the studies linking the smartphone to negative effects, the smartphone itself has not changed drastically over the past decade. This project aims to uncover the structures which maintain the position and design of the smartphone through approaching it from an embodied perspective, which sees technology as mediating the interaction between humans and their environment. In addition, it aims to provide a first step to change these structures and the implicit behavioural patterns of smartphone use through the design of two Critical Design artifacts. The project consisted of three steps: the first step aimed at uncovering and examining the underlying structures of smartphone use through Participatory Design workshops. In the second step two Critical Design artifacts were designed, with the aim of challenging these underlying structures, and finally, the third step was a reflection on the insights on those first two steps as analysed from an embodied perspective.

Participatory Design workshops were held with 35 children aged 10-14, as these children are among the first to grow up completely with a smartphone. Participatory Design is an approach to design in which the end user is involved in the design process. The workshops consisted of two phases. Phase one concerned the discussion of the smartphone in their daily lives, as well as positive and negative aspects. In phase two, the children were asked to design a device themselves, with a non-digital object as base. The resulting transcriptions were analysed according to the Grounded Theory method. The devices which were designed indicated that the participants could project the functionalities of the smartphone easily on a base which does not resemble a smartphone at all, while the discussions indicated that the smartphone is used mainly for keeping in contact, through Social Media apps such as Instagram and WhatsApp, entertainment such as watching videos and listening to music and practical functionalities such as looking up information. Social practices surrounds these activities. Because the smartphone is used for so many different activities, it touches nearly every part of the participants lives.

Based on these insights, two Critical Design artifacts were designed: *Your Life-Bubble* and *Take Your Challenge*. These artifacts were meant to extrapolate the aspects of smarphone use as identified in the Particopatory Design workshop and

present them in a provoking manner such that it elicits debate. The *Your LifeBubble* concept combined the need for self expression on Social Media with the separation between the smartphone and the physical self. Instead of being online, the timeline as shown on Social Media apps such as Instagram was projected in a circle around the user on the ground. In addition, it reacted to other persons in the vicinity by either moving towards or moving away from them, indicating if this person is liked or disliked. Social relations are thus immediately visible.

The *Take Your Challenge* concept is based on the need for entertainment, as well as the resemblance between the explicitly imposed structure of the school and the implicitly imposed structure of the smartphone. A school system determines what kind of knowledge is taught, how a students time should be organised, and how students should behave. Similarly, the smartphone influences social contact through Social Media, influences how students spend time and what kind of knowledge they can access. In the concept, the explicit school system and implicit smartphone influence have been combined in a school system in which the students have to perform challenges. These challenges are a combination of practical actions, such as “build a water rocket”, but also social actions, such as “make three new friends”. The challenges are inspired both by the subjects which are originally taught at school and challenges which students give each other.

The physical prototypes of these concepts were presented at a debate session, such that the audience could experience the concepts themselves. About the *Your LifeBubble* concept the audience mostly wondered if and how the LifeBubble would change interacts between people. About the *Take Your Challenge* concept, the audience mostly wondered about how the challenges could motivate students.

In a final reflection on the results of the workshops and the insights gained through designing and discussing the Critical Design concepts through the theory of Embodied Interaction, it is argued that the user and the smartphone are part of a network of relations, which it is hard to break out of. First, it is mostly invisible; second, many functionalities have been delegated to the smartphone, and finally, by stepping out of the network individually the (non)user becomes isolated. Any change should be supported on a larger scale. Furthermore, the smartphone seems to mediate our interaction with the world in multiple ways: the users are connected to each other at all times because it is small and easily carried around. In addition, the screen acts as a window into the world of Social Media, which might create a sense of separation from the digital personality, even though that personality is also used for self expression.

Critical Design showed a promising method for stimulating critical thought and debate. It was suggested that it might also be used in different settings, such as part of the school curriculum, teaching children to think about their own practices and

habits regarding technology and empowering them to define and design their own technology.

In conclusion, this project showed a promising method of challenging smartphone use through using Critical Design, which might form the first steps in stimulating design changes.



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# **Chapter 1**

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## **Introduction**

Although the smartphone as we know it only emerged a decade ago, almost everyone in the Western world is now in possession of one, across all ages. In the USA, an average of 97% of the population between 18-44 and over 80% of the population between 44-64 owned a smartphone in 2016 [1], [2]. In the Netherlands, up to 93% of the population own or have access to a smartphone [3].

Much has been written about the impact of the use of smartphones on society, both in the media and in academic studies. Some studies claim that smartphone use leads to an increase of stress and decrease in social competence and empathy [4]–[6], while positive aspects include being able to stay in contact with relatives and friends, being able to navigate in unfamiliar places with more ease as well as the health applications such as fitness apps and apps which aim to prevent of anxiety and even suicide [7]–[10]. Still, self-help tutorials are available which promise a decrease in daily smartphone use, when people feel they are addicted [11]. In extreme cases, smart phone use is likened to smoking and alcohol addiction [12].

However, while there is much outrage over the (probable) negative effects of using a smartphone, there have been only a couple of suggestions about how the smartphone could be improved or what a next step in the development could be. Most solutions suggest to either deinstall social media apps or to ban using the smartphone altogether, both which are highly unfeasible in today's society in which more and more services are developed for the smartphone. However, those in favour of the smartphone usually ignore negative aspects in favour of the positives ones or are content to stay with the status quo. As such, the smartphone has not changed in its overall design for the last ten years.

The question is then how the strong position of the smartphone is maintained despite the lively discussions on the consequences and the perceived negative aspects, if this position can be challenged, and what a next step in the development of the smartphone could be. This project aims to uncover some of the structures which enforce the use of the smartphone through approaching it from an embodied

perspective [13]–[15], and to challenge the implicit behavioural patterns and norms and values of the smartphone through Critical Design [16]–[18], which might give an indication towards a next step in its development.

## Human-Technology Interaction

One problem with the dialogue on both sides of the argument is that the smartphone is often treated as separate from the context in which it is used. Although it is noted that the smartphone touches on many aspects of our lives, the solutions mentioned are either from the perspective of the technology (that is, the smartphone causes social incompetence and should be banned), or from the perspective of the user (who bend themselves sideways to block apps to which they are addicted). Both of these solutions overlook the more holistic view in which the meaning of the smartphone is built through our interactions with it: humans shape the smartphone, but the smartphone shapes our interaction with the environment.

Technology is not value free. For example, one of the noted consequences of the smartphone is that users pay less attention to their surroundings, including street lights, because they are looking down at a small screen. In some pilot experiments Germany and the Netherlands, a street light was placed inside the pavement, allowing the smartphone users to see it while looking down [19]. However, the Dutch Safe Traffic association argued against these lights because it rewarded bad behaviour of the smartphone user. To them, implementing the light was immoral because it led to immoral behaviour. A traffic light seems simple, but embodies norms and values about desired behaviour, how traffic flow should be regulated, and which kind of rules can be imposed on the population. Not all of these values are implemented consciously. Instead, they emerge within the network of relations to other technologies and the humans who use these technologies.

The relations between humans and technology are complex. One possible perspective to analysing this relation is through the theories of embodiment. Within the disciplines of *Human-Computer Interaction* and *Industrial Design*, the field of *Embodied and Tangible Interaction* holds embodiment as central to interaction between humans and technology [15]. According to this view, humans are first and foremost beings which exist in a world, and our self awareness comes about by interacting with our environment [20]. Meaning, then, also comes about through interaction: we do not perceive the world in a rational manner by thinking about it, but first and foremost by *being in it*. For example, a stool is not a stool because it has four legs and a small horizontal round platform. It could also have three legs and be square. Instead, it is a stool because we use it for sitting at a certain height, either low or high, but not the height we use chairs for. How we interact with the stool defines its

meaning. Tools are special in the sense that technology can change how we perceive and thus interact with the environment. Infra-red cameras for example change which kinds of light we can perceive. In turn, it changes how we give meaning to the world [15], [20], [21]. Approaching the relation between humans and their smartphone from an embodied perspective might give an alternative insights compared to less holistic views.

## **Challenging the Status Quo**

As said, the aim of this project, however, is not only to give an analysis of the current situation, but also to make the users aware of their implicit norms and habits with regard to smartphone use. A design approach which explicitly challenges the status quo is called Critical Design [16]–[18]. Critical Design is closely connected to critical theory and criticism in general, and draws from practices which have been applied in, among others, literature or social studies [17]. Its goal is to provoking thought and reflection in both the designer and the user and subvert expectations in some way [18]. Where critical theory is mostly a verbal (or textual) tradition, however, in Critical Design an artifact or object is created which embodies the criticism. The user is provoked through interaction with this artifact, and the artifact itself forms the centre of the debate, most often about what its existence would mean for society as a whole.

The first step in this project is then to examine the current patterns with regard to smartphone use. The second step is using these insights to create two Critical Design artifacts which highlight aspects of smartphone use. Although a full exposition of these artifacts is outside the scope of this project, as said, the artifacts help to explore these insights in an embodied and critical manner.

In addition, while the smartphone has saturated the whole of society, Western children who grow up now are the first to do so with a smartphone present throughout their lives. The role of the smartphone in the lives of these children is particularly interesting, because their views are carried on to the future. Although previous generations were used to digital devices such as a television and computers, this generation is the first who can carry their smartphone everywhere they go, and who are in constant contact with each other. Furthermore, in the Netherlands, children transition to secondary school at approximately the age of 12. In secondary school they are subsequently subjected to more intense forms of group dynamics as everyone tries to find out who they are in relation to each other. This age also often coincides with the age at which the children receive their first smartphone, namely at the end of primary school. The smartphone is an integral part of their social lives. These children establish social practices which are far different from older genera-

tions when they were at that same age. The age group between 10-14 is particularly interesting because it includes the transition between not owning a smartphone and owning one, as well as a change in social setting.

Special care should be taken to understand their perspective. This is reflected in the design method Participatory Design, in which the user is part of the design process as much as possible [22]–[25]. When used as a tool in research, Participatory Design is not only used to reach a desired end-product, as is the case when Participatory Design is used in a standard design process, but foremost to understand the interaction between the product and the user, through a design process [26]. In addition, principles of Embodied Interaction are often applied in Participatory Design workshops, as users are encouraged to create prototypes and act out scenarios using their bodies [27], [28]. Participatory Design workshops could motivate the children to think in a different manner than they are used to at school.

## 1.1 Research Questions

The above leads to three research questions. The first two are concerned with examining the current practices by children concerning smartphone use, as well as how they would imagine their desired future ways of integrating digital services into their lives:

- RQ1 When motivated to reflect on their implicit norms and habits with regard to smartphone use, how do children (aged 10-14) perceive the role of the smartphone in their lives?
- RQ2 What do children (aged 10-14) envision to be desired future ways of integrating digital services into their lives?

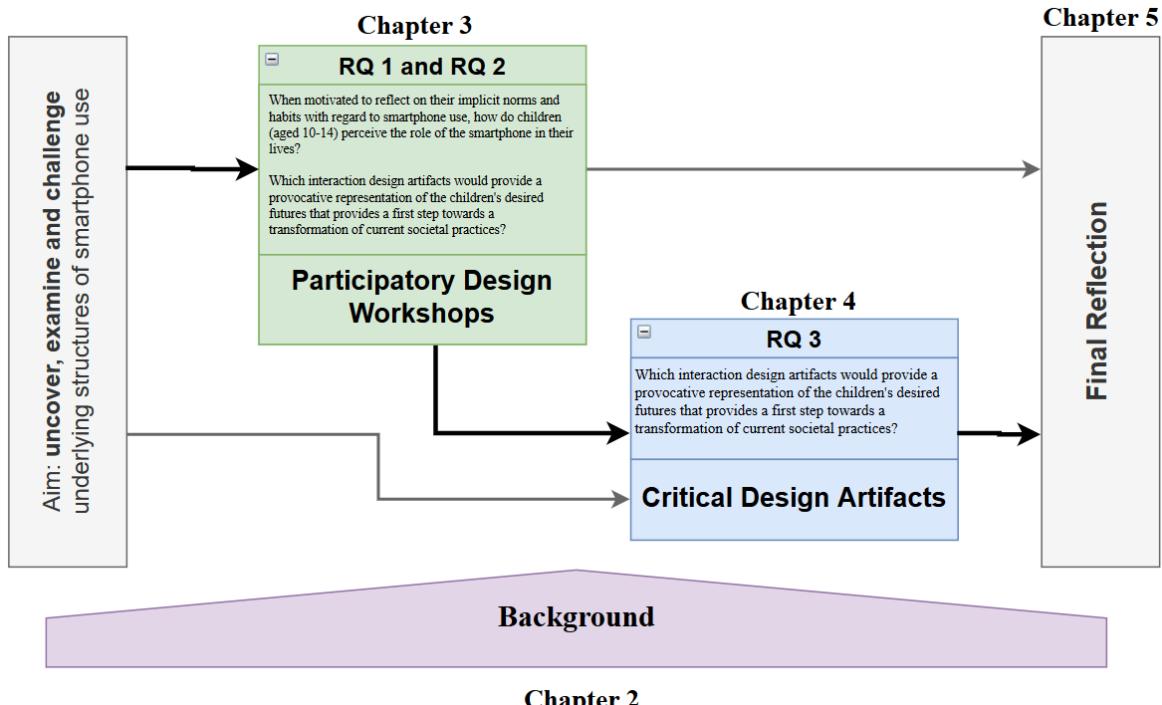
The age range is selected because this includes both children from before the transition to secondary school (ages 10-12) as well as children who just started secondary school (ages 12-14). This allows for comparison between these two age groups. As mentioned, Participatory Design workshops are held to answer these questions, in which the participants are asked to design an artifact themselves.

The third research question is then as follows:

- RQ3 Which interaction design artifacts would provide a provocative representation of the children's desired futures that provides a first step towards a transformation of current societal practices?

In the next section, an overview of the methods used to answer these questions and an overview of the structure of this thesis is given.

## 1.2 Methods and thesis outline



**Figure 1.1:** Overview phases of the project.

This section gives an overview of the structure of the thesis as well as the methods employed to answer the research questions. A visual overview is shown above. The background informs all other phases. In addition to giving an answer to the first two research questions, the insights gained in the Participatory Design workshops form the base of the Critical Design artifacts. Both are discussed in light of the background in the final chapter. The content of the chapters is as follows.

### Chapter Two: Background

Chapter Two starts with a short overview of the current debate surrounding the smartphone use, as well as the connection between the smartphone and Social Media, explaining what various Social Media apps are currently used for. Then, the theories which underlie Embodied Interaction are discussed, and how these are employed in design. The chapter ends with an overview of Participatory Design and Critical Design.

## Chapter Three: Participatory Design Workshops

Chapter three describes the Participatory Design workshops. It starts with a detailed description of the method, followed by the results of the workshops and the discussion of those results. The Participatory Design workshops aimed to answer the first two research questions. As mentioned, Participatory Design is a form of design in which the user is included in the design process in order to understand their perspective and have this reflected in the final product, rather than thinking for them [24]. In contrast to ethnography studies, in Participatory Design the participants are encouraged to create themselves, for example through making collages or quick prototypes. In addition to being more active, which makes it appealing for children [29], this is in line with the philosophy underlying the embodied perspective [13], [28]. Thinking through making yields different results compared to the traditional methods. Furthermore, by designing a new product, the participants are encouraged to think about future or alternative worlds in which these products might actually be present.

The participants consisted of 15 primary school children (aged 10-12), divided into two groups of respectively eight and seven participants, and 20 secondary school children (aged 13-14). divided into two groups of six and one of eight. In total, there were five groups: two groups of eight, two groups of six and one group of seven participants.

The workshops took three hours and were separated into two phases. The first took a more traditional approach in which the children are asked to write down and discuss negative and positive aspects about their daily interaction with the smartphone on an interactive sheet. The children were appointed the role of interviewer, since they had to interview each other on their lives. The second is a design exercise in which the children are asked to design an artifact themselves based on a problem with the smartphone which was relevant during the discussion. The artifact reflects their desired ways to integrate digital services into their lives, and does not have to be a smartphone itself.

The Participatory Design workshops resulted in qualitative data of varying nature, such as observations, quotes and the prototypes of the technologies which the children envisioned. These were analysed through Grounded Theory [30], [31]. As said, the results formed the base for the Critical Design artifacts.

## Chapter Four: Critical Design

The forth chapter describes the process of designing and evaluating the Critical Design artifacts. As mentioned, Critical Design is an approach to design which aims to challenge and change the current practices of users through a Critical Design arti-

fact. Critical Design is a form of Research through Design [32], in which artifacts are used to understand interaction behaviour. While the designer is not and can not be neutral, because the artifacts reflect design choices based on personal judgements of the designer based on his or her ideas on a possible and preferable future [33], by preceding the design of the Critical Design artifacts by the Participatory Design workshops, the concepts are grounded as much as possible in the perspective of the user.

As of yet, there are no fixed methods for designing Critical Design artifacts, as it is in the early stages of adoption, especially within the field of HCI [17], [34]. While efforts have been made to develop frameworks for analysing Critical Design artifacts [32], [35], the authors themselves noted that these frameworks have the risk of supporting conformity, the very thing that Critical Design aims to subvert. However, [35] give a method for determining if a specific concept is *critical* (even though they do not determine if it is *successful*), and [33] provides three axis of provocation: aesthetic, functional and conceptional. These formed the basis of the Critical Design artifacts as designed in this project. For generating the artifacts, the project followed the procedure of first divergence and then convergence, which is standard for open questions [36]. In the divergence phase, many different concepts were generated. Then, five of these were taken for further development in the convergent phase. Finally, two of these were finalised into two Critical Design artifacts.

The artifacts were realised into prototypes which are then presented to users. They were created because since interaction is the central point, there has to be something which the user can interact with. As mentioned above, the full range of notions and values embodied in an artifact only emerge through interaction with the user, even those that the designer did not intent [20], [37]. In addition, while the fast tradition of critical theory and media shows that it is possible to be critical without a prototype, the strength of being critical through design is that the user experiences it. While the main goal is reflection and discussion, the discussion is anchored by a direct experience. Finally, one of the dimensions identified by [35] is the proposal for change, in which the Critical Design artifact is presented as a real possibility, compared to “science fiction”. By creating a prototype, and making the user directly experience the concept, this dimension can be accomplished. The prototypes are presented to the user in a debate session with the stakeholders of the school.

The purpose of the Critical Design artifacts in this project is two fold. First, it aims to answer the third research question. Second, because it converts and expands on the structures found in the analysis of the Participatory Design workshops, by discussing the artifacts, the structures are reexamined in a different light.

## **Chapter Five: Discussion and Conclusion**

In chapter five, the insights gained during the Participatory Design workshops are revisited in light of the findings of designing and discussing the Critical Design artifacts, as well as the theories supporting Embodied Interaction. Because the discussion of the Critical Design artifacts was limited to the debate session and could not be presented to a larger number of people within the scope of the project, this chapter also serves as an exploration of a possible manner in which analysing and breaking open the structures surrounding smartphone use through a Critical Design process could be conducted.

The first section focuses on how the smartphone is part of a network of relations, which is hard to break out of. The second section goes into more detail about how the smartphone mediates the interaction between the users and the world.

The chapter closes with suggestions for future work and design and the main conclusion.

# **Chapter 2**

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## **Background**

In this chapter, a short overview of the debate surrounding current smartphone and social media use is given. Then, theory and principles of Embodied Interaction are discussed, as well as its application to current design and research projects. Finally, the methods of Research through Design are presented.

### **2.1 On the Smartphone**

In 2002, Katz and Aakhuis published the book *Perpetual Contact: Mobile Communication, Private Talk, Public Performace* [38], in which they write about the influence of mobile phones on society. In the preface, they note:

The spread of mobile communication, most obtrusively as cell phones but increasingly in other wireless devices, is affecting peoples lives and relationships to a previously unthought-of extent.

Now, sixteen years later, this is more true than ever. If anything, mobile communication has become even more prevalent with the emergence of the smartphone, having invaded almost every corner of society without regard for social status, class or other boundaries.

#### **2.1.1 A Matter of Public Debate**

Unsurprisingly, the impact of the smartphone on society is the centre of a continuous debate, especially in the media. On the one hand, smartphones are vilified for the supposed relation between smartphone use and (mental) health issues such as depression [39] or making us stupid [4], [39], while on the other hand they are being adopted in all situations of our live, with apps being used for online banking, travelling, and even in health care [40].

News articles often highlight specific aspects of smartphone use and find or are experts in fields such as psychology or cognitive science to support their claims, which are often contrary (see for example [4], [39], [41]–[43]). In *Have Smartphones Destroyed a Generation?* [42], psychologist Twenge claims that smartphones are correlated with mental health issues and a less (physically) outgoing social life in teenagers in the USA. This, or at least its morbid tone, is refuted by Cavanagh in *No, Smartphones have not Destroyed a Generation* [44], who argues that Twenge overlooks research which does not show any correlation or even shows a positive effect. Similarly, in [43], positive aspects such as more confidence are mentioned.

Research and the news are inconclusive about the exact positive and negative aspects of the smartphone and whether the positive effects outweigh the negative ones. However, that the smartphone is changing our lives is clear, even though it has only existed in its current form for less than a decade.

In various places, rules and regulations are imposed by the government to regulate the use of smartphones in public spaces, such as traffic or schools. For example, in the Netherlands, holding a phone while driving in a vehicle is prohibited, and there are plans to adopt a law which prohibits holding a phone while cycling [45]. In France, a law was recently passed which bans the smartphone from schools up to 9th grade [46], although reportedly there was no real change because enforcement of the law is difficult and a similar law was already existed [47]. In the Netherlands, each school in the Netherlands has its own policy concerning smartphones during the school time and in the breaks. Some schools implemented special holders in which the phones had to be placed during school time [48]. All these rules show that some action is being taken, but with little coordination or normative standards.

## 2.1.2 The Smartphone and Social Media

Like all other technology, the “smartphone” did not emerge in isolation. It combined aspects already present in computers, cell phones and other communication devices, and is still developing today, reacting to the preferences of the companies and their costumers. While mobile devices with internet and fax capabilities were available as early as the 1990s, it wasn’t until the wide adoption of the smartphone in Japan that the smartphone started to reach a larger public [49]. These smartphones often consisted of an external keyboard or a T9 numerical keypad and touchscreen with a stylus. In 2007, Apple released its iPhone, and use of the smartphone started to grow after 2012, reaching a billion users worldwide in 2012 [49]–[51]. Today, nearly everybody owns or has access to a smartphone or similar device. In the Netherlands, 93% of the population aged 18 years or older owns or has access to a smartphone [3], while in the USA approximately 97% [1], [2].

The development of the smartphone ran simultaneously with the spread of the internet and the emergence of social media. According to survey done in the Netherlands among approximately 1000 participants aged 13 and older in 2014, 80% uses the smartphone for surfing the internet and 70% for social media [52]. Other activities include calling, chatting via Whatsapp, and taking pictures, which all score above 70% [3]. The use of the smartphone for social activities is reflected in the amount of time user spend on their phone, especially among teenagers. According to a survey among 715 Dutch teenagers and young adults, aged 12-24, and among approximately 19.500 adults [53], 60% of the teenagers and young adults uses their phone for more than three hours a day, compared to 25% of the adults. Some of them note that they wish to use their phone to a lesser extend, but most (av. 76%) does not think that they are addicted.

Social media are notorious in their ability to keep people engaged. For each of them, there is some reason as to why users keep posting. The independent magazine *Vrij Nederland* held in depth interviews with 23 teenagers about their smartphone and social media use [54]. The social life of these teenagers mostly revolved around Whatsapp, Snapchat and Instagram.

Instagram is used to post photos, and for girls especially selfies, pictures of themselves. These are always the ones which are the most pretty and flattering, and often they are edited before being posted. The interviewed girls are often working on the perfect picture, which is also heavily discussed among friends before being posted. They are more careful with their online appearance and often have their account set on private. Boys, on the other hand, post about things they have seen, and are less concerned with their physical appearance. Instagram photos have to be liked by the followers, and given a certain number of comments based on the relationship between the poster and the follower. Close friends, for example, leave at least three separate comments. If you do not leave comments, you are considered to be fighting. The other way around, not tagging people in photos is also considered rude, and some teenagers tag up to twenty people in each photo.

Snapchat is also used for photos but has the property that the photo disappears after 24 hours. This makes it similar to instant messaging, such as Whatsapp, but with added pressure of checking the photos in time. This is also reflected by the “streak” function of the app. If two persons continuously sent pictures to each other, they build up a streak. Breaking the streak is considered bad form, and in holidays, some teenagers even ask their friend to continue a streak for them if they are unable to, with streaks continuing on for hundreds of days.

Finally, Whatsapp is used for more formal communication, but is also bound to certain rules. Snapchat tells the user when someone has made a screenshot of their picture or video, while Whatsapp does not. This changed what is being said

and shared. Because of the easy possibility of sharing conversations on Whatsapp, they think carefully about what is being said and in what tone.

### 2.1.3 The Influence of Communication Devices

The introduction of the smartphone has consequences for how we interact with each other, whether we choose to or not. Even those without a smartphone are still affected by the structures which surround smartphone. For example, clubs or associations might send out information through Social Media sites, social gatherings might be arranged through WhatsApp, or important work messages are send through email the evening beforehand.

According to McLuhan, the medium in that sense is more important than the content of the medium [55], [56]. That is to say, the changes made in the infrastructure which occur because of the smartphone or Social Media are more important than the actual actions of individual users. Smartphones, like other digital devices such as television and computers, has changed the way we communicate with each other. As far back as the 1960s, McLuhan noted that the communication devices such as television would lead what he called a *global village*, in which space and time are made insignificant because of the speed and reach of electronic communication devices [57].

Where traditional communities where defined by geographical location, such as a village or city, communities of today formed by the individuals in the centre [58]. The communities are a network of relationships, strengthened and expanded by Social Media apps such as Facebook and Twitter. For most, these online social networks are not separated from offline groups. Often, these two go hand in hand. As mentioned, clubs or associations usually have a Facebook page consisting of the members, and social activities are planned through these pages. The same holds true for groups of friends or family who live further away. Although the amount of time spend on these sites would suggest that it would be at the expense of face-to-face interaction, [58] argue that the time spend interacting face to face stays the same.

However, quality of the face to face interaction is not necessarily the same. According to Sherry Turkle [59], our identity has been changed through mobile devices such as smartphones. We are “always-on” and the smartphone is “always on me”. We are continuously tethered to our community through these devices. The consequence, though, according to [59], is that the device itself becomes a “badge of our network”, and it distracts us from the world around us, because we are always aware of the device in relation to us. We have to divide our attention between our ongoing social connections, aided by social media, and our current task, whether

this is homework or interacting with people physically present people.

Analysing the complex process of how technology influences the interaction between people and the world, is one of the core concepts in the field of philosophy of Technology, on which most of the theories in Embodied Interaction are based. These theories are discussed in the next section.

## 2.2 Embodied Interaction

Dourish, in his book *Where the Action Is: Foundations of Embodied Interaction* defines the field of Embodied Interaction as “an approach to the design and analysis of interaction that takes embodiment to be central to, even constitutive of, the whole phenomenon” [15, p. 102]. This notion of embodiment is build on a mixture of theories on technology originating in philosophy, sociology and psychology. Among others, the field draws from (post)phenomenology, Science and Technology studies and Embodied Cognition. (Post)phenomenology is concerned with how we interact with, perceive and experience the world around us, Science and Technology studies deal with larger historical, cultural and social structures within society, and Embodied Cognition is a theory about the role of the body with regard to cognition. Embodied Interaction takes up each of these theories and applies them to interaction design.

In this segment, the most prominent ideas and concepts of each of these theories are discussed, starting with phenomenology and ending with Embodied Cognition. Then, it describes how these theories are implemented in current design practice, in research as well as methodology.

### 2.2.1 Phenomenology and “Being-in-the-world”

The bedrock of Embodied Interaction is formed by the phenomenological and post-phenomenological tradition, which rejects the Cartesian view that mind and body are two separate entities. In the Cartesian view, the mind is separate from the body, and we existent because of the mind [60]. Descartes famous quote “I think, therefore I am” illustrates this perfectly. It is because we *think*, that we *are*.

Phenomenology tries to overcome the gap between mind and body by starting from the phenomena which we experience as we experience them – hence the name phenomenology. Humans, according to phenomenology, are first and foremost *beings which exist in the world*, whose “self-awareness arises from interaction with our physical environment and with other subjects” [20]. Our existence is shaped and even made possible by our interaction with the phenomena we encounter. Technology holds a special position within phenomenology, because while technology is a tool which we give shape and function, it also defines how we use it because of its specific characteristics. Technology, according to (post)phenomenologists, mediates the relation between human beings and the world. Phenomenological accounts of Technology aim to analyse exactly how technology influences this relationship.

Martin Heidegger (1889-1976) is one of the most famous and controversial philosophers in the phenomenological tradition, and his work on analysing the role of Technology is the starting point of many of the phenomenological theories [37]. In

particular, two main concepts have been adopted and adapted in various ways: “zuhandenheit” (ready-to-hand) and “vorhandenheit” (present-at-hand). These two concepts are part of Heidegger’s concept of “Being-in-the-world”.

According to Heidegger, “being-in-the-world” is the relation between humans and the world [37]. Things, in the form of tools, are part of this relation, because they make this relation come about: they shape the relation by disclosing the world to us. To understand tools, they should not be approached in an analytic manner, such as describing it, but by focusing on their every day presence: namely on the way that we use them [37]. For example, if we approach a tool such as a hammer from an analytic perspective, one might say that a hammer has a heavy head put on a shaft at a right angle, which is used for hitting things. We give a specific definition. But this does not make a hammer a hammer, it does not define the tool *as a tool*. We namely overlook the fact that when we *use* the hammer, we are not focusing on the handle or on the head. We are only concerned with *hitting*, with the act of hammering. The hammer has *withdrawn* from our awareness. This state of being, when the hammer is withdrawn, Heidegger calls *zuhanden*, “ready-to-hand”.

The opposite of *ready-to-hand* is *vorhanden*, “present-at-hand”. When the hammer breaks down, for example, the hammer itself does become the object of attention. At that point it has ceased to be a tool: we can not use it anymore for hammering. However, the tool does not necessarily have to break down for it to be *present-at-hand*. We can shift between different levels of awareness, depending on our expertise and goal [37]. By using tools and shifting through these forms of awareness, we define the objects around us. For example, the nail has become hittable, and the wood buildable. Using technology shapes the way we view the world.

This idea of withdrawing, and that tools shape the relation between human beings in the world is also present in the work of Merleau Ponty (1908-1961). According to Merleau Ponty, “being-in-the-world” precedes both perception and self-reflection [20], [61]. We gain meaning and self-awareness through interacting with the world with our “lived body” [20]. Without the body, there is no meaning.

Perception itself is already a form of interaction. It is an active process in which the whole body is involved, not a passive reception of information which is then processed by the mind. When we look at an object for example, our eyes search the object for relevant patterns, and are attracted by some colours and not others. In addition, we might walk around the object or move our head. We also might pick it up or use our hands to touch and feel the texture of the surface. We actively use our whole body when we perceive: it is an ongoing interaction. Furthermore, what we perceive is dependent on our previous experiences: an experienced painter looks at paintings differently compared to an amateur. Perception is something you can

learn.

In addition, perception of our own *lived body* differs from perception of external objects. We do not watch our body as an object external to ourselves: rather we *live* it. We are aware and have knowledge of the position of our body parts, such as our hands, without consciously keeping track of them, and are aware of the actions the body can take. To make this more clear, Merleau Ponty differentiates between abstract and concrete movements [20]: abstract movements are movements which are made on purpose, such as when learning a new skill. Concrete movements are movements which are made naturally, such as when walking the street. We are not aware of the exact movements of our body parts during the latter.

Artifacts mediate perception and can be incorporated in this bodily structure [20]. Merleau-Ponty gives the example of a blind man with a walking stick. The stick serves as a way of “seeing” his surroundings: the perception shifts from the hand to the point of the stick. The blind man is seeing through the use of the artifact. In Heidegger’s terms, it has become ready-to-hand. The blind man does not focus on the stick itself, but on the perceptions he receives through it. At the same time, the artifact has become an extension of the lived body. In a similar manner, a car or a wheelchair becomes part of the body, as the driver expertly navigates around obstacles while automatically taking the size of the vehicle into account, as he would with his body when not driving.

In line with Merleau-Ponty, Gibson, in his account on visual perception, argues that we do not perceive the physical world as described by physics, but that we perceive an environment which is codependent on the one in it [21]. That is to say, the things around us only gain meaning through what they mean *to us*. This is not limited to humans: animals perceive the environment in the same way. For example, the same physical surroundings can mean something completely different depending on for example the animal’s size, its eating habits, and so forth. For example, a blade of grass is something on which an insect can walk, but which is food for a cow. Similarly, rock is hard and thus provides support for humans, except for when its surface is vertical. Trained humans, though, might be able to climb it: for them, the rock is climable.

What the environment offers the animals in it, Gibson calls “affordances”. The ground *affords* support for most animals, while water *affords* support only for small insects. To mammals, water affords drinking or washing, but also drowning. What a thing affords is not some intrinsic property of the thing itself, but neither is it which we bestow upon the thing. It is codependent on the animals or human which exist within their environment.

Tools have a special position compared to other objects because they afford manipulation. Similar to Heidegger and Merleau-Ponty, Gibson notes that tools can

become an extension of the body. If they do, they are no longer part of the environment [21, p. 41]. The boundaries between the animal and the environment are able to shift. In addition, what a tool is, is again dependent on who uses it for what purpose. A stick might be used for hitting, in which case it is a club, it might be used to pull something closer which is out of reach, in which case it is a rake, or it can be used to write in the sand, in which case it is a pen. Like Heidegger, Gibson states that analysing tools or classifying tools is not because of their description or physical qualities, but of what they afford.

### **Phenomenology and Smartphone Use**

The theories of Heidegger, Merleau-Ponty and Gibson give an analysis of how human beings exist in the world, and how technology shapes their perception of the world. Through interaction, we give meaning to the world around us, and tools are part of that interaction. Tools have a special position compared to other objects because they can become an extension of our body, which blurs the dichotomy between the body and the world, but also between mind and body.

When looking at technology such as the smartphone from an phenomenological perspective, the technology becomes less an object in of itself and more part of the system of interaction between humans and the world, and could highlight or explain parts of smartphone use which can not with other more rational theories. For example, the nature of the smartphone in combination with the 24/7 nature of Social Media (including work mail), creates a certain paradox with regard to it being withdrawn when it is used and present-at-hand when it is not. In contrast to most other tools, the smartphone does not need to be broken down for it to become present-at-hand, nor do we shift between levels of awareness through our own direction. It becomes present-at-hand through design, namely, because of its ability to send notifications.

While this also holds true for device such as a computer or microwave oven, the smartphone is different because it is always present. Because the smartphone affords carrying around so easily, notifications can arrive at any time, unpredictably. The possibility of a notification creates a constant status of expectation. The notifications usually herald new information which can either be positive (a like on social media, a new video) or negative (an invoice, a work email), which creates tension. In a way, the smartphone has become a sixth sense. As an extension of our body, we are constantly tuned to perceive notifications, and when this sense is not present, thus when we are separated from our phone, this sense is obstructed, which results in stress. The constant presence of the smartphone creates the expectation of immediate response. In addition to notifications, this social expectation leads to a

constant “tuned in” state, even when the smartphone is not in use.

In addition to analysing current practices, phenomenology informs on the importance of reasoning from the body in design, moving away from buttons and touchscreens to more tangible interaction. In addition, it can be applied to Participatory Design as in research method. Each of these are discussed later (see 2.2.5 and 2.3).

## 2.2.2 Embodied Cognition

As the term implies, cognitive science concerns analysis and research on cognition. Traditionally, cognition is that what we do in our mind, in line with the Cartesian split between mind and body. With the emergence of Artificial Intelligence, the mind has been likened to, or is seen as, a computational machine, which receives sensory information as input, performs computation on this information, and then produces actions as output [13], [62]. The mind is an information processing system [62].

Embodied Cognition offers an alternative to this vision, arguing that the body plays a significant role in cognitive processes [63]. For example, Kirsh describes the relation between the body and the mind in dancing [64]. He notes that when learning to perform a dance, the dancers make use of a technique they call marking. Marking refers to the practice of creating a simplified version of the dance with a part of the body, such as performing the leg work with the fingers instead of with the whole body. The dancers say they can focus on other aspects of the dance, such as timing and rhythm, which they could not if they performed it with their whole body. Interestingly, the body is still involved in the marking process.

Furthermore, Kirsh argues that if the body can be part of cognitive processes, then so can the environment [64]. This theory is called Distributed Cognition, since the cognition is distributed across the environment to encompass interactions with people, tools and objects in this environment [65]. A group of people working together is as much a distributed cognitive system as is an individual human thinking on his or her own [66]. The processes in the cognitive system are functionally related, and are dynamically allocated and incorporated based on their function, rather than on their spatial location, such as within brain or body [65].

“External representation” [67] is similar to distributed cognition. It is agreed that the environment plays an important role with regard to cognition, but the environment is not part of cognition itself [68]. The environment is used to reduce the cognitive workload by taking over certain functions. For example, artifacts such as notebooks and calendars relieves us from memorising the events and information. Similarly, when solving math problems, it is often easier to write it down or to physically move the representation [67].

The importance of the context in which interaction takes and what it means for cognition is also present in (Socially) Situated Cognition [69]. Cognitive processes such as memory, decision making, and so forth, do not happen in isolation. Rather, they are situated in the social context, within an environment [15]. Cognition can not be analysed independently of the historical, cultural and social context, because what meaning we give to the world around is constituted by social interaction [69]. On the other hand, traditional sociological theories about for example culture is reshaped: culture is a collection of practices and actions [70].

One pioneer with regard to the importance of seeing artifacts as socially situated is Lucy Suchman [71]. She has performed multiple ethnographic studies of the role of artifacts in a “situated practice”, that is, certain situation in which the standard actions and concepts are shaped by the available technology, and the social context. An example of situated practice originally analysed by [72] is described in detail in [15]. Originally, in an Air Traffic Control tower, flight strips were used to relay information about the different flights, such as altitude, speed and heading, which is written on the paper itself. In addition, however, the strips also signalled the status of flights through their physical configuration, such as the racks they are placed in or which one was sticking out. This practice is not inherent to the strips, but emerged through the interaction of the people with the environment. Information was shared socially. When the situation is changed without taking into account these practices, for example due to digitisation, such information can be lost.

## **Embodied Cognition and Smartphone Use**

Like with phenomenology, theories on Embodied Cognition provide an alternative perspective compared to traditional theories on what it means to interact with technology and how meaning is created through technology.

One reason why the smartphone has become so successful is because it can take on multiple functions in a dynamic way. Where previously notebooks, calculators and pens all formed part of the distributed system, these functions are now all allocated in the smartphone. It has become an external memory device for notes, and also allows access a nearly infinite pool of information. In addition, because the smartphone is always present, its position in the distributed network has become expected. For example, the smartphone is often used for finding the right route from A to B. When the smartphone is not available for some reason, the user gets lost, because he or she is not used to finding the right route without the smartphone anymore. Similarly, people use the smartphone for doing simple calculations.

Removing the smartphone from this system has become nearly impossible. People are not addicted to their smartphone in the same sense as that they are not addicted

to their writing or typing skills. It has become part of how they think.

### 2.2.3 What about society?: Science and Technology Studies

Technology does not only mediate direct perception and interaction between human *bodies* and the world, it also mediates social and cultural perceptions. Technology is “the outcome of complex and socially situated development and design practices.” [73]. That is to say, technology does not appear out of nowhere, but is rather an reaction to the problems in society and is shaped by the contemporary culture, policies and stakeholders. For example, the atom bomb was not only made possible by the discovery and harvesting of nuclear power, but also because of the political situation of the world, in which using this power for destruction became an option.

The theory of Social Construction of Technology aims to analyse how technologies develop because of the influence of social groups [74]. It was a reaction against technological determinism [75]. According to technological determinism, technology leads to a predictable outcome, because this outcome is determined by its characteristics. However, according to SCOT this overlooks the importance of social constructs around technology [74]. Many, if not all of the objects and artifacts around us only gain meaning because of their social relevance: they have meaning because we give them meaning. A famous example is money (5 euro bill is worth 5 euro because we have all agreed to this), but all forms of technology have often hidden biases because of how they are designed.

Why a certain technology is adopted and “survives” is also dependent on the social groups. There is no best technology in the sense that the best one always preserved. For example, the rubber tires of the bicycle were first added by young men who had the wish to go faster, while it was later added to all bicycles when it was clear that the rubber tires were more comfortable as well. Adoption of certain types of technology while others where discarded is because of the meaning the social groups give to certain developments.

Actor Network Theory as proposed by Latour [76] also offers a view on the larger relations between humans, technology and the world. A certain type of technology, such as the car, can only exist in relation with other technologies which make it possible: the highway, the gasoline, but also the traffic managers, the repair workers, and so forth [37]. These relation consists of humans and technology as equal “actants”. Latour tries overcome the dichotomy between subject and objects and treats humans and nonhumans as symmetrical. In contrast to SCOT, Latour does not state that everything is socially constructed, but rather that it is constructed through the network consisting of both humans and nonhumans.

Within Actor Network, Latour describes how artifacts can mediate, of which the most important notion is the one of “delegation” [37]. Tasks can be delegated to other parts of the network. As an example, Latour gives a speed bump. The task of regulating the speed of the passing cars, which might originally be given to a human supervisor such as a police man, is now inscribed in the bump itself. By inscribing the action, the technology might invite other forms of action, as well as inhibit others, similarly to Gibson’s affordances. By using Actor Network theory, the more extensive relations between different actants can be analysed.

Both SCOT and Actor Network theory highlight the importance of looking at technology not only in the direct one-to-one relation between humans and their world, but also from a larger perspective.

### **Science and Technology Studies and Smartphone Use**

Smartphones, like other technology, did not emerge in isolation. SCOT and ANT help to uncover larger structures which sustain current practices, which might be prevalent for the individual user to overcome. For example, the push for innovation of the smartphone has mostly come from the smartphone companies themselves. Because of the competitive market, each company releases new versions of existing models each year, but while the hardware and software capabilities keep getting faster and more efficient, the overall design of the smartphone has changed little. With little to no difference to choose from, the customer or user has little influence on the direction of development. In addition, regulations concerning the smartphone are imposed by authorities such as the government and schools, but have sometimes little effect.

Furthermore, the smartphone is part of a larger system of digital devices, such as computers, tablets and television. The email which is sent to the smartphone can also be accessed on the computer. Users shift between these devices depending on their current goals, their own preferences, and the availability of the device. Banning social media on the smartphone will not necessarily lead to less Social Media use, because Social Media can also be accessed through a computer.

#### **2.2.4 Final Remarks**

The smartphone has been discussed with regard to phenomenology, embodied cognition and Science and Technology studies. Each of these theories agree that technology is not neutral: it shapes and is shaped by human perception and social, historical and cultural structures.

The smartphone is special compared to computers or other digital devices because it is always present: it always demands attention and is always present-at-

hand through notifications. This creates expectations, such as that the user can respond to calls or messages at all times, but also possibilities as more and more functions are delegated to the smartphone. Some people have even become incapable of performing certain skills, such as doing calculations, without the smartphone, as the smartphone is a constant part of their distributed cognition. Banning the smartphone is getting increasingly difficult, because the smartphone has been integrated on all aspects of life.

Turning into another direction is challenging, but efforts have been made to put the theories on embodiment into practice. In the next section, trends in current design practices within Tangible, Embedded and Embodied Interaction are discussed.

## 2.2.5 Embodied Interaction in Design

As said, many have endeavoured to put these theories into practice with varying success, resulting in the community called TEI: Tangible, Embedded and Embodied Interaction, which is often shortened to Tangible Interaction. Tangible Interaction is concerned with full-body interaction and giving data physical or material form [77], [78]. The resulting designs are often a hybrid between digital and physical interaction, encompassing digitally augmented spaces as well as physically represented data. We “act within and touch the interface itself” [77].

Because of the multidisciplinary nature of the field, with researchers and designers with a background in and focus on among others Computer Science, Human-Computer Interaction, and Industrial and Product design, there are multiple approaches and arguments about what is meant with a *tangible interface*. Hornecker [77] identified three current views: the *Data-Centred view*, the *Expressive-Movement-Centred view* and the *Space-Centred view*. Each of these views will be discussed now.

The *Data-Centred view* concerns the representation of data in tangible interfaces or the interaction with data through a physical interface. This view is closely related to the theory of distributed cognition. One important distinction between tangible interaction and interaction through for example a mouse is the tight coupling between what is represented and how it is represented [78]. For example, Underkoffler [79] designed Urp, in which architects can design an urban place. The buildings themselves have physical models, which the user can move around on a workplace representing the city or district. Other elements, such as shadows and wind, are calculated digitally and in real time, such that if the models of the buildings are moved, the positions of the shadows and wind flows are automatically updated. The user can thus immediately see the consequences of these movements. The physical entities, the buildings, directly represent the buildings in real life. Of course, since physical representations can not be modified as easily, what should and should not be represented physically depends on the goal and purpose of the device.

Another example is the PaperWindow developed by Holman et al. [80]. The PaperWindow presented digital windows unto augmented paper. Articles could then for example be acquired online, and then without printing be shown on real paper, which removes the need for printing. The paper served as a physical representation of itself, and properties of paper can be used as methods of interaction. For example, paper can bend, can be stacked and can easily be moved around, which is not possible with a computer screen or tablet. The physicality of the paper thus adds dimensions which were lost with the transfer to computers.

The second view is the *Space-Centred view*, which is about interactive spaces [77]. An Interactive Spaces is, according to Bongers et al. [81], “an environment

which interacts with the people that are in it". This thus concerns the environment as a whole and the practices of people in that environment. People are experts in moving around and keeping track of actions by using the environment [82], and environments which are enhanced digitally should take that into account. In addition, interactions spaces are often used by or react to multiple users at the same time. For example, [83] allowed students to create angles and triangles with their bodies, which was reflected on a display. To create the triangle, they had to work together. This showed them the mathematical rules governing triangle shapes in an interactive and cooperative manner. Current (digital) Interaction Spaces are limited in the sense that the feedback is often a (large) display. While this is suitable for the purpose of giving feedback to multiple users at once, it does not cover the variety of interaction in most predominantly non-digital spaces (such as the kitchen).

The third view is the *Expressive-Movement-Centred view*, which is advocated especially by Djaniningrat et al. [84], [85]. One main problem they identify in current design is that there is a trend which diminishes the physical skill requirements of operating technological devices [84]. While the skill level goes down, however, the cognitive load increases. In [85], Djaniningrat et al. argue for design which takes into account the physical learning curve, such as when learning how to play the piano, and the notion of flow, which is about the ease of performing physical movements after some practice. One of the examples of a design developed with this in mind is another design for the microwave oven, in which the knob is used for opening the door of the oven, setting the time by turning and setting the heat by sliding it from left to right [85]. This combines the three separate button presses into one fluid motion, reducing the need to memorise the function of each buttons and the correct order.

### Tangible Interaction and Smartphone Use

Although the smartphone is an interactive device and it is thus also tangible, most of its interactions are limited to a single action: touching a screen. This single action is multifunctional (it can be used to swipe, click, enlarge, and so forth), but also highly cognitive. There is no physical indication which helps to differentiate between opening one app or the other.

The above mentioned themes in Tangible Interaction design can help provide a direction to take a possible alternative for the smartphone. In line with the Data-Centred view, for example, [86] created magnetic buttons and sliders which could be connected to the smartphone and used for interaction. In the Space Centred view, augmented reality apps such as Pokemon Go enhance the world through digitisation as well as bring real spatial dynamics into the game. Similar techniques are used to make people walk more.

Most of these apps, though, do not change the tangibility of the smartphone itself. The basic interaction mechanism stays the same. Instead of designing a new version based on the smartphone mechanisms a whole new method of interaction might be necessary.

## 2.3 On Design and Research

The term “design” is very broad and used differently in many fields. In the field of Human-Computer Interaction, design refers primarily to Interaction Design: the designing interactive (digital) devices which are used by humans. The main concern of interaction design is user experience, that is, how to create a device or product which is pleasurable for the user to use [27]. The user is thus a central part of Interaction Design. Embodied Interaction is one of the approaches to design for interaction and has been discussed extensively above.

Traditionally, design is the domain of engineers [26], [87], whose main aim was creating a product or device which solves a specified practical problem. Research and design were seen as separate [26], and if design was employed in Human Computer Interaction, it was to engineer a product based on specific requirements [87]. Gradually, however, design has been adopted by the academic community to become a method of doing research. This approach is called Research Through Design [26], [87]. In Research Through Design, design is not used to produce a commercially valuable thing, but to produce the *right* thing [87]. Design is used to understand the current world and then to enact change through an innovative product based on the acquired knowledge. The design is used to imagine new probable worlds and to understand assumptions or habits which underpin the actions and behaviours of humans [88].

Within Research Through Design, design is thus used in a twofold manner. The first is to use design to understand the current world and attitudes of the users, through the creation of prototypes, artifacts or props. These methods are also used in Participatory Design, in which the user is part of the research process [24]. Second, a new innovative product is created which challenges the current worldview and through its design asks the question of how the world should or should not be. This is done among others in the Critical Design community [17].

Both these approaches will be discussed now.

### 2.3.1 Participatory Design

The main goal of Participatory Design is including the end user and other stakeholders in the design process [22].

When and where the user is part of the process is variable. Some users are part of the design process from the start and give advice in each iteration, while others are only included during testing of the prototype or during evaluation. It depends on the goal of the project, its duration and of course the availability of the end user. When users are actively part of the development of the concepts and prototype, this

is often called co-design. Although they are not allowed to make final decisions, their contributions shape the final results.

When applied to Research-Through-Design, participatory design gains another aspect: the users are often also the subject of the research. This is especially the case in the field of Human Computer Interaction, since the interaction itself is the focus of research. By allowing the end user to design his or her own version, the researcher gains insight in how and why they make certain design decisions, which informs on underlying principles and assumptions. However, children differ from adults in several ways [89], which influences the Participatory Design process .

First, a particular framework for Participatory Design is discussed. Then, Participatory Design with children is examined in more detail.

### **Participatory Design Framework: Contextmapping**

As the word implies, contextmapping aims to map the context in which a technology or artifact is or will be used, which can then be used as a starting point for human-centred designs within that context [90]. According to Sleeswijk Visser et al., the context is “all factors that influence the experience of a product use” [90, p. 121]. In line with the phenomenological theories described in Section 2.2, the context is dependent on the relation between the user and factors in the environment.

In contextmapping, emotional responses of participants are elicited through generative techniques which have been prevalent in Participatory Design research. The framework consists of five steps: preparation, sensitisation, sessions, analysis, and communication. In the sensitisation stage, participants are sensitized, that is, they are primed or triggered to think about their habits, thoughts, motivations and emotions concerning the context relevant to the research. Usually, this happens in their own personal environment through probes which are sent out some weeks before the group sessions.

Probes are generally used at the start of a design process to understand the local community for which the design is made [91]. Examples are a postcard with no message, or sentences which are not finished, such as “I like...”. Probes are subjective in nature and [92] warn against the adoption of probes in a more analytic context. For example, in an analytic context, probes are often changed into more direct imperatives or closed questions, which is not in line with the underlying methodology, since it removes the ambiguity of the questions and answers. In the contextmapping framework, in addition to gaining initial information about the participants, the participants themselves are motivated to self-reflect on their own choices [90].

The next step in the contextmapping framework are the sessions with the users. These are often conducted in groups, but can also occur with pairs or individuals.

On the one hand, a larger number of people create more diversity, but the amount of detailed or individual data is limited. During the sessions, the participants do exercises aimed to express and share the participants' feelings and motivations. Often, the participants are asked to make something, such as a collage or a complete artifact. These *making* sessions are facilitated by using toolkits and often result in low-fi prototypes. The toolkit consists out of everything which can be used to build, such as paper and scissors, carton boxes representing buttons or other tangible material, iron wire to connect everything and so forth [25]. The toolkit is meant to give the participants something to build with, but also to spark their creativity, and are useful for providing non-designers tools with which they can realise their ideas.

Prototypes are often the result of these sessions, and are generally used to test ideas and concepts [22], [93]. The prototype can resemble the final product but can also consist of sketches or a mock up. The latter is called the low-fidelity prototype [27]. It can consist of storyboard, sketches, and paper and other material, and does not have to resemble the final product in functionality or form. Often, this kind of prototype is the result of building with a toolkit. High-fidelity are functional prototypes which do resemble the final product [27]. The prototypes themselves are then used to communicate with other stakeholders who were not part of the prototyping session or to inform on further design steps and iterations [22].

The results from the sessions is a rich set of varying data, from observational videos to prototypes and other probes. The analysis of these data is based on Grounded Theory [90], [94], because it offers a way to build on data which is unstructured and of varying nature. Grounded Theory originated in sociology, and was first advocated by Glaser and Strauss in their book *the Discovery of Grounded Theory* [94]. The term Grounded Theory is used for both the methodology as well as the result: through grounding the theory in data through a structural method, one generates a Grounded Theory [30], [95]. This method is especially suited for when there are no preconceptions or hypotheses which have to be tested, as is usually the case in quantitative analyses, while still basing the theory on evidence [30], [90].

Grounded Theory has the central practice of *constant comparison*, which is the constant coding and comparing of data [30], [94], [95]. For this purpose the data is divided into smaller segments which are systematically compared to other instances of similar or dissimilar data segments. The categories and properties of those categories are thus not thought out before hand, but arise through constantly comparing instances of data to other instances of data and the categories which are already discovered. In the version of Grounded Theory as developed by [31], analytic tools are offered which help during this coding process, such as asking the right questions and looking at words and situations from a different angle.

## Participatory Design with Children

Like adults, children can be included in the design process. The Participatory Design, with its focus on “design by doing” and its insistence on performing the workshops in the “workplace”, is suitable for working with children who are creative and enthusiastic [29]. However, children are not mini-adults, and can not be treated as such [89], [96]. While children bring in their own unique perspective, including children in the design process requires consideration about the specific role of the child and the role of the researcher, as well as practical influences such as group dynamics during the design session.

While researchers and designers acknowledge the importance of including children in research or design processes when children are the focus of the design, designing with and for children has its own set of difficulties [89], [96]. As with all user-centred design methods, these obstacles are often practical: because children are minors, organising design sessions involves the participation of schools and parents, as well as the children themselves. In addition, however, children are at a very different stage in life. Although each designer remembers being a child, their own memories of childhood might conflict with the perspective of current children, which leads to assumptions and biases. Due to the generational gap, designers might find it harder to understand children [97]. Finally, children are more influenced by power imbalances between the researcher and the participant compared to adults, because they live in a society which is governed by adults. They thus might wish to please the researcher or adult, because this is often expected of them, and might not tell the (whole) truth [89].

Precisely because of their unique perspective, though, it is very relevant and worthwhile to design with and for children, especially with regard to digital technologies. Children encounter their first digital device sometimes as early as when they are toddlers [98] and grow up in a unprecedented, rapidly changing digital environment. Digital technologies are incorporated in educational settings as well as at home and smartphones and other devices have become a part of their world. Furthermore, because of this widely different life world, adults are not good proxies for children. While adults who are close to their child can help explain or interpret the answers of children [99], they cannot provide the same insights [100].

The role of children within the design process varies greatly across different studies. Druin et al. [96] was one of the first to identify four separate roles, as well as developing a method, *Cooperative Inquiry* which is especially suited for intergenerational teams in which the child is included throughout the design process. The roles are user, tester, informant and design partner, which all have their separate (historical) origins and advantages and disadvantages. In the role of *user*, children are often observed by researchers while they are interacting with an existing product.

Children have little to no impact on the development process of the technology. In the role of *tester*, the child tests new (prototypes of) products, and are asked questions about their interaction. This role is aimed at evaluating the product before it is brought on the market. The role of *informant*, the children are part of the design process at different stages, thus earlier than that of the tester [101]. The children are asked for their input through sketches, brainstorm sessions, and more. As the name suggests, in the informant role, the children inform the designer or researcher throughout the process. The final role is the child as *design partner*. In addition to the tasks as informer, the child as design partner is equal to the designer and other stakeholders in the process. The child is thus allowed to make decisions. Adults and children are equal.

According to Druin, the role of *design partner* is the most preferable one, because then the design has the strongest ties to the worldview of the children. In addition, by having continuous design sessions, it gives all the parties the chance to understand and know each other more thoroughly than when the interaction is limited. However, the design partner role requires a strong investment of the children as well as the researchers, and often spans years [96].

In most cases, the researchers aim for the role of *informer*, which has a larger involvement of the children compared to the tester or user roles, while still being manageable in smaller projects. Because of the different role, the status between the child and the researcher will be different as well. Often, the researcher does not only perform the role of designer, but also the role of facilitator [102]. That is, the design sessions can be similar to teaching, even though the goal of the setting is not. In addition, the sessions should be tailored to children who are not used to exercises in design and creative sessions [99].

## Designing with Dilemmas

As mentioned, often in Participatory Design the design case is clear because the end result is a certain product. The aim of Research through Design, on the other hand, is to open up the design space instead. As such, the nature of the design sessions is more exploratory. However, although children (and adults) are creative by nature, asking them to design without any scaffolding or boundaries does not result in a creative process, but in uncertainty. The “dilemma” framework developed by [103] helps to set up these boundaries.

The dilemma framework is meant to identify specific scenarios in which the user is presented with a dilemma: he or she has to choose between two mutually exclusive choices. For example, in the morning, we can either stay in bed and be late to work, or get out of bed early but be tired. These dilemmas can be simple in nature.

Often, the dilemmas involve short term and long term considerations. Instant gratification (staying in bed) conflicts with later repercussions (being too late for work). The designer designs for these situations.

The dilemmas are always dependent on the goals of the relevant person and are situated in their environment. For example, if the person did not have the goal of being a good employee (or when they are their own boss), then staying in bed in the morning would be a viable option. In the framework, the choices are thus presented as conflicting goals, which in turn are based on emotions. By presenting the dilemma as more abstract goals, a different solution might present itself.

### 2.3.2 Critical Design

The aim of Critical Design is to make consumers think more critically how their lives are shaped by the technology and (mass) products they encounter [17]. It is, according to Dunne and Raby, who first coined the term, an approach to design in which the world and the role (mass) products play in it is not taken for granted [16]. It is critical of the world as it is, and challenges design practices as well as consumer culture. One of the main challenges for critical design is thus to make people aware of their habits and presumptions about technology and their lives, to make it present-at-hand, in Heidegger's terms.

Bradzell et al. [17] redefined and restated some concepts of the original approach of Dunne and Raby to make a coherent method which can more easily be adopted by the Human Computer Interaction community. They draw on concepts from critical theory and metacriticism to strengthen Critical Design as a method. Critical Theory offers a history of sociocultural critique in and on literature, films, and so forth, including among others feminist and Marxist theories [104]. The main predisposition is scepticism: to question the world and expose hidden structures. Furthermore, Critical Theory is not only a method to describe the world, but it tries to actively change it. Metacriticism is more concerned with what it means to be critical, providing methods such as description, classification and analysis which support close reading of texts [17]. It thus highlights the skills of being critical. Combined, these theories form a base for Critical Design practices.

Malpass also aims to strengthen the position of critical design within the design community as a valid practice [18]. Based on Pullin [105], he notes that the immediate association with Dunne and Raby is problematic, because there are many "critical designers" who often do not wish to be associated with the narrow definition provided by Dunne and Raby [18]. Malpass distinguishes three current "critical" practices, namely associative design, speculative design and critical design. Associative Design is mostly concerned with products. It takes familiar products such as

chairs and subverts them in some manner. Speculative Design is close to science and technology, using new findings or inventions and speculates about future societies with them in it, like human genetic modification or robots. Finally, Critical Design is mostly concerned with cultural, political and social implications of design. Each of these practices can overlap, but have a different focus or starting point.

## Critical Design Framework

Critical Design is thus in some way challenges the status quo through design, like other critical theories have done through other media such as literature or film. However, since Critical Design is foremost a design practice, there is no one on one translation of the methods employed. To ease the adoption of Critical Design practices within the HCI community, whose practitioners are often not traditional designers themselves, Bardzell and Bardzell have tried to define a framework for what it means for a design to be critical (even though not necessarily *successful*) [17], [32] and especially [35]. The framework is not meant as a strict design method, but rather tries to define categories of arguments which can support why a design is critical. As they themselves note, however, this framework is meant as a guideline, and should not be strictly adhered to, as it might support conformity, something which Critical Design seeks to challenge. Still, the framework gives a starting point for being able to discuss and compare critical designs.

The matrix they define consists of a list of six design dimensions on the rows, and a list of four critical dimensions at the top of each column. The first critical dimension is *changing perspectives*, in which a (standard) point of view is framed in a different way through the design. The second is *Proposal through change*, which is how the “design embodies a provocative proposal for an alternative way of being” [35, p. 1957]. Third, when *enhancing appreciation*, the user is made more aware of the complexity of the design’s domain and thus appreciates it more. Finally, through *reflectiveness*, the user is encouraged to reflect on his or her practices. These critical dimensions are combined with the design dimension: topic, the purpose, functionality, interactivity, form and materiality. The matrix is used to identify which aspects of the design are critical. [35] note that the matrix is not meant as a checkbox, in which more checkmarks means a more critical design.

[33] expand on or reframe this framework to try to define what it means to be provocative within the context of challenging everyday practices, which are used for Research through Design to understand current practices or future design possibilities. They differentiated three categories for provocation: conceptually, functionally and aesthetically. Conceptual provocation concerns the concept which is challenged through the design. Functional provocation is about how the function is related to

the standard function of similar products. Aesthetic provocation is about how the looks and material are provocative.

Again, these frameworks do not determine what it means for a design to be a successful critical design, but instead offers scaffolding for what it means for a design to be critical.



## **Chapter 3**

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# **Participatory Design Workshops**

This chapter describes the Participatory Design workshops, the resulting data analysis through the Grounded Theory method and the discussion based on its analysis. This chapter is mainly concerned with the first two research questions. To reiterate, those are:

- RQ1 When motivated to reflect on their implicit norms and habits with regard to smartphone use, how do children (aged 10-14) perceive the role of the smartphone in their lives?
- RQ2 What do children (aged 10-14) envision to be desired future ways of integrating digital services into their lives?

In order to examine these questions, Participatory Design workshops were held. The workshops were divided into two phases, each with a specific focus. The first phase aimed to answer the following subquestions, which both derive from the first research question:

- SQ1 What is the current role of the smartphone in the lives of children (aged 10-14)
- SQ2 How do children (aged 10-14) perceive this role?

The first phase consisted of exercises to make the participants think about their daily smartphone use, and the positive and negative aspects of those interactions. These positive and negative aspects were deliberately kept broad, so as not to influence the participants' responses. Each exercise was discussed. The discussions were later transcribed for future analysis.

The second research question is also partly answered through the first phase. Through the discussions about negative and positive aspects of the smartphone, the participants indicate which aspects they find desirable and which they do not. However, as described in sections 2.2 and 2.3.1, participants show different insights

when they are asked to design themselves. Thus, in the second phase of the workshop, the participants are asked to design a device. However, because it is difficult to design a device without any scaffolds, the design case was based on a dilemma which was most prevalent in the previous discussions.

The second phase thus aimed to answer following subquestion:

SQ3 What kind of digital services do children design when asked to design for a specific dilemma?

In the next section, the method is explained in more detail, followed by the results, and the discussion of the results.

## 3.1 Method

### 3.1.1 Participants

A pilot workshop was conducted beforehand with a group of 14 primary school children (aged 10-12) to test the duration of the workshop and the applicability of the exercises. The group was part of a master class program aimed at personal growth and self discovery. The teacher of the group gave feedback and assisted in guiding the workshop. The findings and changes made due to the pilot are discussed at the relevant parts in the overview of the workshop below. Since no video or audio recordings were made and the teacher indicated that the workshop was considered to be part of the the curriculum, no consent form was necessary.

The main workshop was held with 15 Dutch primary school children (aged 10-12, 7 girls and 6 boys) and 20 secondary school children (aged 13-14, 11 girls and 9 boys). 4 out of 15 primary school children did not own a smartphone. All secondary school children owned a smartphone. These children were not the same children as who took part in the pilot workshop. The group of primary school children was divided into two groups of respectively eight and seven children. The workshop was held during their normal school hours, with one group following the regular curriculum and one group joining the workshop. A week later, the roles were reversed. Both groups were told in advance what the research was about. The children were allowed to not follow the workshop, as described in the informed consent. In order to keep the group size consistent, groups of eight secondary school children were recruited as well. For the secondary school children, the workshop was not obligatory and children had to volunteer. As such, while three groups of eight children were listed, some opted-out at the last moment. This resulted in two groups of six secondary school children and one group of eight. The primary school children were all

from the same group, but had only met each other a month prior. Of the secondary school children, some knew each other, but some did not.

Because the children are minors, the parents of the children were asked to sign an informed consent form in which they agreed with video and audio recordings and the participation of their child for the purpose of the research. During the workshops, a teacher was either fully present throughout the workshop (without interfering), or checked in once in a while. The informed consent form can be found in Appendix B.

### 3.1.2 Workshop Set Up

The setup of the workshop is based on a combination of Research Through Design and Participatory Design approaches and is structured based on the contextmapping framework [90] (see also section 2.3.1). This project differs from the standard contextmapping procedure because the sensitization step, which according to the framework is usually done some weeks before the group sessions, is combined with the group sessions. The goal of the sensitization phase is to help the user think about their habits, emotions and wishes with regard to the use of a particular product. Since the children encounter the smartphone daily (either by using them themselves or because others use them), it is assumed that children already have clear opinions about smartphones which they can articulate in discussions. A sensitization exercise during the workshop is thus deemed sufficient to reach the required priming.

The workshop was conducted at the children's school, a place with which they are familiar and at which they spend a large amount of time. This provides the children with an environment in which they feel comfortable. In addition, the environment imposes a certain set of rules, such as children doing exercises and listening to the teacher, which aids the structuring of the workshops. As such, the researcher assist the children during the workshop but is also the authority figure, leading the discussions and setting the "rules" for exercises.

The workshop consisted of two phases. The first phase was centred around discussions of the children's smartphone use during the day, and the positive and negative aspects of the smartphone which they experience. In the second phase, the design case was introduced based on the most prevalent negative and positive aspects which the children had found, and the children were asked to design a new product.

Before the workshop started, the researchers introduced themselves and explained the goal of the workshop. The children were asked to state their name and how long they own a smartphone. The children who do not own a smartphone were reassured that their opinion is also very valuable, because they offer a different per-

spective compared to the others.

## Phase 1

As said, the first phase is based on the sensitization phase as described by [90], which aims at priming the participants with regard to the technology and daily practices. Each sensitization exercise is preceded by and closed with a group discussion.

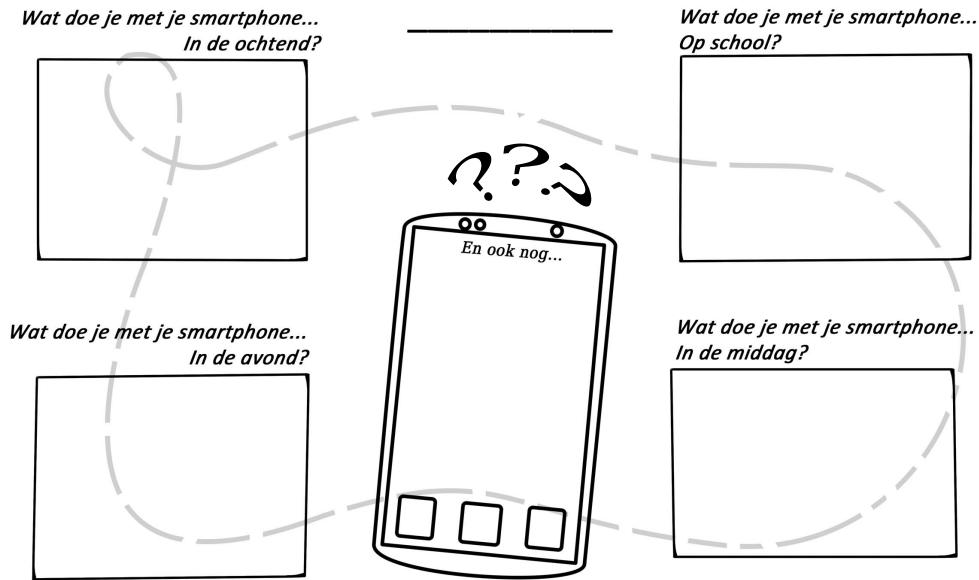
The first phase started with a group discussion about general aspects of the smartphone, similar to a semi-structured interview. It aimed at getting an understanding of their daily smartphone use as well as familiarising the groups with the researcher and each other. They include questions such as how long the children own a smartphone, what they use them for, and why they wanted them in the first place. Children without a smartphone were asked why they did not have one and if they missed it.

After the group discussion, the children were given a sheet on which they were required to draw a timeline about their daily life, based on the probes described by [91], see figure 3.1. In the first version of the sheet which was used in the pilot, the exercise resembled making a collage, because they could draw on the sheet or add stickers to visualise their experiences. However, although probes are often ambiguous and open (see section 2.3.1), the pilot experiment showed that the children were confused by the ambiguity and purpose of the exercise. The questions were thus made more explicit, while keeping enough freedom for the children to fill in their own experiences. To facilitate the discussion among the children and to make the exercise more dynamic, the exercise was done in pairs, with one child interviewing the other, allowing them to gather information as a researcher themselves [96]. After the sheet has been filled in, the children were asked to present the information they received from their peers.

In the pilot experiment, participants were asked to describe their emotions with regard to the smartphone during specific use scenarios, such as using a messenger application to contact their friends. Emotions, according the dilemma framework [103] (see section 2.3.1), are the foundation of the user's goals. However, it soon turned out that similarly to the first exercise, the exercise was too vague as the participants had to choose both the scenario as well as describing their emotions. Especially in a group setting, in which the researcher could not easily continue to ask questions, the participants were not able to elaborate on their choices. Thus, positive and negative aspects of the smartphone in general were used instead, while making sure that emotions and feelings of the participants were part of the final discussion.

Resulting from the discussion are some negative and positive aspects of the smartphone. The discussion was steered towards highlighting these, since the next

## Een dag met de smartphone in het leven van



**Figure 3.1:** Exercise sheet for noting down the daily smartphone use of participants.

The questions clockwise translate to *What do you do with your smartphone... In the morning?, [...] at school?, [...] in the afternoon? and [...] in the evening?*

exercise meant to identify these aspects. After the discussion, the children were asked to write down positive and negative aspects of smartphone use. They had to write down at least eight of each, again in order to help them think beyond the first aspects which come to mind, as well as why they wrote it down. After the exercise was finished, the children were asked to present them and react to them, resulting in another guided discussion.

### Phase 2

The second phase was aimed at stimulating creativity and give the children an opportunity to design their own product. In the first exercise, the participants are presented with an object, such as a hat, a small handbag, or a water bottle. They are then asked to think about all possible physical aspects of this object. For example, a bottle can be opened, something can be put into it, you can move it around, and so forth. These do not describe the function, but what it affords. The exercise is meant to shift the attention from thinking in abstract terms, which was most prevalent during the first exercises, to thinking about physical properties. These properties could then be employed in the second exercise.

The second exercise consisted of a design case in which the participants had to design a product which solved a particular dilemma, which was phrased as two opposing choices or wishes. The dilemma differed for each group and was based on the answers given in the previous exercises. This was done to get a larger range of ideas as well as to make sure that the dilemma was consistent with the participants views. As a starting point, the product was based on the object which they described in exercise one of phase 2. In addition, craft material was available for adding functionalities or aspects to the objects. The participants were encouraged to think beyond the original purpose of the object. For example, a transparent pitcher, which is originally used to hold liquids, was used as a cover in one of the designs.

The goal of the final exercise was to force the participants to find a solution to their problem which was not based on the smartphone or computers as they know them, and instead think of a future or alternative reality in which the smartphone does not exist.

### 3.1.3 Analysis: Grounded Theory

All sessions were recorded. The resulting videos were transcribed and analysed according to the Grounded theory Method [30] (see section 2.3.1). The Grounded Theory method is a qualitative data analysis method in which all information is treated equally. One of the main aspects is comparison of information. Through comparison, concepts and themes are derived from the data. The analysis of the transcription was thus done as follows.

First, the transcriptions were marked, so as not to confuse the participants from different groups. Then, each phrase or sentence was compared to the previous sentences or concepts already present. If the sentence was similar, then it was added to the concept and the concept adjusted to fit the sentence if needed. If not, then the sentence was given a new concept based on its topic. For example, one participant gave as a positive aspect, “Je kunt makkelijk dingen opzoeken” (You can easily look up information). Similarly, in another group, someone mentioned, “Je kan dingen opzoeken, met Google” (You can look up information, with Google). These sentences thus both indicate the importance of being able to look up information, which is then noted as a concept. Note that concepts do not necessarily have to be abstract.

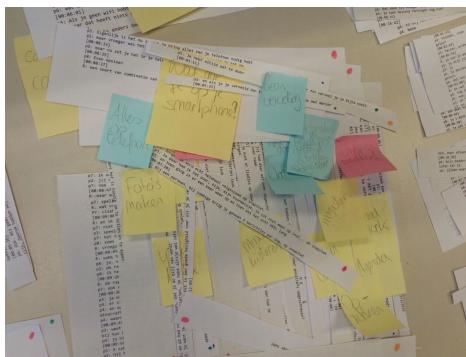
During the process of adding phrases and sentences, concepts were (re)defined, (re)combined, and (re)connected based on the increasing amount of information, and on the concepts which emerged. For example, “looking up information” was first connected to “Internet”, while it was connected to “functional uses” in a later stage.



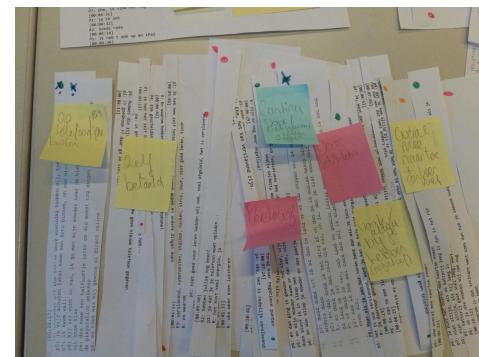
(a) First stage. Some phrases and sentences have been combined



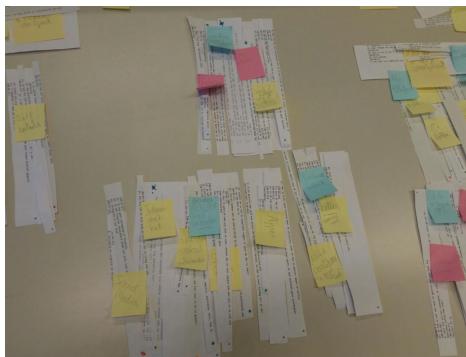
(b) Second stage. Concepts have been added together



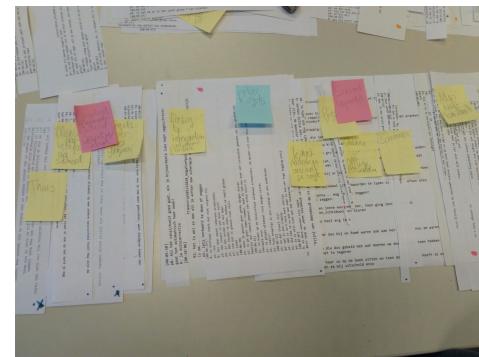
(c) Third stage. The concepts have been recombined and ordered.



(d) Second stage. Concepts have been added together



(e) Third stage. The concepts have been recombined and ordered.



(f) Second stage. Concepts have been added together

**Figure 3.2:** Grounded Theory Analysis Process. Coloured post-it notes indicated different layers of abstraction and/or another comparison round.

## 3.2 Results

All children participated actively during the discussions. Of the primary school children, most did own a smartphone. The children who did not own a smartphone did indicate that they wanted one, mostly because others owned one as well. Of the secondary school children, all of them owned a smartphone. Most of them received their smartphone when they were in grade 7 or 8 of the primary school, which in the Dutch school system is just before they finish (with 8 being the highest primary school grade). There current phones, however, they owned for approximately a few months. When asked, most of them were able to indicate the brand and version number of their phones.

The children were given a smartphone for varying reasons. Some of them indicated that they had set aside their own money to buy the phone, while others received a second-hand phone from one of their family members. One participant noted that she pestered her parents until they gave in.

### 3.2.1 Phase 1

As mentioned, the data consisted of videos recordings, audio recordings, the filled in sheets of the participants and the prototypes created by the participants. An example of part of the transcript is shown in Figure 3.3. The result of the Grounded Theory analysis are concepts and themes which describe the role the smartphone plays the lives of children and how they perceive this role.

There were four main themes which emerged from the data:

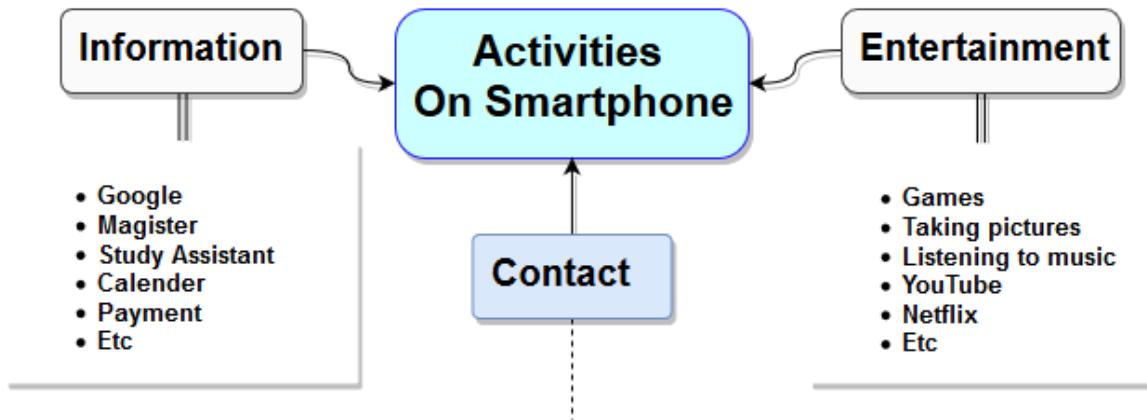
1. Activities on the smartphone
2. Social practices
3. Time spend on smartphone
4. Cybercrime and privacy concerns

Each of these can be subdivided and are discussed below. The themes and concepts are not necessarily exclusive. Themes and concepts might highlight multiple aspects from a different perspective. For example, Social Media are mentioned in the activities, but also as part of the social rules.

1	R: Gebruiken jullie hem [de smartphone] veel?  *Gelach*	2	R: Do you use it [the smartphone] a lot?  *Laughter*
3	P3: Ja  R: Hoeveel is heel veel?	4	P3: Yes  R: How much is a lot?
5	P2: Wat is eigenlijk heel veel?  R: Ja precies, is dat dan een uur per dag?	6	P2: How much is a lot actually?  R: Yes exactly, is it an hour a day...?
7	P4: Ja ikke ongeveer een uur  P5: Maar ik gebruik hem dan, zeg maar, iedere keer ongeveer vijf minuutjes en dan lijkt het net alsof je niet zo heel veel hem gebruikt maar als je zeg maar dan alles bij elkaar op telt dan denk je toch van...	8	P4: Yes, for me its an hour  P5: But I use it, like, every time about five minutes, and then it seems as if you don't use it that much but if you add everything together, then you think...  R: Oh that's quite a lot
9	R: Oh dat is best veel  *Gelach*	10	*Laughter*
11	P4: Maar ik app er alleen mee  P2: Ja ik ook vooral	12	P4: But I only use it for apping  P2: Yes me too
13	*Instemming*	14	*Agreement*
15	P3: En ik speel er af en toe een spelletje op  Anderen: Nou, heel af en toe?	16	P3: And I play games now and then  Others: Really, only now and then?  *Laughter*
17	*Gelach*	18	R: And if you look at the people around you, do they use it, how much do they use it?  P5: My brother, he is horrible.
18	R: En als jullie naar mensen om je heen kijken, spelen, hoeveel zitten die erop?  P5: Mijn broertje is echt een hel. Hij is echt erg	19	P4: My brother uses it, not only the smartphone but, my brother uses the playstation for 10 hours each week  P3: My brother as well, on the Ipad
19	P4: Mijn broertje zit denk ik, dan gaat het niet alleen over de smartphone, maar mijn broertje zit denk ik wel tien uur per week op de playstation  P3: Mijn broertje op de IPad	20	

**Transcript 3.1: Dutch****Transcript 3.2: English Translation**

**Figure 3.3:** Example part of the transcript of one of the videos. The English translation is presented to the right.



**Figure 3.4:** Activities done on the smartphone.

### Activities on the Smartphone

The activities which the children do on their smartphone can be divided into information related activities, entertainment related activities, and contact with others (see Figure 3.4). Information related activities are for example searching information on Google or looking up homework or the school schedule on the Magister-app. Entertainment activities are playing games, listening to music or taking pictures. Both of these forms of activity are often done individually.



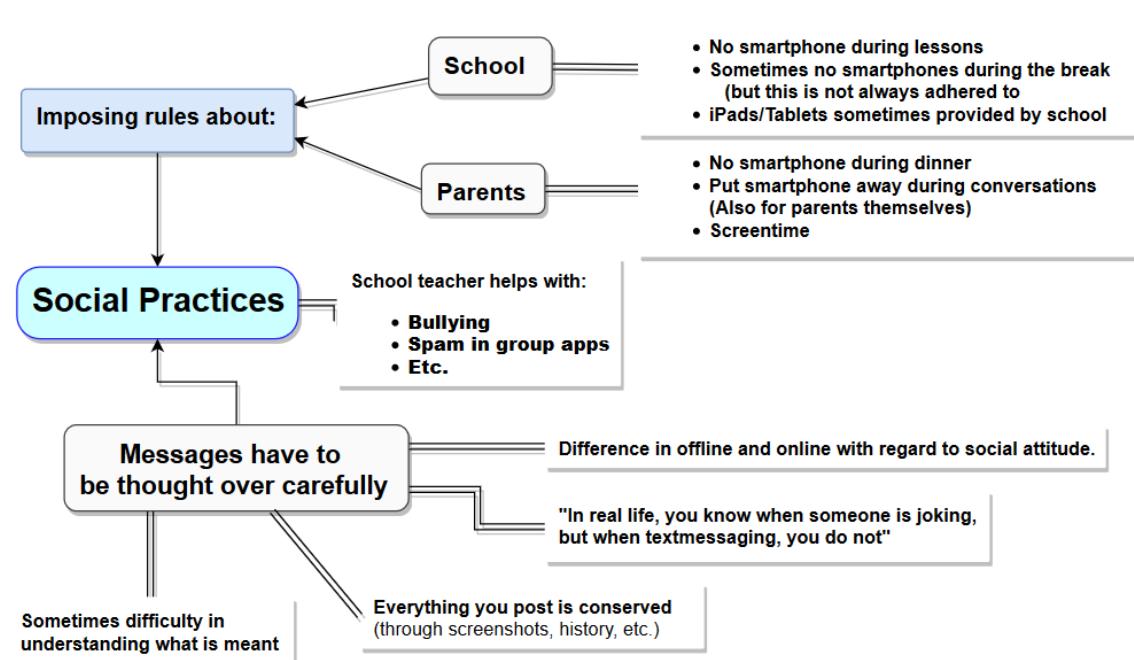
**Figure 3.5:** Activities done on the smartphone

The third activity is contact with others (see Figure 3.5). Some of the contact with others is based on functional reasons, such as being able to quickly make appoint-

ments and being accessible in case of emergencies. However, most of the contact concerns active online activities with friends. For girls and older boys, this is usually done in Social Media, on which they post their own content and comment and interact with content posted by others. For younger boys, contact is usually maintained by gaming. In both cases, the children noted that it was easier to maintain contact with friends who they did not meet daily, such as friends they met online or old friends who went to another school.

Almost all of these activities were also listed during the discussion of positive aspects of the smartphone. However, although the activities themselves were mentioned less explicitly, the children noted that they were more easily distracted, or that the phone required much private time.

## Social Practices



**Figure 3.6:** Social practices, some of which are imposed by authority figures.

Social practices have emerged with regard to smartphone use. Like other social practices, some of these are imposed by authority figures such as parents or the school, but some are determined by the interaction between users themselves.

The rules imposed by parents and the school are mostly concerned with when and how long the smartphone can be used. Both the primary and secondary school prohibited the use of the smartphones during lessons, and primary school even during the break. However, these rules are not always followed by the children, as

one participant told about classmates who stayed inside during the break to watch videos on their smartphone or on the digital blackboard. In addition, one group of participants were given tablets by the school as part of a pilot experiment in integrating technology in the classroom.

Similarly, parents and their children have made agreements about maximum allowed time spend on the smartphone, their “screentime”, as well as about the use of smartphones during dinner or during conversations. These agreements often extended both ways, that is to say, the children could reprimand their parents when the parents were on their smartphones while the children weren’t allowed.

The mention of social practices which emerge from interaction were less explicit, but anecdotes told by the children showed that there are rules as to how to behave in an message group shared by the school class or within friend groups. In some cases, an adult authority figure, such as a teacher, is asked to mediate during quarrels (see Figure 3.7).

In addition, they mentioned the ambiguity of the messages send within group apps, and that it is important to be aware of what is send. Especially the difference between online and offline attitude is hard to distinguish. For example, one participant mentioned that it is easy to know when someone is joking in real life, while it is hard to know this with a text message. The same participant had noticed another person acting happy during a party while she knew that this person was sending hateful messages, and wondered if there was also a discrepancy when this person was texting to her. In addition, all text messages, with the exception of those in the app Snapchat, are preserved and can be shared freely with others by making screenshots of the conversation.

Negative aspects with regard to social practices concerned physical interaction. The children noticed that you had less contact with others who are physically present, either because they themselves spend that time on their phone or the others were spending time on their phone instead of talking.

### **Time spend on smartphone**

When asked if they used their smartphone often, the participant groups reacted with a wholehearted “Yes”. After that, they backpedalled a bit, indicating that they used the smartphone for approximately 1 to 2 hours each day, with occasionally participants who used it much more often. While some boasted of the time they spend on for example YouTube, others reacted shocked to their numbers. One participant noted that, “I use it, say, each time for about five minutes, just looking for a moment, but all together its actually quite a lot”. Another participant said that it differed per day. For some days, they only spend half an hour on the smartphone, while on other

P5: Alleen, zeg maar, er zijn wel regels over hoe je hem moet gebruiken, want kinderen komen dan bij de leraar wat je ermee moet doen, bijvoorbeeld als er ruzie is ofzo	P5: Only, like, there are some rules about how to use it, because children can go to the teacher to ask what they should do, when there's a quarrel for example.
2 P5: Alleen, er was laatst ook iemand die ging heel veel foto's sturen... *Gelach*	2 P5: Only, there was someone who sent a lot of pictures... *Laughter*
4 P5: En toen was het heel stom want toen had iedereen het in zn gallerij en toen moesten we naar de meester toe	4 P5: and that was really stupid because then everyone's gallery was full, and then we had to go to the teacher

**Transcript 3.4:** English Translation**Transcript 3.3:** Dutch**Figure 3.7:** Transcript of one of the participants talking about rules concerning how to behave in message groups.

days use it for longer. The participant indicated this by miming scrolling through her smartphone.

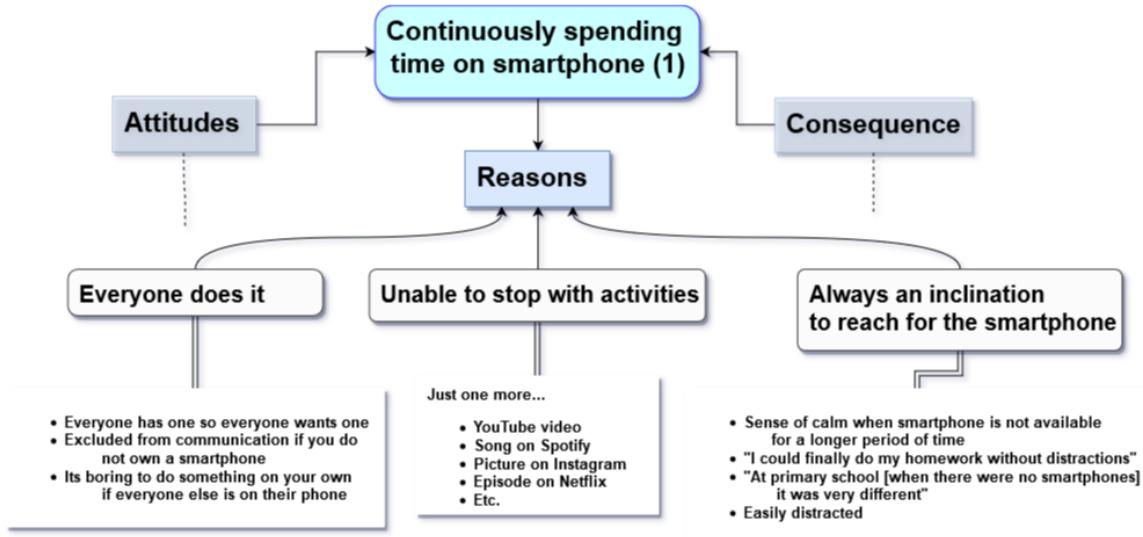
Almost every pair of participants mentioned *addictive* as a negative aspect of the smartphone. Furthermore, when asked for elaboration, most participants could not even think of an answer because it was so self evident.

One of the positive aspects of the smartphone, its portability, was also seen as a liability, because it led to more distraction because it allowed for them to be on their phones at all times. There were three main reasons (see Figure 3.8): being unable to stop with activities, always having the inclination to reach for the smartphone and easily doing so, and because everyone else is also on their phones.

The latter concerns both having a phone as well as using it. Because most of the communication between social groups occurs on Social Media or instant chat apps, and because the smartphone allows constant and easy access to these media, children who do not own a smartphone are (unintentionally) excluded from these social processes and the information flow. Because everyone is constantly updating their social profiles, the need to be up-to-date on the information is large. In addition, the participants mentioned that if everyone is on their phones, it is boring to do something else all by yourself.

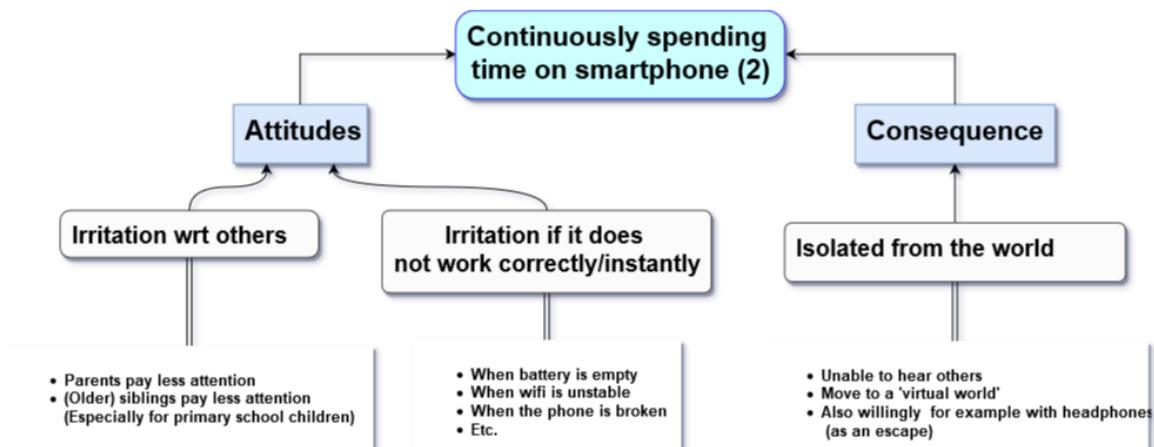
The second reason is that they are often unable to stop with doing activities on the smartphone. When they watch a video, they are inclined to watch another one, and another one after that, as well as with music, with posts on Instagram and so forth.

The third reason is that they have an inclination to reach for their smartphone even when not using it, for example due to notifications. They are easily distracted



**Figure 3.8:** Reasons for being constantly on the smartphone

because the smartphone is demanding their attention. One participant mentioned that when he did not have access to his smartphone during a day, he at first was agitated, and wanted to reach for a phone which was not there. However, he did notice that he could make his homework without distractions for a change which he liked.



**Figure 3.9:** Attitudes towards and consequences of continuously spending time on the smartphone

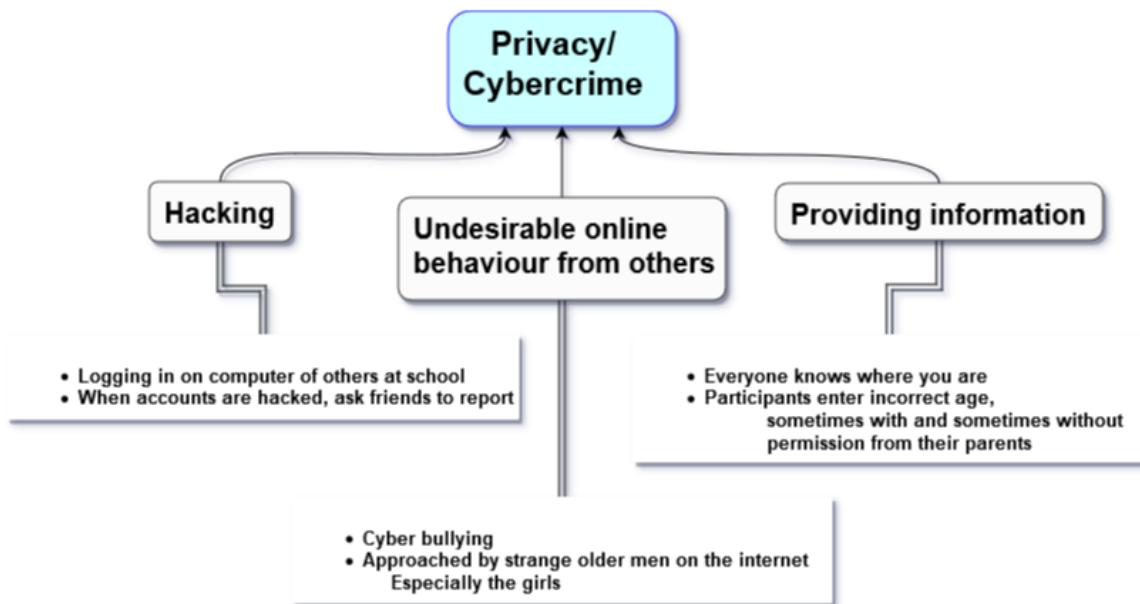
Some negative aspects which the participants mentioned suggested that they felt irritated when the phone was not performing well and blocking access to their activities. For example, they mentioned the need of energy, and the fact that the battery can be empty as negative points, as well as an unstable or unavailable internet connection.

With regard to others, they indicated annoyance when their parents or siblings are on their smartphones. From the vehemence of their reactions, they thought that others were on their smartphone for far longer than they themselves. According to the participants, parents or older siblings for example do not pay attention when they ask them questions. This was the case especially for the primary school children.

One of the consequences of being on your smartphone which they named was the feeling of being isolated from the real world. Thus while the smartphone is necessary for communication, it also leads to isolation from the persons who are physically present. However, one participant mentioned that this was also sometimes voluntarily and explicitly communicated to others by for example putting on headphones.

Finally, one of the words which was mentioned as a negative point by nearly all groups was “addiction”. When asked to explain why, the children shrugged, as if it was self-explanatory. However, they also mentioned bad sleeping habits, less exercise or the fact that “you could also be doing something else”.

### Cybercrime and Privacy Concerns



**Figure 3.10:** Cybercrime and privacy concerns

Nearly all of the participants said that they had read the information pamphlet which was included with the informed consent form with their parents.

Some of the participants also discussed accepting the Terms and Condition of various apps with their parents, and the parents gave them permission to use the app. Some age restrictions were ignored by entering an incorrect date of birth.

### 3.2.2 Phase 2

Each group was presented with a different dilemma based on the answers they gave during the first phase of the workshop. These dilemma's were for each group:

1. I want to go play outside with friends vs I want to play games on my smartphone with friends
2. I want to play games with friends vs I do not want to sit behind a screen all day
3. I do not want to miss anything posted online vs I do not want to be stuck with a screen
4. I want to be able to present myself online vs I do not want to be harassed by strangers
5. I do not want a bad body posture vs I want to share things with friends

Group 1 and 2 consisted of eight primary school children, while group 3-5 consisted of six, eight and six secondary school children each.

The prototypes they created are shown in Figures 3.11 and 3.12. Two prototypes are not shown, but will be described below.

Most of the groups made a device which allowed them to communicate with their friends over a distance. In group 1, the hat was transformed into a communication hat. The beats represented various friends or family members, and by pressing the beat the hat would send a message or call this person. The hat was activated by pressing the spring on top of it. A similar hat was proposed by the children in group 2 and 3.

The bag was transformed into a communication device in groups 1 and 5. In group 1, the user could indicate where they wanted to go play with classmates or friends by putting a coloured beat into the bag. This represented for example the playground or soccer field. In group 5, the user could speak their message into the bag. Both of them assumed that the receiving party had a bag as well.

Finally, in group 2 and 5, the small pitcher and cups were also used for communicating, although in vastly different ways. In group 2, the cups were connected with a wire such that the sound travelled from one cup to another. In group 5, the pitcher became the base of a hologram system. The cups were part of the controller or a portable version of the larger system

In group 4, the focus was on preventing (virtual) attacks from strangers. The children designed an anti-attacker bag with spikes. In addition, they created a stop/go dispenser out of the pitcher and cups (not shown in the pictures). The user

could launch either a stop or a go message at a person. The go message contained their Instagram account information.

Finally, in group 3, the dilemma between going outside or playing inside with your smartphone was solved by creating a robot which drove away with the smartphone, forcing the user to follow it around.



(a) Group 1



(b) Group 4



(c) Group 3



(d) Group 5

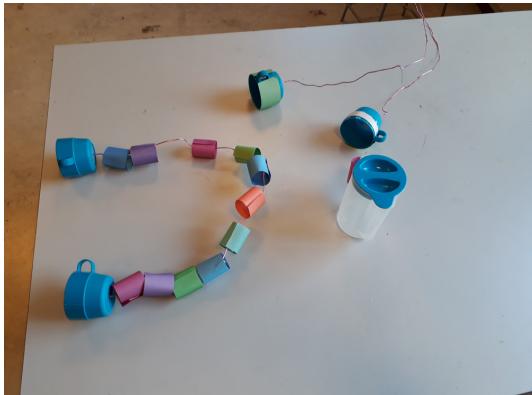
**Figure 3.11:** Prototypes as designed in the workshops. The group in which it was designed is indicated below the photos.



(a) Group 1



(b) Group 4



(c) Group 2



(d) Group 2



(e) Group 3



(f) Group 5

**Figure 3.12:** Prototypes as designed in the workshops. The group in which it was designed is indicated below the photos.

### 3.3 Discussion of the Participatory Design Workshop

The workshop was meant to answer the first and second research question:

RQ1 When motivated to reflect on their implicit norms and habits with regard to smartphone use, how do children (aged 10-14) perceive the role of the smartphone in their lives?

RQ2 What do children (aged 10-14) envision to be desired future ways of integrating digital services into their lives?

The designs made by the children were largely concerned with communication. The designs enabled the user to call or message their friends quickly and efficiently. Partly, this is due to how the dilemmas were formulated. During the discussions, in most groups social contact was one of the main topics. The dilemma were thus skewed in that direction. However, the dilemma presented to the first group, *I want to play outside with friends vs I want to play games on my smartphone with friends* does not entail that the solution would be a communication device. This might show that it is difficult to think past the functionalities which are on the smartphone to solve problems. This includes the use of buttons or separate controllers which they placed on the products, which have to be pressed to call someone or activate the device. On the other hand, in the group in which the dilemma was *I want to be able to present myself online vs I do not want to be harassed by strangers*, the designs were decidedly different from a smartphone, and it was unclear if there was a link with virtual social media at all. This could also indicate that for the children there is no difference.

Regardless, the designs indicate that functionalities of the smartphone can be translated to everyday products with relative ease. When the children heard that the design could not consist of a screen, after first being dismayed, they did quickly think of other forms of interaction. The look and feel of the smartphone as it is now is thus not a necessity or inevitability. The future of designs are not bound to a screen.

The discussions provided an overview of the role of the smartphone in the lives of the participants. The participants noted both positive and negative aspects of the smartphone. The positive aspects were mostly concerned contact with friends and family, entertainment such as video or music, and practical functionalities such as looking up information. Negative aspects included the consequences of spending time on the smartphone for long stretches of time (such as being distracted, or others not paying attention to them)

The smartphone is connected to nearly all parts of daily school life: it is used for contact with friends and family, used for entertainment during the breaks, and for useful information about changes in the schedule or homework. In the terms of

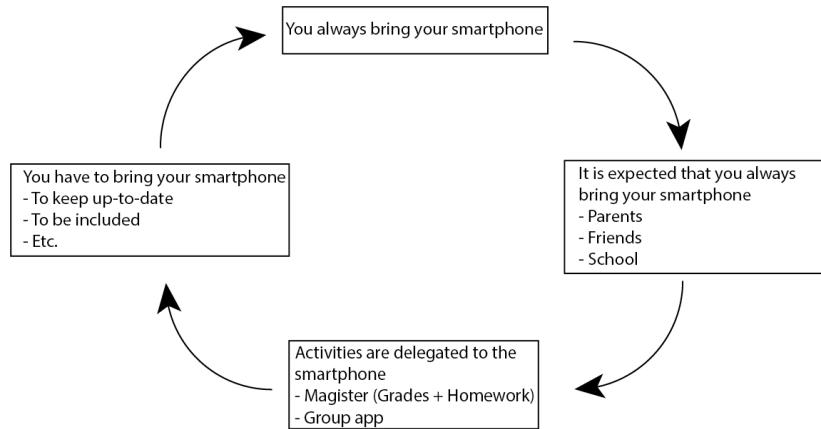


**Figure 3.13:** Roles which were previously performed by other (technological) actors in the network have all been delegated to the smartphone.

Actor-Network theory, the functions which had thus far been performed by various other actants (including technology) have all been delegated to the smartphone, making it an indispensable part of the network. If the smartphone is removed, the network would collapse, because the information flow would be broken. Partly in addition to the answers of the children, Figure 3.13 gives a visual indication of how various separate devices have become integrated in the smartphone.

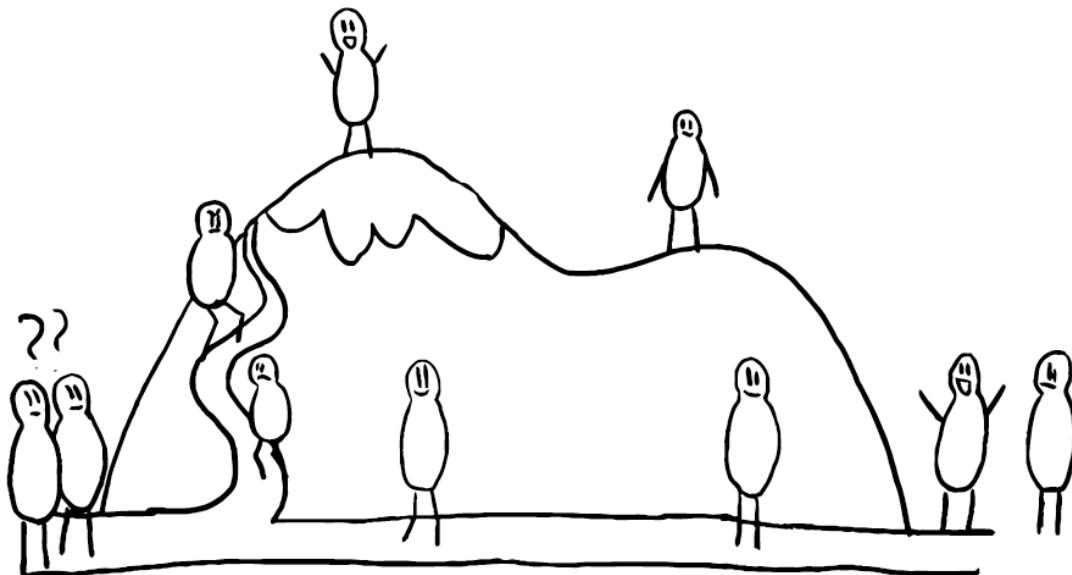
The circle in Figure 3.14 illustrates one of the possible ways how the smartphone has become essential in today's smartphone use. Because children bring their smartphone, others start expecting that everyone brings and uses their smartphone. The children mentioned that being able to be contacted in case of emergencies was one of the reasons they received a smartphone from their parents, as well as adding it to the list of positive aspects. The school as well expect that the children to look on the internet for changes in the schedule or homework assignments. Finally, peers expect each other to look at and react to messages. In response, because everyone brings their phone, more and more applications are moved to the smartphone, probably because it is more efficient to have everything at one place, and everyone is using it anyways. This in turn, forces everyone to bring their smartphone or else be excluded, starting the cycle all over again.

In addition, the smartphone is easy accessible because of its availability. Using the smartphone, then, requires less effort than performing other activities, which might be more fulfilling in the end. As mentioned in section 2.2, according to Embodied Cognition, technology and artifacts can become part of the dynamically distributed cognitive processes which form the whole of cognition. Often, this is done



**Figure 3.14:** Circle which perpetuates smartphone use. The demand on the smartphone maintains its own necessity

to reduce the mental load. For example, one would write down information so that they would not need to remember it. Similarly, the smartphone has become part of our cognitive processes. While a decrease in mental workload is usually desirable, in combination with the delegation of the many functionalities to the smartphone it might lead to the users grabbing the smartphone while they might not “want” to, that is, just because it is easier or part of their routine. Figure 3.15 shows a visualisation of this situation. While the mountain road is challenging at first, it is more rewarding in the end.



**Figure 3.15:** Mountain metaphor of smartphone use. The path up the mountain is harder, but more fulfilling.

In conclusion, the smartphone has placed itself as the main artifact in the network of relations which make up the lives of the participants, influencing nearly all aspects of their lives.

The next chapter describes how these insights from the workshop are extrapolated into Critical Design artifacts.

# **Chapter 4**

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## **Critical Design**

The previous chapter gave an exploration of the answers to the first two research questions. It was argued that the smartphone has acquired many functionalities, which has led to a network of relations in which the smartphone is essential, and shapes the interaction between humans and their world. The main indicated functionalities of the smartphone could be categorised in entertainment, such as watching videos, social, such as Social Media, and practical, such as looking up information.

In this chapter, the third research question is addressed:

RQ3 Which interaction design artifacts would provide a provocative representation of the children's desired futures that provides a first step towards a transformation of current societal practices?

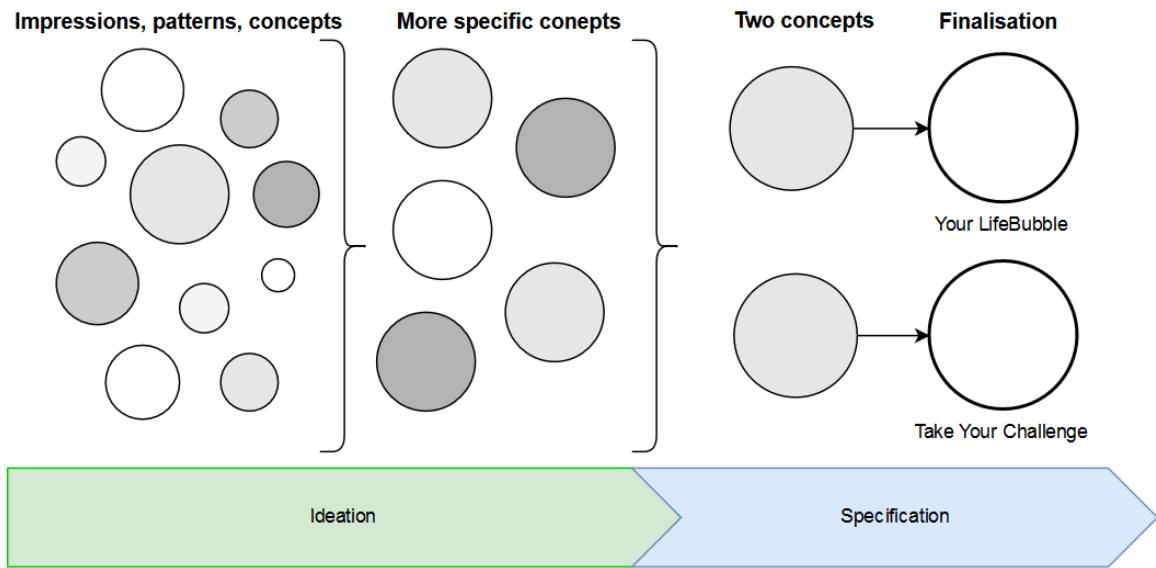
Two Critical Design artifacts were designed based on the results from the Participatory Design workshops, called Your LifeBubble and Take Your Challenge. The artifacts were presented at a final debate session.

In the next section, the methodology to reach these designs is described, as well as the structure and content of the subsequent sections.

### **4.1 Method**

As mentioned, there are no fixed methods for designing Critical Design artifacts [17], [34]. The design of the artifacts in this project follows the procedure of divergence and subsequent convergence [36]. These phases will be called the ideation phase and the specification phase respectively.

The ideation phase started with a divergence of the design space by generating various design ideas. These ideas ranged from small, one sentence aspects to more fully formed concepts, and were grounded in results of the Participatory



**Figure 4.1:** Process of designing the Critical Design artifacts

Design workshops. Since most of these ideas were not concrete and often irrelevant to the final concepts, they are not discussed further. The large range of ideas converged into five more concrete concepts, which are discussed in section 4.2. The critical and provocative aspects of these concepts were examined by using the critical dimensions as proposed by [35] (changing perspectives, proposal for change, enhancing appreciation and reflectiveness), as well as their connection with the insights of the workshops and the suitability for realisation in a prototype. Based on that examination, two concepts were chosen for the specification phase. In section 4.2, first the concepts are explained, after which they are compared.

In the specification phase, the two concepts of the ideation phase are expanded and given more detail. The iteration process of the concepts can be separated into three stages. The first two stages concern the development of the concept itself, and are discussed in section 4.3. The third stage is the design of the prototype, which are discussed in section 4.4.

The concepts are realised into prototypes because this allows the user to experience the concept through interaction. As mentioned, the range of notions and values embodied in an artifact only emerge through interaction with the user [20], [37]. As such, they are presented to a small group of users during a debate session, which is discussed in section 4.5. The debate session was used as a first session in which the artifacts served as an anchor point for the debate surrounding the smartphone. Its purpose was to examine the response to the artifacts as well as their insights about the structures as the smartphone. It was attended by ten people, including the designer, out of which two others had prior knowledge about the artifacts.

## 4.2 Ideation

As mentioned, in the ideation phase, five concepts were developed. The five concepts were the gamification of life in general and school in particular, a multifunctional desktop which allows sharing of digital and non-digital information over a distance, an globe which fulfils a similar role to Social Media, and finally a projection of Social Media on all available surfaces around the user.

These concepts and the relation of these concepts to the results of the workshops is discussed in more detail below.

### Life as a Game

See Figure 4.3b. In *Life as a Game*, everything you do is considered a game. This includes eating breakfast, getting to and from school, or going by train. These are all pooled together into one personal highscore. The idea is based on the desire of the children to be entertained, and to reach highscores or a large number of followers.

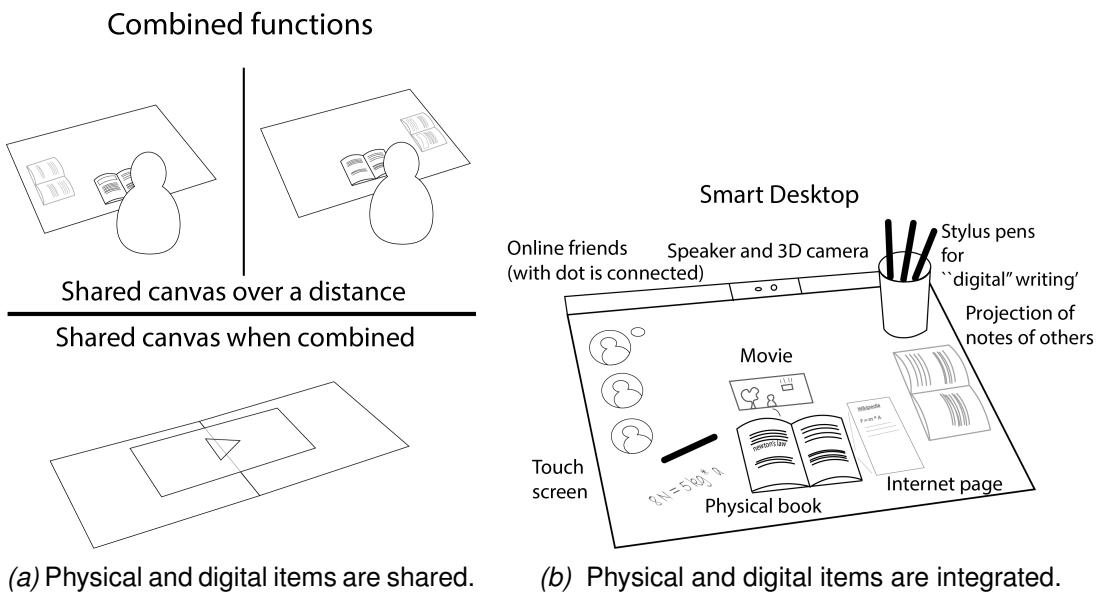
To make it more exciting, normal activities, such as cycling are “gamified”, that is, you can get points by for example collecting items during cycling. These items and other games would be presented through some kind of augmented reality.

In this concept, school is a game as well. Subjects could be replaced by challenges or game levels, with each level representing or testing the student’s knowledge of a certain part of the subject. For example, in history, one level could concern time periods, while in physics, one level could concern gravity, and so forth.

### Insta-Globe

Like the Multi-Funltional Desktop, the *Insta-Globe* concept originated in the idea of the desire of sharing information without being distracted. Because the globe is part of the environment (for example in a room), the users are less distracted from their work because they are not ‘transported’ into the digital world.

User can put their photos on the Insta-Globe, sharing them with their friends or family like they would with Social Media. In addition, they receive photos of others, which appear for some time on the globe. Physical items, such as physical “like” buttons or a stylus pen could be added to this concept to integrate digital and physical interaction in a similar manner as the functional desktop. In addition, spinning the globe might rearrange the photos, clear out old ones, or add new ones.



**Figure 4.2:** Multi-functional desktop concept.

## Multi-Functional Desktop

The *Multi-Functional Desktop* idea is based on the desire of children to not be distracted by the smartphone because everything is concentrated on the same device with a small screen, but while still having all functionalities available. Furthermore, it maintains the function of being able to share information over a distance.

Multiple desktops are connected, and books and other items are shared (see Figure 4.2), either over a distance or when the tables are placed together. In addition, physical and digital elements are combined. For example, when opening a book, one can “select” a paragraph and search the internet for more information, or open a video which is embedded within the book.

## World as a Canvas

This concept is based on the idea that Social Media is accessible at all times, only restricted by the need to go to an internet page on a device with internet access. While the account owner can determine what is visible on the web page by uploading certain photos and not others, and restrict some viewers by for example setting the page to private, they can not determine when and where others look at their page.

In this concept these aspects are subverted. Social media or information sharing has been externalised and made physical. First, instead of being restricted to the screen of the smartphone, your Social Media feed is presented on every available surface around you at all times. Second, what is shared is generated automatically based on the emotional state, which measures positive experiences. The restrictions of having to watch on a device are thus lifted, but the available safeguards

of the user are removed. However, while others can still see your Social Media page, you are fully aware of who does and who doesn't because they are physically present.

Finally, the concept could be extended by adding haptic feedback, such as with vibrating material in the user's clothes, or by not restricting the projection of the images to the location of the user. The user could for example leave traces of his or her personal experiences instead of sharing them with specific persons.

### **Social Media Board Game**

The final concept was to gamify the social practices. Each action which they now take naturally is moulded into a specific rule set, such as liking or commenting on each others photos. The goal of the game would be to get as much likes and comments as possible.

The player is obstructed in his or her goal by chance cards which represent setbacks such as an empty battery or a broken screen. In addition to posting photos, then, the player has to collect items which stop these obstructions.

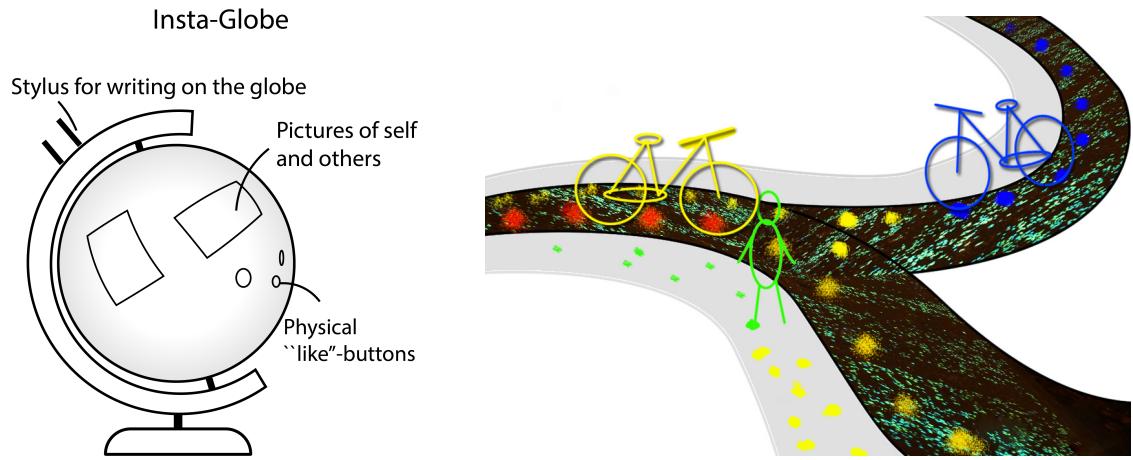
This concept was meant to make the social practices explicit, and was inspired by the idea that Social Media is in a way similar to games in structure and goal. Games such as Fortnite, which was played by most of the boys and some of the girls in the primary school groups, are played in teams, and part of the fun is showing others your skill level. Social Media is also about showing off, except than more focused on physical appearance and nice experiences.

#### **4.2.1 Choosing a direction**

Of these five concepts, two were chosen for further elaboration. These were the Life as a Game concept and the World as a Canvas concept. Each of the concepts were considered next to the critical dimensions as proposed by [35] changing perspectives, proposal for change, enhancing appreciation and reflectiveness.

While the Insta-Globe and the Multifunctional Desktop both gave a possibility for moving away from the smartphone as a device, the concepts themselves were still too functional. That is to say, the participants might want to use and buy these products if they were actually produced, but that is not the purpose of Critical Design. The concepts did not challenge or provoke the current practices, because the users do not become aware of their own practices by using those objects. Their practices would just become different. None of the critical dimensions apply to these concepts.

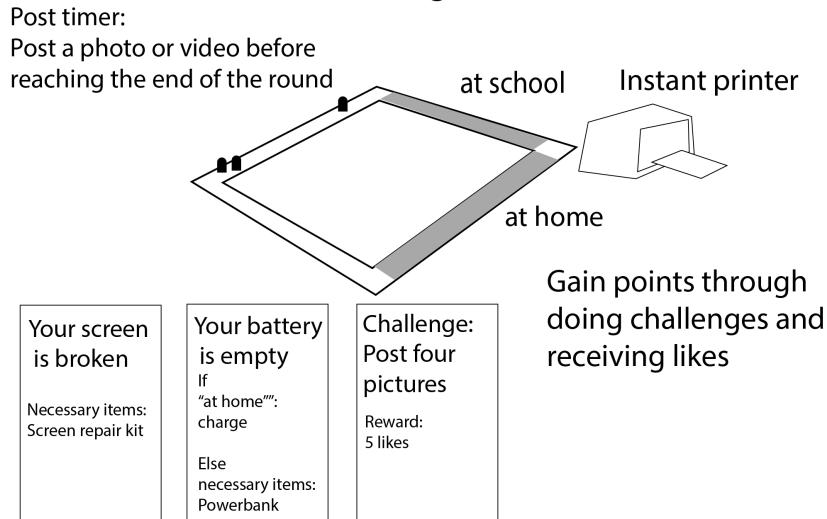
The Social Media board game does make the player aware of his or her practices and habits, because they have become part of the rules of the game. It could be



(a) *Insta-Globe* visualisation. Photos or other digital media appear on the globe. It could be expanded with physical items, such as “like” buttons or a stylus.

(b) *Life as a Game* visualisation. When walking or cycling you can collect items, which add up to your highscore. The highscore is also based on games played during standard activities, such as going by train.

### Social Media as a game with rules



(c) The Social Media game board and cards. A portable printer could be used to print photos.

**Figure 4.3:** Sketches of the Insta-Globe, Life as a Game and Social Media Board Game concepts

argued that it enhances the appreciation of the implicit rules invoked by social media by making them explicit. However, it is unclear how this game could then elicit discussion. Playing a boardgame once in a while does not show structural changes. In addition, it does not specifically expand on or highlight any positive or negative aspect of either Social Media and smartphone use for critical reflection.

The World as a Canvas project is more promising, because it touches on the differences between private and public, as well as challenging the choice of the users of Social Media. In addition, its easier to imagine how projecting the Social Media feed on every available surface would change day to day interactions. It thus changes the perspective of the users, and encourages them to reflect.

Similarly, in the Life as a Game concept is concerned with the impact of reducing every aspect of life to a number, as is the case with friends in Social Media. This is also part of the Social Media board game, but the Life as a Game broadens it to each aspect of life instead of just in those moments that the game is played. Because of this, it permeates society as a whole, and is more thought provoking.

The two concepts which are developed further are thus the World as a Canvas and Life as a Game.

## 4.3 Specification

As described in the previous section, two of the five concepts were further developed. The World as a Canvas concept resulted in the final concept Your Life Bubble. The Life as a Game concept resulted in the final concept Take Your Challenge. For both concepts, this process can roughly be divided in two iterations and the final prototype which represents the concept and was presented during the debate session (described in Chapter 5). In the following section, first the two iterations of Your Life Bubble is described, followed by the two iterations of Take Your Challenge. In section 4.4 the prototypes are discussed.

### 4.3.1 Concept 1: Your Life Bubble

#### First Version

As mentioned, this concept originated in the *World as a Canvas* concept. There have been a few changes, specifications and additions. Figure 4.4 shows how the concept might be realised.

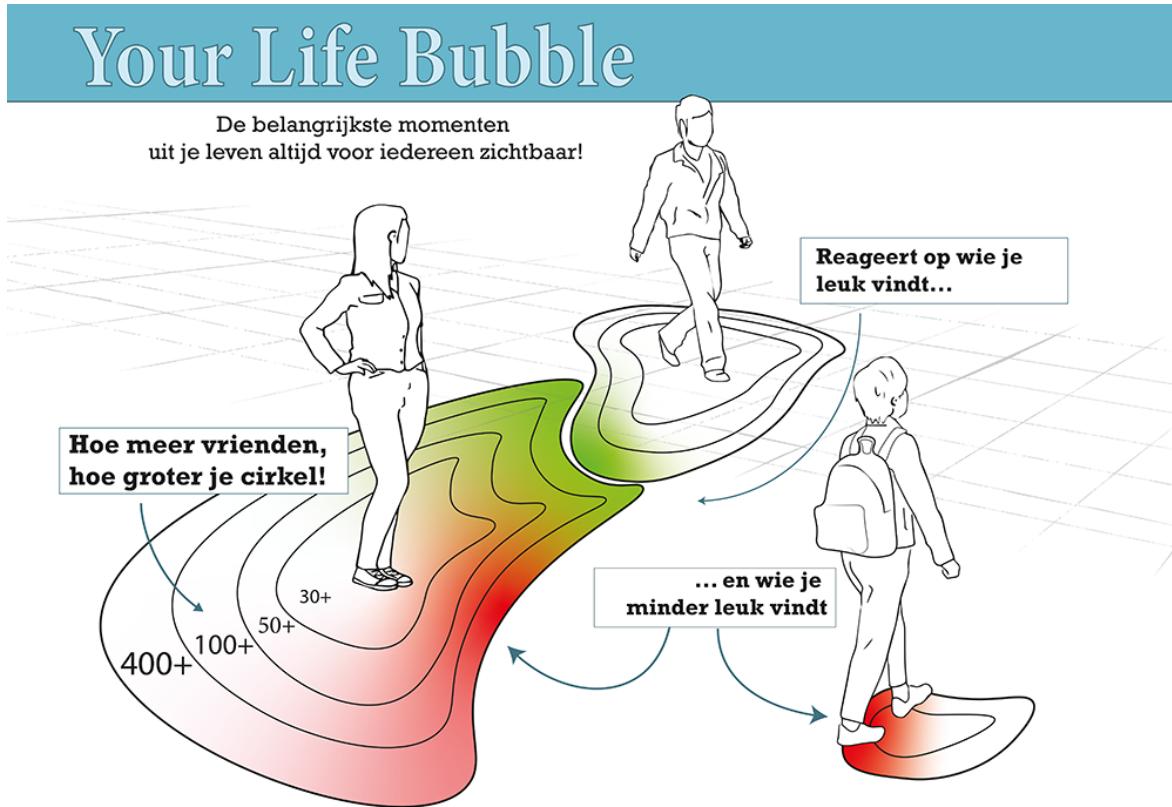
Instead of projecting the Social Media feed on the all possible surfaces, it is now only projected on the floor in a circle around the user. Practically, this makes sure that it is more contained and would interfere less with the bubbles of other users. Conceptually, by directly connecting the Bubble to a person, it is immediately clear to others who the pictures and notifications belong to. Another possibility would have been to show the pictures and notifications on the body of the user, for example on their clothes. However, this restrict the user's ability to see the pictures for themselves. The projection around the user maintains this need while still making the pictures visible for others. By connecting the projection to the user and by making it visible at all times, it becomes aesthetically provocative. The projection becomes part of the user's visual expression, and invades the user's personal space. This could influence how people respond to one another.

In addition, a camera or likewise equipment would be needed to record the pleasurable or exciting experiences. The haptic feedback and leaving traces has been dropped, because it did not add anything to the concept as it was. Instead, the focus turned on expanding the possibilities of the projection itself. In the previous version of the concept, these experiences were recorded automatically, for example by monitoring heart rate. However, it might also be possible for the user to choose when to record an event and when not to. Both would have a different impact on how the circle would be perceived.

If the users could choose the photo themselves, as is the case on current Social Media platforms, they would probably choose the photos in which they themselves



**Figure 4.4:** First version of the first concept: Your Life Bubble



**Figure 4.5:** Poster of Your Life Bubble. This poster was also shown during the debate session. A larger version can be found in Appendix A.2

are presented in a manner which is either the most positive, or most identifiable. In a sense, the user might use the circle in a similar manner as clothes, that is, as a way of visual self expression. If the pictures are generated automatically, on the other hand, the circle shows a different side of the person.

Furthermore, interaction between users has been added. Based on the timeline or other personal data, the users interests can be generated as is done by many companies today for giving their users recommendations and suggestions. In the services which the children use, such as Netflix or YouTube, suggestions are made based on input from the user. Often, these suggestions are based on similar content. Thus, the circle can “suggest” similar persons when passing them by on the street, or when meeting someone in the same room.

### Final version: Your Life Bubble

In the final version of the concept, the reaction of the Life Bubble to other users has been expanded, and it has become the main focus of the concept instead of the nature of the pictures which appear within the circle. Figure 4.5 shows an overview of the final concept.

The shift came about through the insight that the purpose of Social Media is not primarily picture sharing. While great care is taken in choosing which kind of pictures are posted on the Social Media accounts, its main function is presenting yourself in a certain way (see also [54]). Social Media has become integrated with maintaining the social relationships among peers, supported by the apps functionalities such as likes, number of followers and so forth [106], [107]).

This social aspect has been visualised in the final concept. Instead of just indicating which persons have a shared interest, the bubble actively moves towards people the user likes, and moves away from the people they dislike. Furthermore, the size of the bubble is determined by the number of friends or followers the user has. Thus a large size indicates a large number of followers, and a small size indicates a low number of followers.

In that way, The Life Bubble might become an extra sense. Because it moves towards people which the user likes, and away from people that the user dislikes, he or she might be guided by the direction of the Bubble. If the Life Bubble has been implemented long enough, this might become unconscious behaviour. In the terms of Gibson, the Life Bubble might form part of affordances which influence social behaviour. Social affordances give information about possible actions of behaviour [21], [108]. The reaction of another person's Life Bubble to you or others around you then becomes part of the cues with which to judge possible actions.

In addition, the concept reflects the need of the participants to continuously check their phones. It has been "resolved" by having the information be visible at all times. There is no act of *checking the phone* required anymore, and the interaction is no longer restricted to a small screen.

The concept is critical in the sense that it reframes Social Media, placing it and its consequences in the "real" world instead of the virtual and directly connecting it to their body instead of an online avatar or representation. This encourages people to think and reflect about the differences and similarities between current Social Media on the smartphone and the Life Bubble, such as with regard to privacy and the influence on who they do and do not connect with. In addition, the Life Bubble is presented as a proposal for change. The Life Bubble touches on the four critical dimensions identified in [35].

### 4.3.2 Concept 2: Take Your Challenge

#### First Version

This concept is based on the *Life as a Game* concept. However, the scope of the concept has been reduced to all parts of life to only the school. The concept becomes more directly connected to the experiences of the children, and is less con-

vulated compared to a concept based on every aspect of life. See Figure 4.6 for an example of the possible new school interior and interface.

This concept proposes a reform of the current school system. The current Dutch school difficulty levels (VMBO, HAVO, VWO) are renamed to resemble difficulty levels in games: easy, normal, hard and hard plus. As in games, children can choose the difficulty level which suits them the best. In the first iteration, the subjects, such as history and physics, were divided into game levels (discreet goals), and the children could go through these levels at their own pace. In the second iteration, these levels were divided into discrete challenges, such as “speak English for a day” for the subject English. This resembles the achievement system which is present in many games. Each challenge belongs to a certain difficulty level, and a student can do multiple challenges each day. The number of challenges which he or she finishes is thus up to the student, but in the end builds towards a personal highscore. More difficult challenges would result in a higher score. The interior of the school is transformed to facilitate these challenges. A classroom might for example be set up for experiments with gravity for physics, or time periods for history. The whole school has become interactive.

School classes are dissolved. At the start of the day, the children log-in with a personalised code, and their stats are shown. However, they can also choose to do group challenges. The group challenges are separate from the main courses, but can teach the children other skills, such as working together.

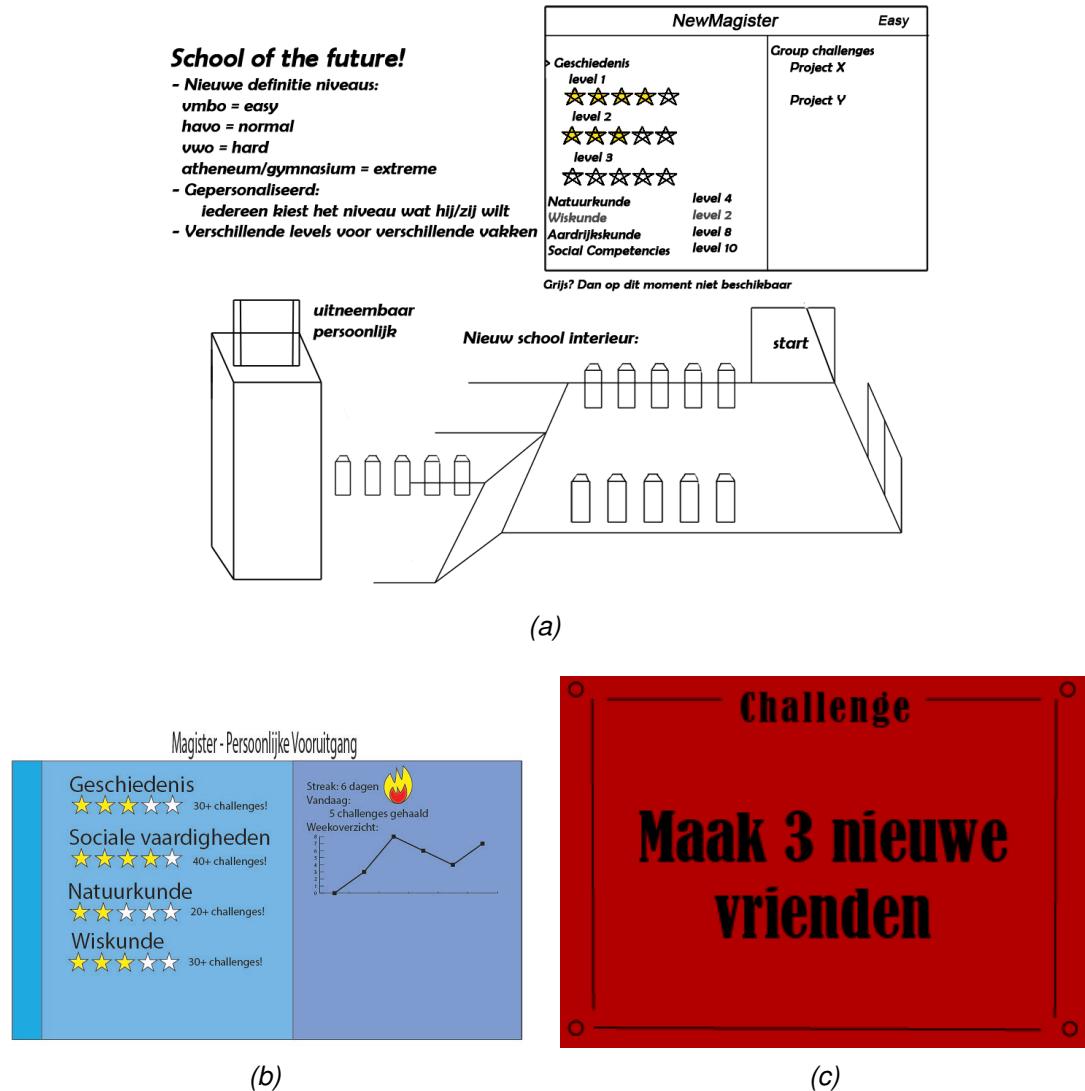
Similarly to the Life Bubble, this concept reframes two structures with which the user is familiar: the smartphone and the school.

### **Final Version: Take Your Challenge**

In the final version of this concept, the separation between the subjects has been dropped. When trying to decide which challenges would belong to which subject, there seemed to be a lot of overlap. For example, one of the challenges could be to shoot off a water rocket and report the principles of physics which describe its trajectory and so forth. This requires knowledge about physics, maths and general engineering. In the Dutch school system, subjects are separated explicitly, but the difference between subjects is less clear when discussing challenges.

The question then arose why the challenges needed to be based only on the current “imposed” school system at all. School life does not only consist of doing homework and following courses. The children form social groups and spend time interacting with each other.

Furthermore, there is a similarity between the explicitly imposed structure of the school system, and the implicitly imposed influence of smartphone use. As said,



**Figure 4.6:** First versions of the second concept, and the challenge card.

schools determine which subjects the children attend (with some possible choices), how many hours they spend learning those subjects, and which kind of knowledge is important to learn for each of those subjects. In addition, many schools pay attention to social aspects and how to behave. On the other hand, the smartphone influences what the children do (entertainment, social media), how they interact with each other, and how knowledge can be accessed (through the internet). Implementing challenges based the implicit norms and values of the smartphone in the school system makes them explicit.

Instead of only being based on subject in the current school system have been expanded to include social interaction which emerged from the smartphone and other social practices. In addition to being similar to challenges which are part of today's games, then, the challenges also resemble social challenges such as the Cinnamon Challenge [109], in which peers dare others to do risky or funny actions.

Finally, the student connects to the interactive school via his or her smartphone. The smartphone is placed in a stand at the entrance of the school, and is used to confirm his or her identity. The smartphone is then locked and remains in place until the student is done for the day. This resembles logging into and out of current online profiles to play games. Instead of using the smartphone, fingerprint recognition, face recognition or some other form of an identity check could have been chosen. However, using the smartphone symbolises its current connection to self expression and self identification on Social Media and through messaging with others.

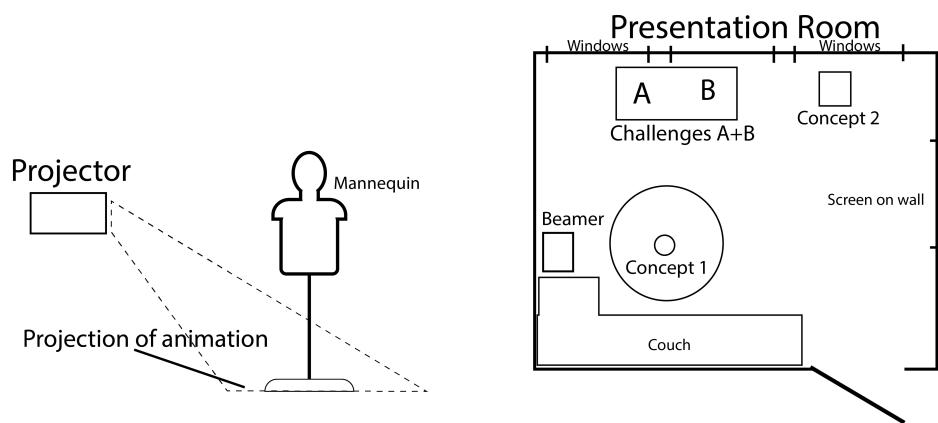
The Take Your Challenge concept is critical because as said, it reframes the use of the smartphone and the familiar structure of the school by combining them, as well as making the implicit norms and values explicit.



**Figure 4.7:** Poster of the Take Your Challenge concept. The poster was presented to at the debate session. A larger version can be found in Appendix A.2

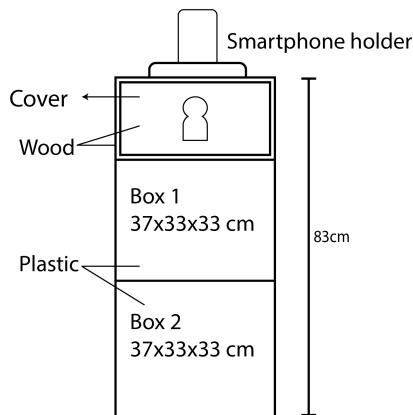
## 4.4 Prototypes

Figure 4.8 shows the first building plans for the final realisation of the prototypes which were presented at the final debate session. The main purpose of these prototypes was for the user to experience the concept itself through some form of interaction. Each prototype was also accompanied by a poster, which explained more of the information (see Figures 4.5 and 4.7). The final versions of the prototypes are shown in Figure 4.10 and 4.11).

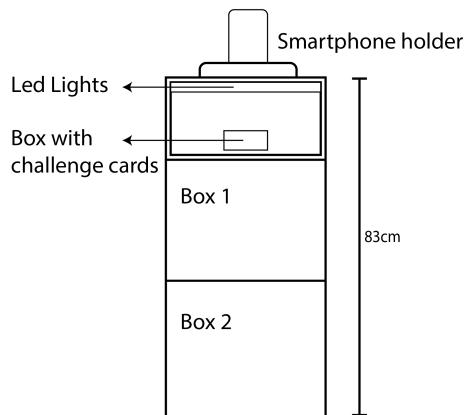


(a) Plan of concept 1. the projector projects the moving representation of the Life Bubble on the floor.

(b) Top view of the floor plan of the final setup



(c) Front view of concept 2, outer layer and measurements. The keyhole covers the opening of box beneath the smartphone.



(d) The cards with the challenges are placed inside the box. When a smartphone is placed on top, LEDs light up the inside.

**Figure 4.8:** Building plans for both concepts and the room in which they are presented. The mannequin in 4.8a was dropped. Instead the spectators stand in the bubble themselves. Similarly, the A/B challenges in 4.8b were not placed in the final setup.

#### 4.4.1 Prototype 1: Your Life Bubble

For the first concept, the original idea was to project a moving bubble on the floor around a mannequin (as still shown in Figure 4.8). However, the mannequin was dropped in the final version. Instead, people could stand within the circle themselves. This helps both the onlookers and the one standing in the bubble to imagine how the concept would look if it was realised, and makes the interaction more personal. Figure 4.10 shows the concept in use.

The Life Bubble should visualise the photos and notifications, how it reacts to other people and the size difference between many friends or followers and less friends or followers. It was chosen to not clutter the visuals with pictures and instead only include three pictures and two notifications. A lot of pictures distracted from the movement of the Bubble, while less pictures still gave the suggestion of a Social Media timeline. Thus, also because this was not the focus of the concept, attention was given to the movement of the Bubble instead.

However, to increase the visibility and give more support to the movement, it was colourized: red if the Bubble was moving away from and green if the colour was moving towards someone. The movements were predetermined and did not respond to the people surrounding it.

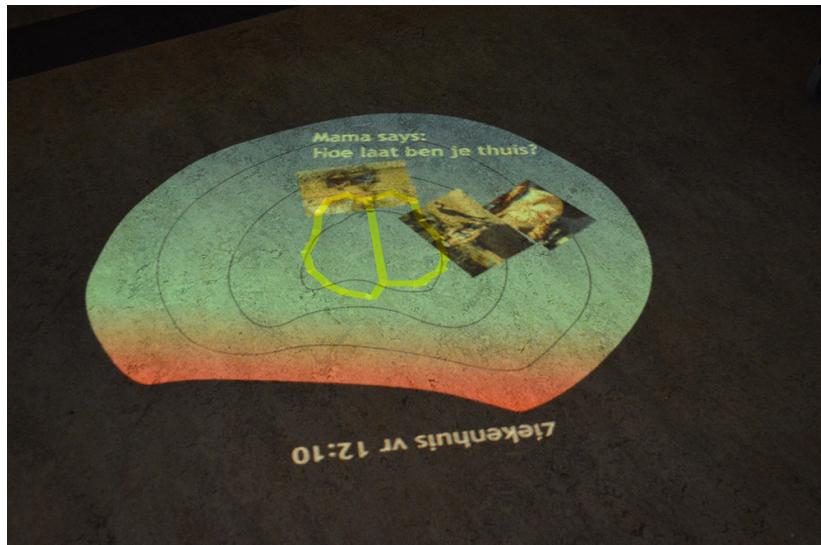
The final visuals are shown in Figure 4.9. In the final setup the planned size of the projection could not be realised due to equipment failure. The projection was smaller than anticipated. It was chosen to only show the big Life Bubble during the final debate session.

#### 4.4.2 Prototype 2: Take Your Challenge

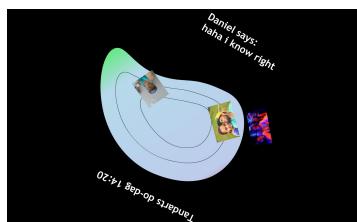
For the second concept, changing the school completely was unfeasible. The prototype thus showed the moment that the student logs in at the school and is given the challenge.

The users had to place the smartphone on top of the stand which represented the stand which they would encounter each morning if the concept was implemented. Inspired by games which the students play, such as Fortnite, the distributor was designed to resemble a treasure chest. In many games, the player can find (or buy) virtual treasure chest which contain items which help them during game play. When the smartphone was placed on top of the treasure chest, “confirming” their identity, a light would appear within the chest, after which it could be opened. Figure 4.12 shows the prototype in its on and off status. Although in the prototype the smartphone can be removed after the challenge is taken, in the ideal version of the concept, the smartphone stays in the stand for the duration of attempting the challenge. The school itself provides the necessary information.

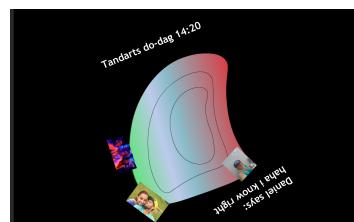
The challenges were placed inside the treasure chest. To keep the further distribution simple, they were printed on coloured cards which the user could take with them. The colours did not mean anything, but were just used to make the cards look more interesting. A list of all challenges (in Dutch) can be found in Appendix A.



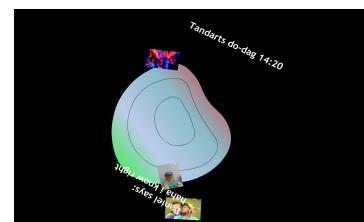
(a) Projection on floor



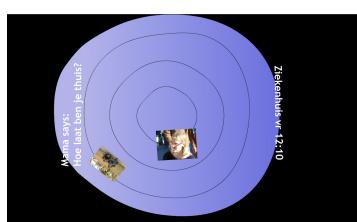
(b)



(c)



(d)



(e)



(f)



(g)

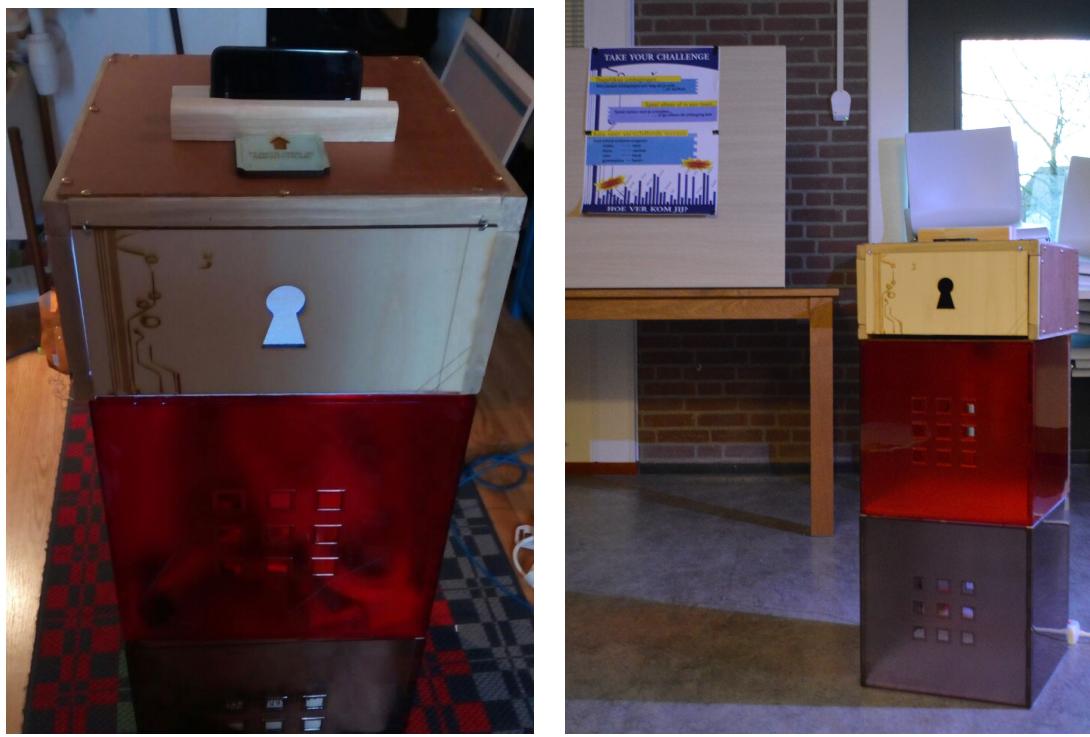
**Figure 4.9:** Projections of a small (upper row) and a big Life Bubble (lower row). For comparison, the big bubble has a diameter of two meters. The projections were moving. The shapes transitioned gradually from one to the other, and the pictures and text circled around the midpoint.



**Figure 4.10:** Final version Your Life Bubble (as presented during the debate session)



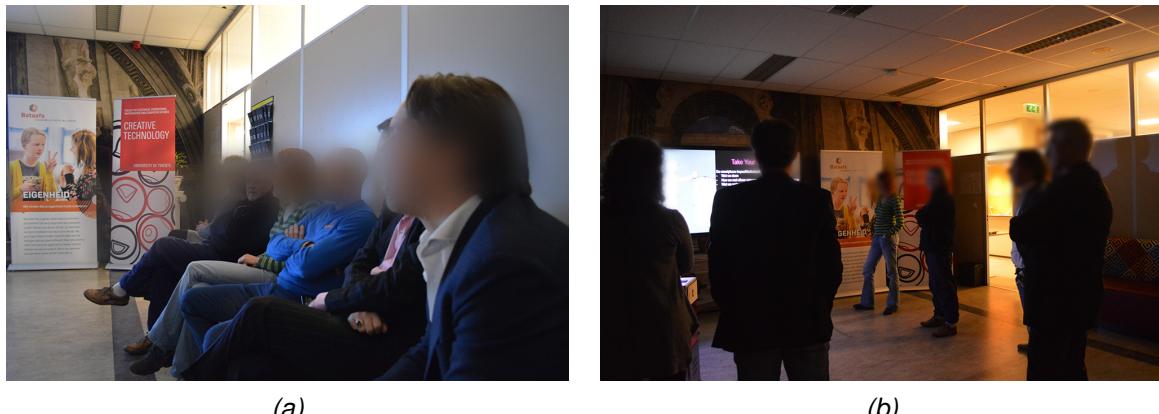
**Figure 4.11:** Final version Take Your Challenge (as presented during the debate session)



(a) Placing the smartphone on top of the treasure chest activates the lights.  
(b) Final set up during the debate session

**Figure 4.12:** Setup of the Take Your Challenge prototype.

## 4.5 Debate Session



**Figure 4.13:** The debate session

To connect the concepts to the general public an event was organised for the students, parents and teachers at the same school where the workshops have been held. Due to some unforeseen circumstances, the attendance was lower than expected. Their reaction is thus less reflective of the general public compared to a larger group. However, because of the small group, all attendees were able to experience the prototypes together as the discussion took place in the same room as where the prototypes were placed. The discussion was lively and dynamic. Some comments and observations can thus be made about their reaction, which give an indication about future steps.

The attendees were first informed of the nature of the project as well as the results of the workshops. Then, it was explained how the concepts were based on these results, which led into the discussion about the Life Bubble. After a while, the discussion switched to the Take Your Challenge concept. As said, during the discussion, the prototypes were used by one of the attendees. Figures 4.10 and 4.12 show the prototypes when they are used by one of the attendees. The discussions were recorded.

The first reaction of the attendee standing inside the Life Bubble prototype when asked to imagine a world in which this was really implemented was: “oh dear”. They understood how the reaction of the Bubble on the people around them would influence whom they approached and whom they did not. Parallels were drawn between the Life Bubble and algorithms used at Netflix, Google and dating sites which give suggestions about things similar to your previous interest. They also noted that this reduces the room for surprises, and that many interesting people who might not fit the bubble are pushed away. On the other hand, one attendee noted, it might become easier for a lot of people to recognise social relations and

situations. Furthermore, they noted that people would adapt to use the Life Bubble in their daily lives regardless of how useful it seems now, similar to what happened with the smartphone.

The discussion then turned to the smartphone in general. Similar to the workshops, they mentioned that nearly every student has a smartphone. One of the attendees noted that they only gave their children a smartphone when they reached the eighth grade (10/11 years old), just before starting secondary school. They were then the last ones to receive a smartphone in their class. Another noted that they always went on holiday to a specific destination at which there was no wireless connection, except in the village. Although they liked going there, they did drive to the village every day to check up on their Social Media. At school, the phone can be taken away if the student uses it during class, and he or she has to hand it in to the concierge.

As with the Life Bubble, three of the attendees used the Take Your Challenge concept. Overall, the concept was less intuitive than the Life Bubble, and the attendees had to be given more instructions and explanations about its meaning, both in how to get to the challenges as well as about why the challenges were chosen. However, the attendees showed some excitement about placing the smartphone and opening the box.

The attendees picked the challenges “Build a water rocket”, “Kiss a teacher” and “Program your own Game” respectively. The first two showed how challenges can require a broad skill set, and that the challenges were inspired by the previous formal school rules as well as challenges which students might give each other. One attendee noted, with regard to the gamification of the school (changing the school into a game), that he was surprised at the relative simplicity of the way the challenges were distributed, even though the challenges themselves required quite some thought to fulfil. In addition, gamification of the school in general was discussed. For some students, adding challenges might motivate them more than the current school curriculum, while for others, it might be too abstract.

## 4.6 Discussion of Critical Design process

The concepts and prototypes described in this chapter were created in response to the following research question:

RQ3 Which interaction design artifacts would provide a provocative representation of the children's desired futures that provides a first step towards a transformation of current societal practices?

The first concept, Your Life Bubble, was intended to connect the digital self-expression on Social Media with the physical presence, as well as to finalise the always-on nature of the smartphone. The Take Your Challenge concept gamified the school, and combined the explicit rules as imposed by the school, and the implicit influence of the smartphone by transforming them into challenges. Both were realised in a prototype.

While the Your Life Bubble prototype resembled what the concept would look like if implemented, the Take Your Challenge gave an indication of how the challenges might be distributed. The connection between the smartphone and the challenges was more symbolic in nature in the sense that the smartphone symbolises the identity of the user, which is connected to the interactive school by placing it on the stand and retrieving a challenge.

The attendance to the debate session was unfortunately lower than expected. In addition, because there were no children present, there was no feedback or reflection possible from the original user and participant group. In future iterations, there should be such a reflection moment. As said, children have a different perspective compared to adults. However, some insight can be gained from the debate session.

The concepts were a provocative representation from the children's desired futures in as much as they were based on the themes and insights extracted from the workshops. The Your Life Bubble concept spoke easily to the attendees imagination. They could easily think of possible implications. The general consensus seemed to be that they would not want it, although they indicated that if it were implemented, everyone would accept it anyways. The reaction to the Take Your Challenge concept seemed to be the opposite. Adding some form of gamification to the school system was something the attendees had thought about before, and the concept connected with those ideas. However, while the interaction was clear, and more than one attendee wanted to try it out, the prototype might not have been representative enough of the whole concept. That is to say that the nuances of a school which is completely interactive remained underexposed.

This might possibly be due to the fact that there were many facets to the take Your Challenge concept and with the limited number of people and the limited time frame,

these were harder to grasp for an audience compared to the more straightforward Life Bubble. Furthermore, some parts of the Take Your Challenge concept were underdeveloped. For example, the question was raised as to who determined the challenges. The answer to this question influences how the concept impacts society. The challenges could be determined by the government, or maybe a system could be put into place in which companies or the students themselves could issue their own challenges. There was little debate about either of these options. If either one had been made explicit when the concept was presented, it could have served as a scaffold for further exploration of the consequences.

The concepts could be seen as a first step towards a transformation of social practices. However, before any decisive conclusions can be drawn, the concepts would have to be presented to children as well as adults. It remains the question if children would give the same meaning to the aspects of the concepts. In addition, while it might change their perspectives and makes them reflect on their own smartphone use, instigating real change is more difficult to achieve. In future work, these concepts could be combined with another participatory design session in which the participants could design an alternative for the smartphone.

## Improvements

Some improvements could be made to the concepts and the prototypes as they currently stand. The Take Your Challenge prototype was quite convoluted and touched upon many different aspects of the smartphone, probably especially so for children. Either this concept should be elaborated on in more detail or it should be divided into smaller parts.

As mentioned, the part which remained less clear was the interactive nature of the school. If possible, a larger installation of this concept could be build in which the user also enters the school after placing their smartphone on one of the stands. In an ideal situation, they also have to fulfil a challenge. If there are multiple visitors to the installation at once, this would simulate what the school would be like if actually realised. However, this might also diminish the critical aspect, because the installation would become more like an attraction. Caution should be taken when designing the interior of the school. In a less grand version, the interior of the school or the full interaction scenario could be shown in a film clip or on posters.

The Life Bubble concept can be expanded by projecting multiple Life Bubbles, ideally which follow people around as they move and interact to each other in a certain manner. This would strengthen the social aspect. In addition, it could be used to observe and analyse the reaction of the participants in a more controlled experiment. Again, the focus would be less on the Critical Design aspect, but the

results could inform on the influence of technology on human behaviour.

Furthermore, the pictures as they were in the prototype did not mean anything. The pictures and the texts showed the connection between the Bubble and Social Media, but served no further purpose. The how and why of posting the pictures to the timeline could be thought about as well, although care should be taken that the concept does not become convoluted, as with the Take Your Challenge concept. The prototype as it was clear to the audience during the debate session.

Finally, in the debate session, an introduction was given to the concepts in which the link with the smartphone was explained. It would also be interesting to present the concepts as they are, thus without such an introduction, and then see if a link with the smartphone is made during a subsequent debate.

# **Chapter 5**

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## **Discussion and Conclusion**

The previous two chapters described the Participatory Design workshops and the designed Critical Design artifacts. The first gave an indication of the structures which underlie smartphone use by children, namely how social activities, entertainment and functional functionalities have all been delegated to the smartphone. The second described how the Critical Design artifact Your Life Bubble was based the constant presence of the smartphone as well as how Social Media influences the relation between friends and family, and how Take Your Challenge was based on the need for entertainment and distraction, as well as how the smartphone implicitly determines aspects which a school as an authoritative institution imposes explicitly.

In this chapter, all of the insights are combined in light of the theories of Embodied Interaction and the insights gained during the design process. The first two sections concern the smartphone itself and discuss the insights gained from the Participatory Design session and the Critical Design artifacts. In the first section, I argue that the user and smartphone are part of a network of relations which govern and sustain smartphone use, while in the second section, I analyse how the smartphone influences these relations. In the third section, the Critical Design as a methodology is discussed in a broader light. This chapter is closed off with the final conclusion.

### **5.1 Reflection**

#### **5.1.1 The Underlying Structure of Smartphone Use**

One of the questions posed at the start of this project was how the smartphone has maintained its strong position despite its the negative discourse. The results of the workshops indicated that actions which previously had been allocated to multiple devices have been delegated to the smartphone. Examining how this delegation as understood within the Actor Network theory has created a network of relations between the smartphone and the users might give step towards an answer to that

question. In this section, I argue that the smartphone has become intertwined with nearly all parts of interaction, creating a network of relations between the smartphone, the user and their environment, which it is hard to step out of because one, the network itself and more crucially parts of the network are blackboxed, two, that creating new relations is difficult because many functionalities which had been divided over multiple devices have all been delegated to the smartphone, and finally, because even when one person steps out of the network, others are still in it. In addition, Critical Design can help to break open the blackbox, make the network visible, and offer direction for an alternative network of relations, although it has to reach a large group to reduce the isolation.

According to Latour's Actor-Network theory [20], [76], and as described in Section 2.2, the world consists of a network of relations which together constitute meaning. Foremost, he stresses that the actants in this network, that is, the entities between which relations are formed, can be both human and non-human. The network is constructed and maintained through what Latour calls technical mediation, which in itself has four interrelated meanings: delegation, composition, translation and blackboxing. Each of these meanings plays a role in the maintaining of the network of relations surrounding the smartphone.

Blackboxing concerns the idea that the networks are most often invisible, similar to the notion of withdrawing from Heidegger and Merleau-Ponty. Because these networks are invisible, realising that we are part of this network and our behaviour is influenced by this network is made more difficult. We are not aware of the complete network of humans, smartphone, wifi network, routers, telecom providers and so forth when sending a message with our smartphone. At least, not until it breaks down. The frustration mentioned by the participants during the workshop, such as the low battery, an unstable wifi network or advertisements which block site access all make the user aware of the network of relations. In terms of Heidegger, the tools suddenly become present-at-hand: we become aware that they are tools. However, usually these interruptions are short lived, even though it might be beneficial.

Not only the network as a whole is blackboxed, but parts of the network are blackboxed as well. Smaller parts of the network can form what Latour calls compositions, which is closely related to translation. A composition is a combination of actants in the network which acts as one unit, while translation involves the "program of action" which this composition can perform by having formed the composition. Latour gives the example of a man with a gun who shoots someone. It is the combination of the person and the gun which make shooting possible, not one or the other. The entity has become the composition person + gun. Similarly, with regard to smartphones then, we have become a person+smartphone entity, which transforms the program of action of for example contacting each other, but also of keeping up to

date with the news, and so forth. The specific program of action contacting each other via for example Whatsapp presupposes that in both ends there is an entity person+smartphone. If the latter is only a “person” entity, then the program of action does not work. Because these compositions are blackboxed, we do not consciously assume that the person we are texting has a phone, because in general, everyone is part of this network. Again, this only becomes visible when broken down. One participant mentioned texting with their grandmother, who took (an exaggerated) fifty minutes to answer her text. Her grandmother did not conform to the expected program of action, which resulted in annoyance. Breaking open this black box not only involves making the whole network visible, but maybe more crucially, to uncover how this composition of person+smartphone has come about.

One aspect of the smartphone as part of the composition, in contrast to relations such as between a human and their coffeemachine, which makes it harder to break free of is that the smartphone has acquired many functionalities. Many action programs which were previously performed by something else have been delegated to the smartphone, and if the smartphone is removed from the network, all of these networks would have to be rebuild separately. For example, where before networks of relations were formed such as human + book, human + camera, human + map, it is now human + smartphone. Although it might be possible to rebuild some of these structures, the existing network of the smartphone is more convenient because it is for example more accessible. The possibility of reverting back to the smartphone is probably high. For example, it is possible to print out the schedule instead of looking it up on the internet, but this does not change the whole network structure.

Finally, a challenge of changing the network on an individual basis is that even if one person is disconnected from the network, the whole network still exists. One of the reasons the participants mentioned that they wanted a smartphone in the first place was because others had them too. In addition, they noted that it is boring if everyone else is on their phone and they are not.

Because of this combination of blackboxing of the whole network and smaller compositions, the delegation of many functionalities to the smartphone and the risk of becoming isolated when individually disconnecting from the network, breaking away from this network in order to change it from within has to be supported on a large scale. Critical Design can give the first step at least in breaking open the blackbox and stimulating discussion, such that addressing the other two challenges can be initiated by the users themselves. Of the two Critical Design artifacts designed in this project, the Take Your Challenge artifact focused more on the network as a whole (including its connection to the school), while the Life Bubble artifact was more concerned with how the composition of smartphone+person could be changed. The latter will be discussed in the next section, in which this composition, that is, how ex-

actly the smartphone mediates the relation between humans and their environment, is analysed further. Before turning to that, though, the Take Your Challenge artifact shows a possible way in which the network of relations can become explicit.

The Take Your Challenge artifact makes the implicit programs of actions which are supported by the network of relations and the compositions within the network explicit by redefining them as skills and knowledge which should be taught to students in schools. As part of the explicit school system, the challenges, which represent these actions, are awarded. In short, the students are explicitly awarded for being part of the network of relations, and thus are encouraged to strive to maintain these relations through performing the program of actions. On the one hand, complex social interactions are reduced to challenges, which are graded or awarded with a score, while on the other hand, they are enhanced by becoming visible. By positioning the network as desirable and as something that should be taught, the artifact raises questions about the network itself, because if it is resisted, then it reflects back on the current practices and behaviours, opening up the debate.

In conclusion, the user and the smartphone are part of a network of relations which it is difficult to break out of. First, the network is invisible, both on a large scale and on a smaller scale. Second, many functionalities have been delegated to the smartphone, which would have to be rebuild in some other form or disregarded when the smartphone is removed. Finally, when stepping out of the network individually, there is a risk of becoming isolated. As such, any change should be supported from within. Critical Design can offers a first step in breaking open the blackbox.

However, while Actor-Network theory offers a method for analysing the larger scale networks, it does not provide any methods for analysing the compositions in itself [37], that is, how exactly the smartphone as an artifact or device influences the relation between the user and their environment. In the next section, then, I will use phenomenology as explained in section 2.2 for analysing these relations.

### **5.1.2 How the Smartphone Mediates Interaction**

As said in section 2.2 phenomenology and postphenomenology stay closer to the direct one-on-one interaction between users and technology, analysing how technology is part of how the world is perceived as well as mediates which actions are possible. The theories are used to take a closer look at exactly how the physical properties of the smartphone as well as its digital properties shape the world of the user and how this is supported or contrasted by the Critical Design artifacts. Below, I will discuss three ways in which the smartphone mediates the relation between the user and the world. First, because of its small size and its connection to the internet, the user is always available for others. Second, because of the smartphone's small

screen, its limited interaction capabilities and because it does not interact with the physical environment in itself, the smartphone creates disconnects the user from their environment, and their physical self. When combined, the user can thus be disconnected from the environment at any moment. Finally, the smartphone as an information technology reshapes the meaning of the environment to fit discrete symbols and algorithms. In each of these, the fact that the smartphone is always present plays an important role.

### **Always Available to Others**

First, through the smartphone, the smartphone+person composition can always be reached. The smartphone facilitates this because it has the capability of connecting to the internet, as well as being small and thus easily carried around. While being able to text or call is not new for the smartphone, having internet and GPS access at all times has several consequences for the relation between parents and child, between peers, and between persons and strangers. Before mobile phones existed, a child had to navigate alone at some point in their lives, but now they can be reached and even tracked through GPS. The participants of the workshops mentioned that they had been given a smartphone because they could be reached by their parents or call their parents in case of emergencies. While useful in some cases, the possibility of gaining knowledge might increase the need for this knowledge. For example, a parent might become worried if their child has not send a message stating that they have arrived, even though they just forgot or were late, while they would not have cared if the option of sending a message had not been there in the first place.

Similarly, peers also expect that their friends are available. While they are not necessarily on their phones at all times, the phone is often close at hand. The possibility of being contacted is always there. Furthermore, on Social Media, this even holds true for people you do not know. Some of the participants in the workshop (mostly girls) reported being stalked or contacted by strangers. When asked to build a product which helped stop these advances, they build items with which to hit these strangers, similar to self-defence devices which are sometimes recommended if girls walk alone at night. Different from for example computers is that because the smartphone is always available, there is always a possibility to be confronted with these images or persons.

### **Disconnection from Environment and Self**

Second, the smartphone has a small screen and minimal interaction capabilities. The interaction consist of touching the screen and pressing buttons. More import-

antly, however, is the fact that the smartphone itself does not interact with the surrounding environment in a meaningful way. Of course, it interacts with the wifi network and so forth, but only to make the interaction with the virtual world possible. This is not necessarily unique to the smartphone, as it also holds true for digital (or information) devices. The notion of virtuality has been a debate among phenomenologist, mostly concerning the contrast between the “real” interaction, which is face to face, and the less strong virtual interaction [73]. This is not the point here. Instead, the point is that the virtual environment is separated from the physical environment because the virtual environment literally does not touch the physical environment in any way. The physical interaction with the smartphone seems to be a one-way street, with the feedback being symbolic information, which is processed mentally. The smartphone could be seen as a window into the virtual world.

Some efforts have been made to make the smartphone connect to the environment, mostly in combination with augmented reality, which make use of the camera. Games such as Pokemon Go, in which the user has to travel to specific locations, where he or she can scan the physical environment for virtual creatures, make use of the camera and navigation system. In addition, some street lights can sense the presence of a cyclist who’s smartphone is connected to the network. In those cases, like in the Take Your Challenge concept, the smartphone has received a different role. In the Take Your Challenge concept, the previously virtual world has become physical through the challenges in the school. The school itself, through being completely interactive and facilitating the completion of the challenges, has become a physical representation of the practices and habit surrounding the smartphone. By placing the smartphone on the stand, the user is then allowed to enter this representation. The smartphone itself is important only for its connection to the identity of the user. Instead of being so to speak the window or door into Social Media, the smartphone has become the key.

However, currently, the smartphone itself, and especially its communication services are disconnected from the direct environment. In addition, Social Media is disconnected from the embodied person as well. While Social Media is most often connected to a real person who owns the account and posts the pictures or messages, there is still a physical separation from the user’s body. While the profiles of friends and family might be verifiable, there is no way to ascertain if a stranger is telling the truth about his or her identity. Even if the owner of the profile is known, how he or she is presenting themselves on their profile is influenced by the current beauty standards and his or her own ideals. During the workshop, the participants noted that sometimes, it was easy to feel insecure because models or peers look more beautiful on their Social Media profile than they themselves feel. There exists a strange mixture of anonymity and self-expression.

In the Life Bubble concept, this separation has been removed. By directly connecting the person's Life Bubble to their physical body and location, this dichotomy vanishes. The uncomfortable reaction of the participant during the debate session indicates that there is a difference compared to the smartphone, which they use without feeling uncomfortable. Foremost, the user is directly confronted with everyone who sees their Life Bubble. With Social Media, there is (the illusion of) a degree of control as to who can see your profile and who cannot: profiles can be set to private, in which case only friends or followers can see your posts, and there is a list of everyone who follows you. This degree of control is removed in the Life Bubble concept. In addition, with the Life Bubble concept, the reaction of people who see your Bubble is immediately visible. In contrast, the smartphone has a small screen, which acts like some kind of window to the world of Social Media. This might give the notion of separation and anonymization, which perhaps makes it easier for the user to commit to using and presenting themselves on Social Media without being aware of its impact on themselves.

When the previous two points are combined, the smartphone seems to put the user in a state in which they can be disconnected from their physical environment and self at any given moment. Whenever they get contacted, they have to remove themselves from the environment to answer the question. This is not to say that the virtual environment is more shallow compared to the real environment, but it is separated.

## **Smartphone as Information Technology**

Finally, as mentioned above, the smartphone is foremost an information device. Although searching for information was only one of the activities the participants mentioned, Social Media are also meant to share information, as are the apps they use for looking up their schedule and so forth. In order to convey this information, it is necessarily reduced to symbols, such as text or numbers. The most obvious reductions are the follower count and the number of likes, which are discrete symbols which convey information about the complex relations such as friendships, but less obvious are the algorithms underlying the suggestions given by video sites such as YouTube and Netflix, or of advertisement and search results in search engines.

The Life Bubble artifact shows how the biases which are present in current Social Media could be transferred to physical interactions, since the Life Bubble reacts to friends or related people based on some kind of algorithm. Even if this algorithm is based on the behaviour or choices of the user, as is for example the case in the Netflix suggestion algorithm, which searches for similar series or shows to watch, an algorithm determines the response of the Life Bubble, which in turn influences

the behaviour of the user. Because the Life Bubble moves towards people which the user likes, and away from people that the user dislikes, he or she might be guided by the direction of the Bubble. The Life Bubble could part of the user's body. According to Merleau Ponty, as described in section 2.2, technology can become an extension of our body. To reiterate, Merleau Ponty gives the example of a blind man's stick. The stick becomes an extension of the senses of the blind man, and becomes part of how the blind man perceives the world around him. Similarly, as noted in Section 4.3, the Life Bubble could become an extra sense.

As mentioned during the debate session, this would pre select the persons with whom you do and with whom you do not interact. It might influence which groups are formed within schoolclasses, or might even be used to create classes or even determine to which school the child would go to in the first place. If the Life Bubble shies away from the teachers at a specific school and moves towards teachers at another school, this might influence the school structure. The schools would become more uniform. If the Life Bubble has been implemented long enough, this might become unconscious behaviour. In the terms of Gibson, the Life Bubble might form part of affordances which influence social behaviour. Social affordances give information about possible actions of behaviour [21], [108]. The reaction of another person's Life Bubble to you or others around you then becomes part of the cues with which to judge possible actions.

Social Media or other forms of ranking, for example via reviews on Google Maps, might already influence our behaviour in a similar way. One of the solution presented at a conference aimed at "digital detox" was an app which showed interesting places around the user in the form of a compass instead of the map [110], [111]. According to the designers, this stimulates wandering through cities, instead of blindly following the designated route on Google Maps or checking reviews for a local coffee stand. Although their solution is still an app on the smartphone, there is less influence of a number. On the other hand, in some cases, such as when ordering a private driver or when staying at an AirBnB house, in which case the host is most often a stranger, some form of proof of good conduct is desirable. As one of the persons in the debate session indicated, there it would make some interactions more clear. Part of the judgement calls needed when interacting with strangers or strange places which have been delegated to the numbers which can be accessed at all times through the smartphone.

### 5.1.3 Conclusion

In conclusion, the smartphone is thus part of a network of relations which is difficult to break open, because one, it is blackboxed and thus usually invisible, because two,

the smartphone has many functionalities which all have to be delegated to another network, and finally because by removing yourself individually from the network, you risk isolation. On a smaller scale, the smartphone seems to mediate our interaction with the world in multiple ways. Due to its small size, it is easily carried around and because of its connection with the internet, there is always a possibility that the user can be contacted, which leads to having to always available to the other users within the network, even strangers. In addition, because the smartphone has minimal interaction possibilities and does itself not interact with the physical environment, it creates a separation between the “real” environment and self and the virtual environment and self. Finally, as an information device, the smartphone reduces complex relations to symbols, such as follower count.

## 5.2 Suggestions for Future Work and Design

The children were enthusiastic during the workshops, and showed themselves willing to think about and discuss their experiences with the smartphone. Although it was easier for some to critically think of the behaviour of others (parents, siblings), then about their own behaviour, they took both the negative and positive aspects seriously. However, when asked if they were willing to give up the smartphone, most of them indicated that they would not. As mentioned above, this could probably be due to the structures surrounding the smartphone which makes breaking away from those structures difficult, even if the desire is there, which is not necessarily the case.

The Critical Design artifacts were a first step in challenging these structures and people's habits beyond the confines of the workshops, but their reach could still be expanded. In this project, they formed an exploration of the aspects of the smartphone as discussed by the participants of the workshop, and gave another starting point in analysing the network and influence of the smartphone, as done in the previous sections. However, as mentioned in Section 4.6, revisiting these concepts with the children would give insight in how well they think the concepts connect to their ideas and if they change their mind. In addition, as mentioned, some improvements on the Critical Design artifacts designed in this project could be made. The LifeBubble concept could be extended, for example by creating more LifeBubbles which react in real time to the movements and relations of the user. The Take Your Challenge concept was too convoluted, and could be reduced instead.

Using Critical Design artifacts seems a promising way to start discourse surrounding the smartphone in particular and maybe the influence of technology in general. Technology is a suitable topic because the design of technology is closely related to the design of Critical Design artifacts, and the artifacts are probably formed by some form of technology. However, as said in Section 2.3.2, Critical Design aims to question underlying cultural, political and social implications. It is thus not limited to the influence of technology or science. One of strength of Critical Design is that it creates a common starting point and experience around which a debate can be held, focusing the discussion and making it tangible. In addition to holding a specific debate session, other forms could be found to present the artifacts to an audience. For example, the artifacts could also be part of a longer exhibit, at a school or as part of a museum exhibition. As said, other topics than technology could then be broached.

In addition to Critical Design, in more standard future designs the combination of the disconnect from the physical environment and the always availability of the smartphone could be addressed, bridging the separation between the virtual and

the real environment. For example, the two concepts proposed of the ideation phase which were discarded, namely the interactive table and the InstaGlobe might form a first step in bridging this separation, as the tangible and virtual support each other. This is in line with work done and suggested by [13].

Furthermore, Critical Design thinking could be taught to children in general as part of the school curriculum. Critical, independent thinking is often cited as one of the skills which are taught at schools, and Critical Design could be used to help develop it. Critical thinking has become a stronger part of education [112], [113], and some are starting to develop frameworks for teaching design thinking as well, expecting it to have a positive influence on critical thinking skills as well as learning how to work in teams and create ideas [114], [115]. Similarly, Critical Design could be introduced, which could teach a specific mindset instead of an attitude towards one aspect of society in particular. As shown in response to the Take Your Challenge concept, some schools are open for new ways to teach their students.

In conclusion, Critical Design shows a promising method for stimulating critical thought and debate, and opens the design space, both for the user and for the designer.

### 5.3 Main Conclusion

At the moment of writing, the discourse surrounding the smartphone is still going strong, while the smartphone itself remains the same. From January 2019 until the end of March 2019, the smartphone has been mentioned on the Dutch public news site three times [116]–[118], the motto “digital detox” was part of a large tech conference in Texas in mid March 2019 [110], [111], and others anticipate on what 2019 will bring in terms of smartphone innovations [119]. Out of the five innovations which are mentioned in the last article, three deal with the actual physical design of the smartphone. However, two out of those three only discuss subtle variations: namely the addition of more cameras, and the size and form of the screen. The only innovation which seems to break more radically from the norm is the foldable smartphone. The screen of this smartphone is flexible, and can thus be folded. The only addition to the smartphone as it is now, however, is that the screen size can change.

This project was meant to examine why the smartphone as it is now has maintained such a strong position, having pervaded every layer of society and barely changing in design over the last ten years, despite the many discussions about its negative aspects. It was suggested that by approaching the role of the smartphone through an holistic, embodied perspective, a solution could be offered, instead of being caught up in either wanting to ban the smartphone altogether or in accepting the status quo. By focusing on and working together with the children who grow up with the smartphone, and thus who do not know any different, this project aimed to uncover the underlying structures and practices which govern smartphone use, as well as challenge those structures through Critical Design. Through actively involving the children in the design process, and by representing their views in design artifacts, it was hoped that they and others could be motivated to critically reflect on their own behaviours and practices.

The children were willing and enthusiastic when encouraged to think and reflect on their own smartphone use during the workshops, but indicated that they would not change their behaviour afterwards, despite having listed many negative aspects. As indicated by their discussions, the smartphone seems to have embedded itself in their behavioural practices by forming a network of relations which it is hard to break out of. The networks themselves and parts of the network are blackboxed, and thus normally invisible. The first step is becoming aware of the network of relations and how it influences the behaviour. In addition, because the smartphone has acquired many functionalities which were previously performed by some other actant in the network, just removing the smartphone is infeasible, because these other networks would have to be rebuilt. Finally, anyone who steps out of the network individually

risks being isolated.

The smartphone, through its physical design and as an information device, mediates the relation between the user and their environment in three ways. First, due to the smartphone's small size and due to its connection with the internet, the user is always available. He or she can always potentially be contacted. Second, due to the small screen, the limited interaction possibilities, and because the smartphone does not interact with the physical environment itself, the user is disconnected from the physical environment and physical self when using the smartphone. In combination with the previous point, this means that the user can always potentially be removed from their physical environment because of the smartphone's constant presence. Finally, the smartphone, as an information device, reduces meaning of the environment (both physical and virtual) by enforcing symbolic information which do not capture the complexity of relations.

The Critical Design artifacts were designed as a first try to break open these structures by making the implicit explicit. By having the artifacts then form the centre of the debates, the underlying structures can be experienced directly, which might ultimately lead to stronger insights and willingness to change beyond the critical reflection exercises. The artifacts provided a starting point for the debate, as well as the critical reflection on the findings of the workshops, and show to be a promising method for enticing users and designers alike to think beyond the current world.



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## **Appendix A**

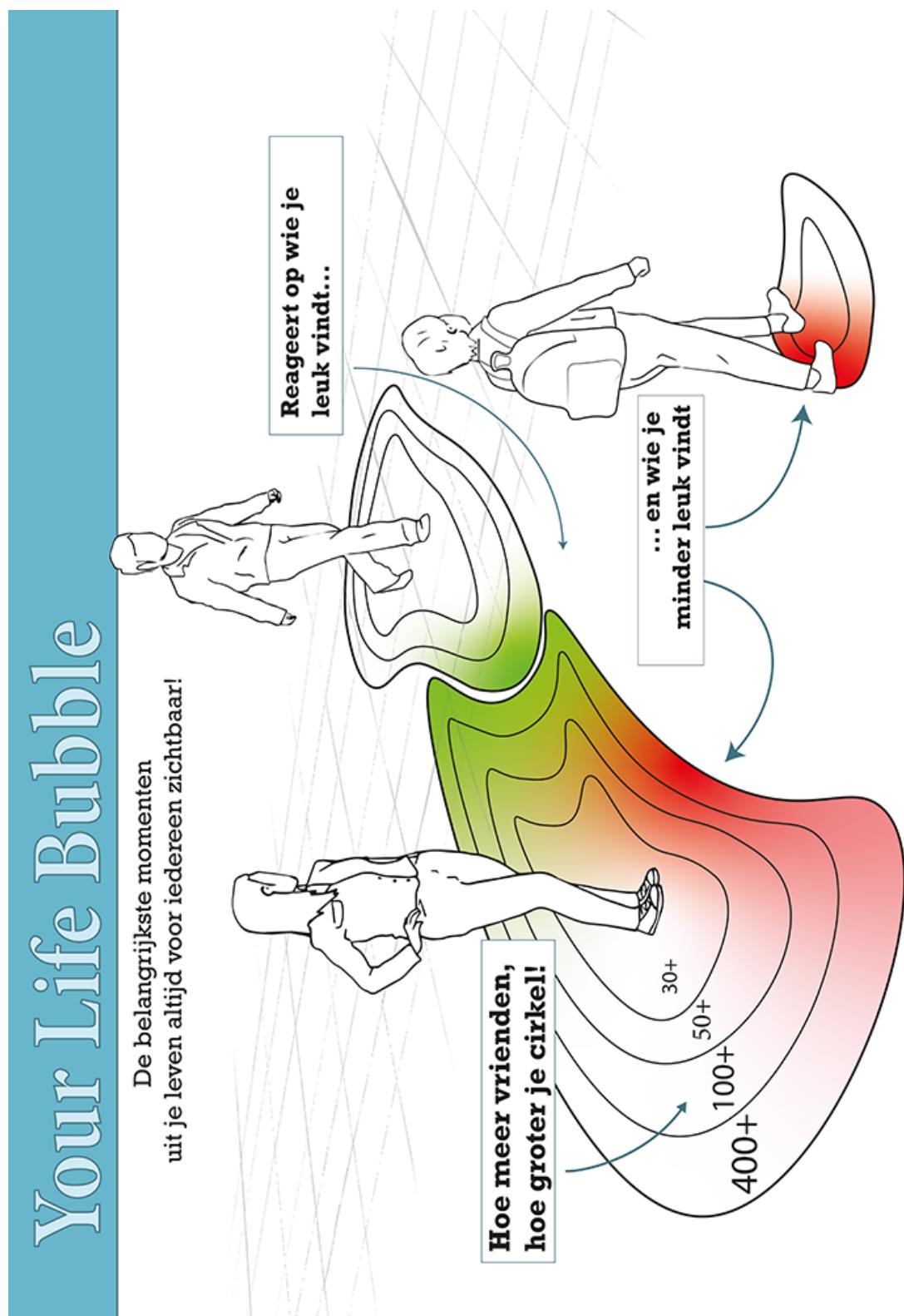
# **Additional material concepts and prototypes**

## **A.1 Take Your Challenge challenges**

Maak 3 nieuwe vrienden	Schud 2 nieuwe mensen de hand
Maak een foto van een lelijke docent	Plak kauwgom onder je stoel
Schrijf je nummer op de muur in de WC	Teken een Monet op de muur van school
Negeer iedereen voor een hele dag	Programmeer je eigen game
Maak het lievelingseten van je biologie leraar	Zoen met een docent
Maak een gênante foto van jezelf en plak die op de muur	Maak een gênante foto van een medeleerling en plak die op de muur
Doe een flashmob	Geef iemand een compliment
Noem iemand dik	Negeer iemand voor een hele dag
Spam de groepsapp vol met fotos	Doe een Fortnite dans op tafel
Post een video van het afschieten van een waterraket	Draag een gedicht voor aan de Marslander Opportunity
Stalk iemand voor een dag	Post een foto van een wild dier
Maak een perfect vierkant met de tafels in een lokaal	Leer twee woordjes van een medeleerling die tweetalig is
Film hoe je een mier dood maakt met een vergrootglas	Geef een medeleerling zelfgemaakte moonshine
Verkoop een waardeloos ding	Start een winkeltje
Zoen iemand van het andere geslacht	Scheld iemand uit in het Frans
Spreek een dag alleen maar Frans	Spreek een dag alleen maar Duits

**Table A.1:** Challenges of the Take Your Challenge concept

## A.2 Poster Your Life Bubble



**Figure A.1:** Poster of Your Life Bubble.

### A.3 Poster Take Your Challenge



Figure A.2: Poster of Take Your Challenge



## **Appendix B**

# **Informed Consent and Information Forms**

## **B.1 Introduction Letter**

Geachte meneer/mevrouw,

Deze brief dient om u te informeren over het onderzoek van de Universiteit Twente dat wordt uitgevoerd met leerlingen van de scholengroep Primato Hengelo, Nederland, en de data die daarbij verzameld wordt. Het project gaat over het gebruik van de smartphone en het ontwerpen van een alternatief, en er zal met de leerlingen zelf een prototype gebouwd worden.

Deelname aan dit onderzoek kan enkel als u daarvoor toestemming geeft. In de toegevoegde bijlage staat uitvoerig beschreven welke data er precies wordt verzameld, en hoe en tot welk doeleinde het wordt gebruikt. Lees dit alstublieft goed door.

**Als u akkoord gaat dat uw kind/kinderen aan het onderzoek meedoen, wilt u dan het bijgevoegde toestemmingsformulier invullen, ondertekenen, en aan de docent van uw kind geven?**

Voor meer informatie kunt u de informatiefolder lezen, of contact opnemen met de betrokken onderzoekers.

Dank voor uw medewerking!

Met vriendelijke groeten,  
Leonoor Ellen

**Onderzoekers Universiteit Twente/ Human Media Interaction**

Leonoor Ellen, Master Student      leonoor.ellen@live.nl  
Jelle van Dijk, Assistant Professor    j.van.dijk@utwente.nl

## B.2 Information Form

### INFORMATIE BROCHURE UNIVERSITEIT TWENTE

#### *Het project*

Dit project wordt uitgevoerd in het kader van mijn afstudeerscriptie voor de Master Human Media Interaction aan de Universiteit van Twente. Het onderwerp van mijn afstudeerscriptie is de smartphone, en welke dilemma's het gebruik van de smartphone met zich meebrengt.

De smartphone is een gewild en veel gebruikt apparaat, maar het brengt ook de nodige problemen met zich mee. Daarom doe ik onderzoek naar de dilemma's binnen het gebruik van de smartphone, en of er een ontwerp mogelijk is waardoor deze dilemma's opgelost worden. De gebruiker zelf is daarbij dus heel belangrijk, en voornamelijk de gebruikers die nog maar net een smartphone hebben, maar voor wie het wel een heel belangrijk onderdeel is van hun (sociale) leven: leerlingen van het eind van de basisschool en begin middelbare school. De leerlingen zullen zelf aan de slag gaan met het ontwerpen van een alternatief voor de smartphone die een van de dilemma's, die ze zelf zullen kiezen, oplost of versterkt.

Tijdens de workshops worden video en audio opnames gemaakt en later gebruikt voor andere doeleinden. Hieronder wordt beschreven wat er precies gebeurt met de data.

#### *Is het verplicht om mee te doen?*

Uw kind beslist vrijwillig om mee te doen aan het onderzoek op basis van overleg met hun mentor. Verder doet uw kind niet mee zonder toestemming van u als ouder of wettelijk vertegenwoordiger. U beslist zelf over deelname van uw kind aan het

onderzoek. Als u besluit niet mee te doen, hoeft u verder niets te doen. U hoeft niets te tekenen. U hoeft ook niet te zeggen waarom u niet wil dat uw kind meedoet.

#### *Wat gebeurt er tijdens de activiteiten?*

De leerlingen werken samen aan activiteiten die bedoeld zijn om hun creativiteit te stimuleren. Dit zijn bijvoorbeeld activiteiten waarin ze moeten discussiëren aan de hand van de thema's, of activiteiten waarin ze zelf een ontwerp moeten bedenken en maken. Dit gebeurt met standaard materiaal zoals papier en karton.

#### *Wie verzint en begeleidt de activiteiten?*

De activiteiten worden bedacht door de onderzoekers, maar zijn goedgekeurd door de betrokken docent en de schooldirectie. Ze vallen onder verantwoording van de docenten en de directie, omdat de activiteiten deel zijn van het lesprogramma van de school.

#### *Welke gegevens worden er verzameld?*

Er zullen video-opnames en foto's worden gemaakt van de kinderen tijdens de sessies. Ook zullen de leerlingen kort hun gemaakte werk moeten presenteren aan het einde van de activiteiten, wat ook wordt opgenomen. Waar mogelijk wordt alle persoonlijke data ganonimiseerd.

#### *Wie heeft toegang tot de data?*

Opnames staan tot beschikking van de hoofdonderzoeker (Leonoor TB Ellen) en haar twee begeleiders (Jelle van Dijk en Theo Huibers) en onderzoekers binnen de vakgroep Human Media Interaction aan de Universiteit van Twente. De data zal alleen worden gebruikt ten behoeve van verder onderzoek.

*Hoe worden de opnames gebruikt?*

Het materiaal kan worden gebruikt in tentoonstellingen of andere publieke evenementen (zoals bijvoorbeeld foto's van een groep leerlingen met hun ontworpen prototype), mits daar apart toestemming voor gegeven is. Wanneer er (gedeeltes van) de opnames worden gepubliceerd in wetenschappelijke tijdschriften zal altijd de identiteit van de personen onherkenbaar worden gemaakt.

*Hoe lang wordt de data bewaard?*

De data zal volgens het protocol van de vakgroep Human Media Interaction en conform de richtlijnen van de VNSU, ter mogelijke controle van of voortbouwing op het onderzoek minstens 5 jaar lang bewaard blijven. Dit gebeurt in een speciaal beveiligde omgeving.

*Kan je je toestemming ongedaan maken?*

De toestemming kan te alle tijde ingetrokken worden. Neem hiervoor contact op met Leonoor Ellen (voor email en telefoonnummer, zie de bijgevoegde brief). Het opgenomen video en audio materiaal zal dan worden verwijderd.

*Krijgen de ouders ook informatie over de resultaten?*

De universiteit zal de onderzoeksresultaten delen met de school. Daarnaast is het mogelijk om contact op te nemen met de onderzoekers en te vragen om de resultaten. Deze zullen we u dan opsturen. Wanneer er een activiteit op de school wordt georganiseerd, kunt u de aanwezige onderzoekers aanspreken met vragen.

*Meer informatie en onafhankelijk advies.*

Wilt u graag een onafhankelijk advies over meedoen aan dit onderzoek, of een klacht indienen? Dan kunt u terecht bij Anja

Strootman - Baas ([i.m.strootman-baas@utwente.nl](mailto:i.m.strootman-baas@utwente.nl)). De commissie bestaat uit onafhankelijke deskundigen van de universiteit en is beschikbaar voor vragen of klachten rondom het onderzoek.

Voor overige vragen kunt u terecht bij de docenten en de directie van de school of bij de onderzoekers van de universiteit.

## B.3 Informed Consent Form

Toestemmingsformulier Universiteit Twente

**Betreft:** Toestemming voor deelname aan het onderzoek "Het alternatief voor de smartphone"

*Als u toestemming geeft kunt u hieronder de gegevens invullen en ondertekenen.*

**Ik ben over dit onderzoek volledig geïnformeerd en geef toestemming dat mijn kind/kinderen hieraan mag/mogen deelnemen.**

- **Ik geef WEL toestemming voor het maken van video-opnames voor onderzoek en evaluatie. De video's worden enkel door de betrokken onderzoekers bekeken en zullen nooit publiek worden gemaakt of vertoond aan derden voor demonstratie of rapportage zonder dat daar opnieuw expliciet toestemming voor is gevraagd.**

Naam kind.....

(Eventuele 2<sup>e</sup> kind).....

(Eventuele 3<sup>e</sup> kind).....

Datum.....

Ouder/verzorger.....

Handtekening:  
.....

### Contact informatie

Mocht u vragen hebben over dit onderzoek dan kunt u contact opnemen met Leonoor Ellen (leonoor.ellen@live.nl). Voor meer informatie: zie de informatiefolder bij dit formulier.

## **Appendix C**

### **C.1 05 november 2018**

#### **Transcript:**

1	[00:00:03]	R: Nou, leuk dat jullie mee willen doen allemaal R: We gaan dus drie uur aan de slag.	31	*Instemming*
2		R: We beginnen aan de tafel, beetje discussieren, beetje overleggen, en dan hebben we pauze naar ongeveer anderhalf uur	32	P3: En ik speel er af en toe een spelletje op Anderen: Nou, heel af en toe?
3		R: En dan gaan we zelf aan de slag met kutselen en dingen maken	33	Gelach
4		R: [Naar R2] Ga je ook zitten?	34	R: En als jullie naar mensen om je heen kijken, spelen, hoeveel zitten die erop?
5		R: Het is niet een standaard les van dat ik voor de klas ga staan en jullie ga vertellen wat jullie moeten doen,	35	P5: Mijn broertje is echt een hel. hij is echt erg
6		Want we zijn juist erin geïnteresseerd wat jullie ons allemaal te vertellen hebben	36	P4: Mijn broertje zit denk ik, dan gaat het niet alleen over de smartphone, maar mijn broertje zit denk ik wel tien uur per week op de playstation
7		R: Dus het gaat over het gebruik van de smartphone. dus iedereen behalve iedereen heeft een smartphone	37	P3: Mijn broertje op de iPad
8		P1: Nee ik ook niet	38	R: En dan op de playstation...
9		R: Twee zelfs	39	*Door elkaar*
10		ONDUIDELIJK	40	P5: Playstation, Ipad, Computer, Telefoon, Alles
11		P2: Ik heb er wel een maar ik gebruik hem niet heel erg	41	*Door elkaar*
12		R: Want hoe zit het inderdaad, er zijn er twee die hem niet hebben, de rest heeft er wel een. Gebruiken jullie hem veel?	42	P5: Alles wat met een scherm te maken heeft en waar je Fortnite op kan spelen
13		*Gelach* P3 Ja	43	Gelach
14		R: Hoeveel is heel veel?	44	P4: JA!
15	[00:01:02]	P2: Wat is eigenlijk heel veel?	45	R: Dat hoorde we in de andere klas ook al, dat Fortnite echt tijd oplost
16		R: Ja precies, is dat dan een uur per dag?	46	[00:02:04]
17		P4: Ja ikke ongeveer een uur	47	R: Is er dan nog wel tijd voor je huiswerk als je alleen maar Fortnite speelt?
18		P5: Maar ik gebruik hem dan, zeg maar, iedere keer ongeveer vijf minuutjes	48	P4: Ja... Ik speel het niet heel veel meer
19		en dan lijkt het net alsof je niet zo heel veel hem gebruikt	49	P?: Ik speel het niet eens
20		maar als je zeg maar dan alles bij elkaar op telt dan denk je toch van...	50	P2: Ik heb het nog nooit gespeeld
21		R: Oh dat is best veel	51	R: Nee het is voornamelijk voor jongens
22		*Gelach*	52	P3: Ik heb eventjes gespeeld
23		P4: Maar ik app er alleen mee	53	P7: Ik was best wel goed
24		P2: Ja ik ook vooral	54	P2: Maar ik gebruik hem ook niet zo vaak, alleen als ik veel appjes heb dan wil ik ze ook wel even beantwoorden
25			55	P2: maar soms heb ik er ook helemaal geen
26			56	P4: .... alleen in de groepsapp
27			57	P?: Daar wordt ook wel heel veel in geappd
28			58	P3: Nah, ik ben eruit gestapt
29			59	Gelach
30			60	P4: Ik gebruik het ook omdat ik gescheiden ouders heb...

	Tussendoor: P6: ik had honderd en twintig meldingen		voor heb gespaard
61	P5: Dat is echt erg!		Ik heb ook zelf de helft hiervan meebetaald
	R: En hoe zit het op school? Jullie zitten allemaal op een andere basisschool toch? Hoe zijn de regels daar?	106	P5: Afstand. Op weg naar school en...
	Mag je hem wel of niet gebruiken?		R: Dus dan is het voornamelijk om het bellen.
	P4: Soms wel, als we het nodig hebben...		Iedereen: Ja
66	P8: ?, Rekenmachine		P5: Ja, vooral zeg maar voor hun, als je ergens heen gaat dat ze denken van oke, als er iets is dan kun je me bellen
	P4: Soms, bij sommige opdrachten mogen we het wel gebruiken, dan staat er ook op het bord je mag hem meenemen want je hebt het nodig		P4: neem je telefoon mee, als er iets gebeurd, bellen!
	Voor foto's ofzo, maar eigenlijk moeten we hem in een bakje inleveren	111	[00:05:00]
	[00:03:13]		R: Maar eerlijk, hoeveel bellen jullie ermee?
	P5: Alleen, zeg maar, er zijn wel regels over hoe je hem moet gebruiken, want kinderen komen dan bij de leraar wat je er mee moet doen bijvoorbeeld als er ruzie is ofzo		P?: niet veel
71	P5: Alleen, er was laatst ook iemand en die ging heel veel foto's sturen...	116	P8: Ik bel eigenlijk nooit
	Gelach		P4: Nooit
	P5: En toen was het echt heel stom want toen had iedereen het in zn gallerij en toen moesten we naar de meester toe		P5: Ik bel alleen met mn oma want die weet niet hoe whatsapp werkt
	P5: Toen zijn er wel regels voor gemaakt		Gelach
	R: Over de groepsapp gaat het nu?		P8: Mijn oma kan eindelijk appen!
76	P5: ja	121	P5: Een van mijn oma's kan appen maar dan duurt het 50 minuten voordat je een berichtje hebt
	P3: Kon je die foto's gewoon niet opslaan of..?		P2: En dat zie je aan 'aan het typen', 'online', 'aan het typen'
	P6: Het waren wel 42 foto's		Gelach
	Roemoer		P5: Jaaa dat is echt vreselijk
	P6: Allemaal van zichzelf		P8: Ik heb hem van mijn opa, dan heeft hij een nieuwe gekocht en dan krijg ik een oude
81	R: Allemaal van zichzelf		P8: Daarom is ie ook zwart, ik had liever een witte gehad
	P5 En ook direct alleen maar de zelfde foto dus je hebt echt je hele galerij vol met alleen maar dezelfde foto	126	R: Daarom heb je er een hoesje omheen
	R: En jullie hebben allebei geen smartphone, missen jullie het...?		P8: Ja...
	P7: Nee		R: Dus heel veel tweedehands smartphonesfoons?
	R: Of is het zo van, we vinden het wel lekker zonder...?		Sommige ja, sommige nee
86	P1: Nee, maar ik heb wel een iPad	131	P3: Deze is van mn neef geweest
	[00:04:00]		P4: Ik heb hem nieuw, net nieuw
	P2: Ik niet...		P3: Ik heb, ik kreeg er ook een maar die ging naar anderhalve maand al kapot
	R: Zit je dan veel op de iPad?		p3: En toen vond mijn andere neef dat zielig dus die gaf mij deze
	P1: Ja...		R: en zo gaat het de hele familie door
91	P1: Er is zon app daarop en elke week krijg ik dan een rapport van hoeveel ik erop heb gezeten en per week zit ik ongeveer 14 uur erop	136	[00:06:01]
	R: 14 uur, dat is wel veel		P5: Ik had hem ook tweede hands gekregen, maar ik heb er zelf aan meebetaald
	R: Dat is wel ongeveer twee uur per dag		P4: Ja, dat heb ik ook gedaan, anders hadden ze me geen nieuwe telefoon gegeven
	R2: En waarom hebben jullie geen smartphone?		P5: Huawei die zijn niet zo heel duur
96	P7: Ehm, ik vind het nog niet per se nodig		p2: ?? goedkoop ?? daar ga ik niet heen
	P1: ja ik ook		p2: daar kan ik maar een paar appjes op hebben
	R2: Goede reden	141	p4: Die van de meester is verschrikkelijk, die heeft er maar een app op staan
	P1: Ik heb t ook op mn iPad		p4: whatsapp, spotify en een spelletje, dat is het
	R: En waarom hebben jullie allemaal wel een smartphone?		p5: en het loopt nu al vast
101	P4: Ehm gescheiden ouders en omdat ik er ook zelf		R: nou ehm, leuk allemaal, we gaan nu een soort van opdrachtje doen
			P5: mag ik iets vragen?
			R: Ja natuurlijk
			P5: gebruiken jullie zelf je smartphone veel dan?
			R: Ja ik gebruik hem zelf het meeste om te appen met mensen, en het is heel handig als je dan

	inderdaad moet afspreken van, hee waar ben je, ik ben hier, oke, tot zo. Maar wat jij (p5) zei, heel eventjes, af en toe eventjes kijken, af en toe eventjes het nieuws,	moeilijker maakt, daar gaat ons onderzoek over Want wij willen onderzoeken van, wat is het aan de smartphone dat het zoveel hele goede dingen heeft wat je ermee kan doen maar dat het ook verslavend is, dat je er constant op zit. [00:08:58]
146	of op social media, en dan bij elkaar is het allemaal best wel veel [00:07:06]	We willen de negatieve kanten verhelpen, daar gaat het over Uitleg over vel Om jullie te laten nadenken over hoe lang zit ik er eigenlijk op en wat doe ik ermee in tweetallen, elkaar interviewen Dag van de ander invullen P5: Doe het niet bij mij, dan moet je heel veel opschrijven
151	P4: Maar je hebt ook schermtijd he R: Ja, ik heb het nog niet aangezet, dat durf ik niet R2: Dat durf ik ook niet zo goed p1: Wat is dat dan?	START OPDRACHT
156	R2: Dan kun je zien hoe veel je scherm aan staat P1: Dat heb ik dus P5: Dat ga ik, dat ga ik niet aanzetten p4: Dat ga ik lekker niet aan zetten p6: ?? iets met twaalf uur ?? p5: twaalf uur op de... laat me raden, fortnight en whatsapp p6: nee op mijn telefoon alleen, youtube en twitch p3: twitch streamer! R: ja met youtube gaat het snel ook meteen R: en dan heb ik ook nog mn eigen laptop waar ik eigenlijk meer op zit P5: Maar grotendeels op je laptop, doe je er niet echt wat, ik doe er meer presentaties op R: Nee ik gebruik hem wel.. [00:08:00]	[10:18:00] Einde opname
161	p8: Op school hebben we ook een laptop en dan zit je er wel heel veel op p6: Ja mn chromebooks p3:?? R: Ik heb zelfs, dat ik dan achter mn laptop zit en dan denk, ik ga wat anders doen, en dan pak ik mn smartphone erbij en dan ga ik eigenlijk hetzelfde doen alleen dan op mijn smartphone Gelach R: wat natuurlijk nergens op slaat P8: Maar als je aan het leren bent dan wil je toch even muziek opdoen R: ja daarvoor gebruik ik mn laptop P8: En dan na een liedje wil je een ander liedje opzetten, en dan zit je toch elke keer p5: Eigenlijk is het nu zo dat je bijna alles van je telefoon nodig hebt	[00:00:00] Discussie Jullie hebben allemaal dingen opgeschreven, we gaan de tafel weer rond, zeg dingen die de ander nog niet heeft gezegd
166	p5: maar vroeger was het allemaal van, oh nee, dan schrijf ik het op p5: maar nu zet je het in je telefoon p8: Even opslaan R: een soort van combinatie van allemaal verschillende dingen R: allemaal in een klein boxje p5: Het lijkt alleen maar makkelijker maar het maakt je leven eigenlijk alleen maar moeilijker p5: want je moet dat nog doen, en dat nog doen, R: En precies dat, dat het je leven alleen maar	We beginnen bij positief Dus wie heeft wat positiefs p8: Je kan dingen opzoeken, ? met google maps enzo, dan heb je geen dingen nodig ofzo, geen woordenboeken om te vertalen, of een kaart R: Oke, je kan dingen opzoeken, heeft iemand nog wat anders? p4: Hacken p4: je kan bijvoorbeeld, als je informatie ofzo nodig heeft... kan je bijvoorbeeld een computer ofzo haken p4: Ja, het is een beetje flauw.
171		[00:03:05] R: maar je hebt hacken bij positief gezet, is iedereen het daarmee eens? Meeste: NEE
176	p4: We hebben hem ook bij negatief p3: Maar je kan ook hacken op een andere manier. p5: Je kan ook bij de politie... R: Niet tegelijk, eerst jij (p3) p3: Je kan ook hacken op een andere manier doen, zeg maar dan installeer je zeg maar een soort van mod p3: op iets, en dan heb je allemaal leipe shit en zo R2: Voor in games enzo P3: Ja P1: Maar dat is geen hacken R: Oke, jullie hadden Hacken bij positief ook...? P4: Wij hadden hem ook bij negatief!	

## Transcript:

P1: Omdat je het... Ik heb dit niet opgeschreven!	p6: wat is er negatief aan wifi?
p6: Nee ik had het opgeschreven	[00:06:01]
p6: Dan kan, je info over andere vinden als je dat nodig hebt bijvoorbeeld	p4: Als je geen wifi hebt, dan kan je niet.. facebooken
28 p5: Je hebt ook vaak met de politie die gebruikt ook dat soort systemen om bijvoorbeeld vingerafdrukken te scannen	p5: maar dat heeft niets te maken met de smartphone
Instemming [00:04:02]	p5: Wifi is iets anders dan een smartphone
R: Maar ik hoorde ook hier iemand heel hard nee zeggen, dat ze hacken helemaal niet positief vinden	R: Jij (p3) wou nog wat zeggen?
P4: We hebben het ook bij negatief!	P3: Het is maar een klein ding, dus het kan ik je broekzak
33 R: Dus wat vinden jullie er niet positief aan?	R: ja dat is echt een hele goede
P2: Nou dat je zomaar op andere kunt inbreken op je computer	R: heel veel mensen hebben ipads en die kun je dan niet...
p8: Dat is op school wel eens gedaan, dan ga je gewoon,	p4: Nou, ik heb best een behoorlijke die kan niet zomaar in mn broekzak
De eerste paar dagen had iemand het wachtwoord van iedereen en toen gingen ze op andermans account de achtergronden helemaal raar doen	p2: Telefoons worden ook steeds groter dus waarschijnlijk ipad ?? grote telefoon
p7: Ze hadden bij * My Little Pony op de achtergrond gezet	R: Alleen je kan er niet mee bellen
38 Gelach	p2: Misschien wel later
En jullie hadden ook nog bij negatief?	p1: Er komt binnen kort een nieuwe... Ik weet niet precies welke telefoon maar die kun je inklappen
P5: Ja.	p1: Dus hij heeft een speciaal buigend scherm dus dan heb je gewoon een telefoon maar als je hem openklapt heb je een soort ipad
R: Wat hadden jullie bij negatief opgeschreven?	p1: en dan kan je hem ook nog een keer, dat hij in je zak past
p4: Ehm, dat het ook wel gevaarlijk kan zijn.	R: dus dan gaan we eigenlijk weer terug naar de oude klap telefoon, die je zeg maar zo, je flip telefoon
43 p5: Je kan zeg maar iemand zwart maken	p3: Tetris erop spelen, geweldig
R: Ja.	p4: Oh ja tetris
R: Ja iedereen weet waar je bent ook	[00:07:09]
R: met de smartphone	p3: tut tu tutu
P3: Alleen met locatie...	R: hadden jullie nog meer positieve of zullen we naar de negatieve?
48 P5: Alleen als je je locatie aanzet.	p3: Jaa negatief
[00:05:01]	R: oh jij... Negatief. Je mag wel beginnen met de negatieve.
R: Nou, ook wel zonder. Zodra je op internet zit, dan weten ze waar je bent	p1: Ehm, het kan verslavend zijn.
p4: Maar ik heb dat nooit..	p5: Je moet heel veel informatie geven.
p3: Maar alleen google weet dat.	p5: en dat is negatief omdat je eh als mensen jou hacken dan kunnen ze zien wat er gebeurt
53 R: Nou alleen google, gelukkig, alleen google maar	R: ja en niet alleen maar als ze je hacken want je geeft het soms vrijwillig je informatie
p4: En bij het bedrijf google werken niet duizenden mensen ofzo	R2: je hebt weinig privacy
p4. Neee	p5: en ook zeg maar de, ze schrijven altijd een hele lange privacy beleid
R: Oke, de volgende had iemand nog een ander positief punt?	R2: en niemand gaat dat lezen toch?
R: Ja?	p3: hoe ze jou volgen
58 p1: Eh, je kan praten met elkaar ook in andere landen	p5: en dan denk je dat lees ik wel even door maar dan honderd bladzijdes later ben je nog niet klaar
R: Afstand communicatie, ja.	p5: en dan denk je ik scroll wel door maar dan staat het belangrijkste zeg maar onderin
P4: Internet	[00:08:02]
R: Het Internet	R: ja.
p4: Opzoeken...	R: Dus wie van jullie heeft dat briefje wat ik aan jullie ouders heb gegeven, hebben jullie
63 R2: Maar zijn er nog andere dingen, want opzoeken hadden we net ookal gehoord	
R2: wat is er nog meer positief aan het internet?	
P4: ehm, je kan... eh	
p5: Eigenlijk kan alles met het internet	
p4: Daarom. Ik heb nog een negatief ding.	
68 p4: Stomme wifi.	

	dat zelf ook bekijken?		p4: Nee dat, bij ons niet.
	Instemming		p5: Nou er is wel een meisje bij ons in de klas die denkt niet echt na over wat ze typt zeg maar
	p6: Ik heb het een beetje last minute doorgelezen met mijn moeder		p6: Ja die typt dan soms bij die foto's... (p2: of dan staat de capslock nog aan)
108	R: Nou goed dat jullie daar dan ook je bewust van zijn, want het is natuurlijk eh...	143	p5: jullie, met het kinderfeestje van Jonne, waren jullie Jonne aan het pranen
	p4: Het privacy beleid		p6: Ja dat was wel grappig.
	R: het heeft met privacy te maken ja. Er zijn heel veel regels voor binnen de universiteit wat je wel en niet mag noteren		p5: alleen, en jonnie die zat echt lachend op de bank en die was echt scheldwoorden aan het typen
	R: van de mensen die meedoen aan je onderzoek		p5: en toen dacht ik wow hoe kan je daar zo blij bij kijken
	R: nog meer negatieve?		p6: Ja wij waren gewoon een grapje aan het uithalen want ik ging met twee andere uit mijn klas logeren
113	p8: Hij is duur	148	p6: maar toen wisten wij niet, we gingen toen pranen, en wij wisten niet dat daar een dik kinderfeestje was
	R: hij is duur ja		[00:11:09]
	P5: ja maar, eigenlijk kost het meer geld dan wat je ermee doet want als je ook heel veel, als je data wilt enzo		p5: en iedereen stond daarbij en allemaal op de bank en toen keek ik zo en toen dacht ik van ja oke
	p5: dan kost dat allemaal weer geld. Eigenlijk kom je duurder uit dan dat je hem koopt		p6: En toen zat zij ook allemaal scheldwoorden te typen over de telefoon enzo
	R: het is niet alleen maar de prijs van het ding zelf		p4: enne, heeft ze vianna... mag ik dat zeggen?
118	p5: maar ook wat je er nog bij moet... [00:09:00]		p5: Ja dat mag je wel zeggen.
	R: met spotify enzo		p4: en tussen vianne en jonnie was een keer, toen ging jonnie allemaal middelvingers sturen en scheldwoorden sturen
	p5: Heel veel spelletjes enzo is ook allemaal geld...	153	p4: en dat was niet zo heel erg leuk
	p4: Je kan het eigenlijk net zo goed vergelijken met een paard of pony houden. Met de stallings, de hoefsmits, de dierenarts, alles.		p5: en dreigen enzo
123	p6: een paard is wel heel duur hoor		p4: en toen was ik daar dus bij en Rom waren ook aan het logeren, nou ze waren aan het spelen
	p5: of een schildpad		p4: en toen hadden we die dus gebeld met wat moeten we doen nou en toen hebben ze gewoon gezegd om het te negeren
	p4: Ja oke, maar het is wel van je koopt iets, en de pony zelf is toch helemaal niet zo heel duur, maar al die onderhoud en alles	158	[00:12:03]
	p4: en dan heb je ook nog de telefoon		p5: maar toen zag ik haar zo op de bank zitten en toen dacht ik oke heeft ze ook zo vrolijk gedaan toen ze mij uitschold enzo
	p5: de onderhoud is in de maand nog duurder dan de pony zelf		p2: Daantje waarom belde jij mij gisteren eigenlijk?
128	p1: ja ponies zijn heel duur		p4: Ja dat ging per ongeluk. Ik had je naam er niet op gezet en toen wou ik dat veranderen en toen drukte ik per ongeluk op bellen
	p4: dat is met een telefoon ook		p2: Ah. Via whatsapp werkt sowieso bij mij niet
	R: jij wilde ook nog wat zeggen? (p7)		p4: het was niet eens via whatsapp
	p7: Ja hij is klein		p2: jawel
	p7: soms dan zit je echt zo van... nee andere knop		p4: echt? oh
133	R: ja inderdaad het voordeel daarvan is dat je hem mee kan nemen, en hem makkelijk in je broekzak kan stoppen,	163	[00:12:26]
	R: maar het nadeel is dat je de hele tijd met zon schermpje bezig bent		R2: het is wel zo dat als je achter een schermpje zit dat het dan veel makkelijk is om...
	p8: Als het vanzelf goed gaat, als je bijvoorbeeld luke hebt opgeschreven gaat het automatisch naar noek?		p5: iets verkeerd te doen of zeggen
	R: ja autocorrectie	168	R2: ja precies
	[00:10:06]		R2: of mensen uit te schelden
138	p4: Je hebt ook nog cyberpesten		p5: Maar je weet ook niet wanneer iets een grapje is of, in het echt zeg je nog wel eens af en
	R: merken jullie dat, bijvoorbeeld op social, of in de groepsapp van jullie, daar zijn, de meester is daar bijvoorbeeld heel		
	R: scherp op wat daar precies gebeurt, maar zijn er groepjes waar je dan niet in mag, of dat je mensen buiten sluit, hebben jullie dat idee?	173	

	toe is van ik vind je kut		van mij
p5:	Maar, zeg maar, zeg maar, dan bedoel je het niet serieus, maar op het schermpje weet je niet van, bedoel je het nou serieus of denk je van ja...	198	R: ja uiteindelijk zijn jullie ouders daar verantwoordelijk voor
R2:	Moeilijker om mensen te lezen wat ze nou echt precies bedoelen		p2: En hij heeft het wel goedgekeurd
[00:12:59]			p3: Ik heb volgens mij gewoon mn moeders leeftijd ingevuld
178 p2:	Je kan ook dat je het zegt maar dat ie dat je wat zegt en dat je wat typt en dan krijg je alsnog letters	203	R: Dus je bent nu wat, drie en vijftig?
p2:	Maar als je dan scheldwoorden zegt dan maakt ie de eerste letter maakt ie dan zelf een sterretje van		p3: Maar dan vergeet ik het nooit meer!
p2:	Dus als je scheldwoorden wilt typen dan moet je het ook echt typen en niet zeggen wat ie dan typt	208	p1: Ik doe altijd gewoon tweeduizen invullen ipv 2007
p1:	ik ben alleen maar ?		p?: ik altijd 1950
p3:	ik bijna nooit		p? Wat waarom?
183 p5:	vera was echt heel irritant toen ging ze zeg maar alleen maar emoties sturen		p5: ik scroll altijd en dan ben ik oh op deze telefoon ben ik tweehonderd
anderen:	stickers		p1: er was een app en toen moest ik mijn leeftijd invullen
R:	eigen vriendin van mij die stuurt alleen maar hartjes. Achter elke zin is wel weer een hartje		p1: en toen ging ik scrollen kijken tot hoe oud dat ging en dat ging gewoon tot honderd drie en twintig
R:	en dan heb je een heel rood scherm van alleen maar hartjes	213	p2: Zo oud is toch geen mens
R:	Dat je denkt van wow, zoveel liefde maar, het mag wel iets minder.		R: misschien wil die ook wel appen!
188 R:	Dus ja, er zijn ook heel veel regels waar je je stiekem aan houdt tijdens het appen, inderdaad van om het duidelijk te maken van		[00:15:00]
R:	wat precies de boodschap is.		p5: een keer bij een app had ik helemaal naar beneden gescrolled naar vijftien negen en zestig ofzo
p5:	Maar eigenlijk houden we ons ook niet aan de wet	218	p5: en toen zei die nog steeds je bent te jong voor deze app
p5:	Want eigenlijk mag je pas appen als je zestien bent		p3: Ja je bent vierhonderd, meer dan vijfhonderd jaar oud...
R:	ja		R: je eigen telefoon weet gewoon al hoe oud je bent
[00:14:00]			p5: ja maar dat stel je ook zelf in
p3:	Ik gebruikte hem allang voordat ik zestien was		p5: dus waarom moet je het dan nog een keer invullen
p4:	Ja ik ook		p4: ik doe gewoon bij sommige apps dan moet je zestien of ouder zijn en dan zeg ik aan mijn moeder, vind je dat goed
p2:	Ik heb mama's telefoon en papa's symkaart en papa heeft het goedgekeurd	223	p4: en dan vul ik gewoon een random leeftijd in. Ik ga bijna nooit mijn echte leeftijd invullen
p2:	dus hij is nog steeds van papa, hij is niet		p1: Bij instellen had ik al direct 2000 gedaan.
			p6: Op je Ipad.
			p1: Ja.
			PAUZE

## C.2 09 november 2018

### Transcript:

UITLEG OVER HOE EN WAT, een meisje komt later binnenvanuit de kamer	[00:05:05]
2 [00:02:20]	p1: een maand ofzo
R: We waren net even een voorstel rondje aan het doen dus je bent precies op tijd binnen	p2: hij is echt net nieuw
P1: Hi ik ben **	p6: hij is echt net uit
p1: ja...	p3: Jesus. Oh sorry, fucking hell
R: zijn jullie tweede klas?	R2: Ik ben *** en ik heb een samsung A3 volgens mij en ik heb hem sinds dit voorjaar
7 Instemming	R: maar hoe lang heb je al een telefoon?
p3: Moet je ook zeg maar vertellen wat je doet aan hobbies of	R2: Smartphone?
R: nee dat niet misschien wel, jullie hebben een smartphone neem ik aan	R: Smartphone ja
p3: Oh ja	R: smartphone denk ik vier of vijf jaar
Instemming	P6: met die nokia waren altijd zo leuk
12 R: Misschien even kort van, welke je hebt en hoe lang je hem hebt?	R: Ik heb wel zon flipphone gehad
R: Of in ieder geval hoe lang je hem al hebt, welke maakt eigenlijk niet zoveel uit	p6: Ja dat had ik ook, in groep 4 had ik zon flipfoon en dan kon je daarmee pong op spelen enzo
p1: ik ben ** ik heb een iphone zes, ik heb hem iets van 2? maanden	R: Snake
[00:03:02]	p1: Snake!
p2: ik ben **, ik heb een huawei p4 volgens mij heb ik hem drie maanden	p1: De telefoon van mijn moeder was een hele kleine zilveren LG, en daar zat zon spel op
17 R: maar hoelang heb je al een smartphone?	p1: en je moest een bootje ??
p2: ehm dat weet ik eigenlijk helemaal niet.	p1: dat spel speelde ik elke dag, ik was daar echt verslaafd aan. Het was echt leuk
p2: ooit heb ik hem een keertje gekregen	[00:06:00]
p1: sinds groep acht heb ik hem	p2: mijn vader had ook de allereerste telefoon, die was echt zó groot, echt zon koelkast gelach
p2: volgens mij dan sinds groep zeven	R: ja mijn vader heeft wel eens verteld dat hij voor het eerst via z'n werk een mobiele telefoon had
22 INTERRUPTE VAN DOCENT DIE BINNENKOMT	R: en dat hij voor het huis stond en dan mijn moeder belde en dan ze vroeg, waar ben je dan, ja voor het huis
D: ze weten wat ze moeten doen of?	R: en dat zij zo iets had van, nee, dat kan niet, onmogelijk
R: ja we zijn net met een voorstel rondje bezig dus we gaan zo aan de slag	R: Oke, dus wat doen jullie allemaal op je telefoon
p3: Mag ik mag ik?	p3: veel bezig zijn met social media
[00:03:58]	R: Instagram en snapchat en dergelijke
27 p3: Ik ben ***, en ik heb volgens mij een samsung s5. En ik weet niet hoe lang ik hem heb, maar ik was tien ofzo	p1: netflix enzovo
R: ja, lang genoeg	p2: ? magister
p4: ik ben *** en ik heb een samsung A... eh... 5	p1/p6: ja magister
ehm weet ik niet meer	p6: op school youtube
p4: en ik heb hem al sinds eind groep 8	p6: ik heb laatst gekeken gister, ik heb 45 uur op youtube gezeten
p5: ik ben ***, ik heb een microsoft telefoon, skyr ding? en ik heb hem denk ik nu 3 jaar heb ik hem	p1: Jesus!
32 p6: Ik heb twee telefoons, een bij mijn vader en een bij mn moeder	p6: deze maand
p5: rich boy	R: deze week, deze dag
p6: want ze zijn gescheiden	p5: Ik doe eigenlijk alleen maar whatsapp
p6: eentje is nu een iphone s1... en ik heb hem nu tweeen een half drie maanden denk ik	p5: de rest doe ik eigenlijk alleen maar op mijn laptop
p1: twintig jaar!	R2: Bellen jullie ook met je telefoon?
37 gelach	[00:07:01]
p6: 5 maanden. En mijn iphone xr heb ik nu een maand, twee maanden?	Instemming
	p5: Alleen is binnen drie dagen mn beltegoed op
	p1: Niet, omdat mijn beltegoed op is

p2: ik gebruik ook wel eens quizlab 82 p2: nou dat is echt handig! R: wat is quizlab? p2: Nou dan kan je allemaal woordjes invullen voor frans en dan kan je overhoren p6: Dat kan wrrts ook BEGIN UITLEG OPDRACHT	39	p6: je kan vrienden maken via de playstations app [00:04:48] [00:04:50] R: oke dat was positief dat was heel goed, dus we gaan eerst nog even de positieve aanvullen, dan gaan we zo naar negatief [00:04:58]
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44

## Transcript:

[00:03:42] Begin discussie met de jongens [00:03:45]		p3: over de hele wereld ik heb nu vrienden in frankrijk, london, america, australie, enzo, heb ik allemaal vrienden [00:05:06]
4 p5: nou magister is handig, dat kan je op je mobiel doen zodat je kan zien...	43	p3: je kunt er games op spelen, en bellen ingeval van nood, zeg maar
p6: of er geen uitval is het eerste uur zoals machiel al zei dat je gewoon het eerste vier uur vrij hebt		p3: en als je je verveeld dan kan je altijd in gesprek met mensen [00:05:15]
p6: en gewoon denkt van, ik heb nu echt een kut leven		p4: moeten we nu ook de negatieve zeggen of gaan we die zo doen?
[00:03:56]		R: nee die doen we zo [00:05:27]
p3: hadden jullie het eerste uur uitval?		p2: ehm wij hebben dat je altijd blijf je in contact, dus als je zeg maar, bijvoorbeeld een vriendin hebt...
9 p5/p6: nee, maar [00:04:02]		p6: die hebben wij ook gezegd
p5: maar stel je voor dat je moet tien kilometer fietsen, en je hebt alleen maar een briefje waar je rooster op staat	54	p2: Nee!
p5: en je ziet gewoon dat je de eerste vier uur vrij hebt		[00:05:39]
[00:04:10]		p5: jullie zijn echt nakkers [00:05:40]
14 p3: maar niemand gaat de eerste twee uur fietsen voor school [00:04:11]	55	p2: je hebt bijvoorbeeld een vriendin uit groep 8, en dan ga je naar een andere school en dan kun je contact houden [00:05:43]
p6: eh jawel		p2: ehm je hoeft geen brieven meer te versturen, want je kan nu gewoon appen en bellen [00:05:51]
p5: ehheee		R: ik had laatst dat ik een brief wilde versturen en toen dacht ik heb helemaal geen enveloppen in huis [00:05:53]
[00:04:15]		p2: je hebt heel veel diversiteit aan spelletjes waardoor je dus meer plezier hebt
19 P6: mijn hoofd ? moet twee uur naar school fietsen [00:04:18]		p2: je hebt ook hoesjes waarmee je bijvoorbeeld je eigen telefoon kunt maken [00:06:03]
p2: twee uur?!		p2: en het is ook voor de stevigheid [00:06:05]
p4: waarom gaat die niet gewoon met de trein?	64	p2: je kan een betaalverzoek kan je doen
[00:04:20]		p2: bijvoorbeeld via tikkie en dan heb je makkelijk geld overmaken enzo
24 p6: omdat het gewoon zo afgelegen ligt dat het		p2: en je hebt hem altijd bij je, je bent altijd bereikbaar
p3: hij is gewoon zo actief		p2: je hebt een agenda dus je hoeft niet meer wat te schrijven in je agenda
[00:04:24]		
p4: ik zou dat gewoon niet doen ik zou dan gewoon naar een andere school gaan		
p4: of is er geen school in de buurt?		
29 [00:04:28]		
p6: jawel er is wel een school in de buurt maar die zit helemaal vol altijd	65	
[00:04:31]		
p5: Je kan ook nog youtube, tijdvermaak		
[00:04:35]		
34 p5: je bent makkelijker bereikbaar, als je je telefoon bij je hebt kunnen mensen je bellen	74	
[00:04:41]		
p5: je kan hem makkelijk meenemen want het is klein		
[00:04:43]		

	[00:06:19] p2: ja je kan vanaf je telefoon in je agenda [00:06:24]	[00:08:12] p6: en toen daarna ging ik op internet gewoon YT opzoeken en echt tien jaar duurde het om een filmpje in te laden
79	p2: en het is gewoon vermakelijk, want als je een telefoon hebt dan verveel je je bijna nooit [00:06:27] p6: ik vul altijd gewoon random nummers in en dan een betaalverzoek van 20 euro [00:06:33] p5: is dat ooit echt gelukt?	p6: en dan ging ik gewoon tot vier, vijf uur snachts youtube filmpjes kijken p6: en mijn moeder kwam er dan aan, uitklikken, achter mijn bed neerzetten, en gewoon slapen, net doen alsof ik in slaap ben
84	p6: twee keer! [00:06:36] p6: twee keer heb ik twintig euro gekregen van een guy die ik nooit terug heb betaald [00:06:40] p4: maar dan weet hij jouw telefoon nummer toch ook meteen?	p6: en dan sliep je moeder en dan paktje je hem er weer bij [00:08:30] p5: ik heb... p4: deze ipad heeft niet eens een selfiestand
89	[00:06:42] p6: wat zeg je? p4: dan weet hij jouw telefoon nr ook [00:06:44] p6: ja i dont care dan blokkeer ik hem als hij heeft betaald	R: hoe durft het [00:08:37] p4: Ik zat te hele tijd te prutsen van heh [00:08:38] R: Maar het was wel interessant wat je op het einde zei van, dat je altijd bereikbaar bent, of wat zei je?
94	[00:06:50] p5: he dat is best wel een hele goede ik wil wel samen [00:06:53] R: oke negatief	[00:08:49] p4: dat je hem altijd bij je hebt [00:08:51] R: ja dat je hem altijd bij je hebt hebben jullie bij negatief staan
99	[00:06:55] p5: Ik heb nog, ik heb nog een positieve. Je kan via je mobiel ook russisch en italiaans leren.	[00:08:52] p4: Ja, want dan heb je sneller de neiging om je telefoon te pakken, of er even op te kijken ofzo
104	[00:07:00] p6: Italiaans? DISCUSSIE terug naar negatieve punten	p3: en hij kan dan ook gestolen worden [00:09:02] p6: maar dat kan ook met je protemonnai
109	[00:07:24] p4: oke, het is redelijk verslavend. De telefoon kost best wel veel geld. en er is reclame, dat is irritant [00:07:35] p4: je kunt gehacked worden. Je hebt hem te vaak bij je. Op de basisschool als je geen telefoon had dan was dat heel anders ofzo [00:07:46] p3: snachts is het slecht voor je slapen als je er snachts nog mee bezig bent	[00:09:04] p4: je kan hem ook vastlijmen aan je broek DISCUSSIE DAAROVER [00:09:25] R: wat zijn jullie negatieve punten?
114	p4: en er kunnen ongelukken gebeuren als je op de fiets zit [00:07:53] p6: ik had op de allereerste ipad die we hadden echt de allereerste ipad, was echt zon dik ding p6: daar kon je nog geen youtube op downloaden, je daar had je altijd youtube op alleen die YT is uiteindelijk gewoon outdated p6: kon je gewoon niet meer doen.. [00:08:09] p1: oh was dat met dat oude icoontje? p6: ja dat oude tv'tje	p6: Ja wij hadden nog wel iets bij negatief [00:09:30] R: wat nog niet genoemd is [00:09:34] p6: ehm, kost veel geld, kost veel vrije tijd, gaat heel snel stuk [00:09:44] p6: waarom gaat het snel stuk? Omdat het niet van een hele goede kwaliteit... p2/p1: Jonguh! [00:09:55] p4: Omdat het Iphone is [00:09:58] p5: he dank je wel voor je negatieve punt [00:10:00] p1: oke, het gaat sneller kapot. p1: batterij gaat snel leeg, want... p6: oh ja die hebben wij ook nog [00:10:12] p1: waarom is dat irritant want soms dan heb je

	<p>iemand nodig en dan is het best irritant als je geen telefoon hebt</p> <p>[00:10:23]</p> <p>p1: ehmm wifi doet soms stom</p> <p>p6: dat ligt gewoon aan je wifi</p> <p>p1: dat is stom want dan moet je wachten</p> <p>[00:10:32]</p> <p>p1: negatief is dat je kunt pesten. Ja waarom is 173 dat stom ...</p> <p>[00:10:46]</p> <p>p1: het is ook verslavend, want je kan de hele tijd doorgaan met een spel of video ofzo</p> <p>p1: en het is ook radioactief en dat is schadelijk voor je lichaam</p>	<p>[00:10:55]</p> <p>p6: is het serieus radioactief?</p> <p>p2: ja daarom moet je je telefoon ook niet naast je bed hebben eigenlijk</p> <p>[00:11:02]</p> <p>R: ja de stralingen enzo</p> <p>[00:11:03]</p> <p>p6: maar kern energie is de oplossing voor de opwarming van de aarde.</p> <p>[00:11:10]</p> <p>R: om maar even een thema in de groep te gooien</p> <p>PAUZE</p>
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## C.3 12 november 2018

### Transcript:

[00:00:10]		video kijken en spelletjes spelen
2 R: Wisten jullie dat school vroeger in het Grieks 'Vrije tijd' betekende?	3*	[00:02:03]
*geschokte stilte*		p7: en de hele dag foto's maken
p4: Neeee		p2?: hele dag ??
R: Hoe kan dat?	3*	R: zullen we even een rondje doen? dan kan ik ook even jullie namen horen, en dan vertellen hoe lang je al een smartphone hebt, als je er eentje hebt?
P6: ?? iets van toetsweek		R: maakt niet uit precies welke het is
7 p7: Google Translate!		P7: Ehm P7 en ik heb vorig jaar een telefoon gekregen
P5: Nerd: Ik heb de hele week geleerd, normale mensen: ik heb het doorgelezen, ik: welke toets		P6: P6, en volgens mij iets van twee jaar
Ik was er ook bij	4*	p5: Ik ben p5, en ik heb er geen
R: Nou leuk dat jullie er zijn allemaal en dat jullie mee willen doen.		p1: p1, en ik heb anderhalf jaar een telefoon
R: Jullie vragen jezelf natuurlijk nog steeds weer een beetje af wat we nou precies gaan doen vandaag		p2: P2, en ik heb ook anderhalf jaar een telefoon
12 Iedereen: Ja		p3: ik ben P3, en ik heb een half jaar een telefoon
P7: Dit is duidelijk het lokaal waar ze, van knutselen enzo	4*	P4: Ik ben p4 en ik heb er geen
R: ja het is een handvaardigheidslokaal.		P7: "All around me are familiar faces..."
R: nou mijn naam is L__ en ik doe voor de Universiteit van Enschede hoe jongeren zoals jullie je smartphone gebruiken		R: en voor de gene die wel een smartphone hebben, waarom hebben jullie er eentje gekregen?
p5: Mijn moeder werkt daar		[00:03:02]
17 R: Dus jullie zijn vandaag de expert en ik ben heel erg geïnteresseerd in jullie mening over de smartphone,	52	R: weten jullie dat nog? Omdat jullie dat heel graag wilden of...?
wat jullie ervan vinden, waarvoor jullie hem gebruiken en hierbij is niets goed of fout.		P7: Omdat ik van die briefjes naar mn moeder schreef, naar mijn vader en moeder schreef
R: heel veel mensen zijn van, ah je mag niet, je zit te lang op je smartphone, het is allemaal stom en erg en je moet dat ding weggooien		P1: ik heb het zelf betaald
R: Wij zijn juist van wat is er ook goed aan, wat is er slecht aan, dus alle verschillende kanten.	57	p5: Wat schreef je dan?
[00:01:26]		p7: Ja, zo van, vragen of ik een telefoon mag
22 R: Dus ik hoorde al van een aantal dat sommigen geen smartphone hebben?		p7: en dan op een hele nette manier, op hele formele taal. En daar wordt je uiteindelijk wel gek van
P5 en P4 steken hun hand op.		p3: Bij mij had de hele klas er eentje dus ik kreeg hem ook.
R: hebben jullie wel een andere telefoon wat geen smartphone is of?	62	p2: Ik heb hem zelf betaald. En ik wou gewoon appen en andere dingen doen
P3: Ik heb ook geen smartphone ik heb een samsung		p3: Bij mij in onze klas hebben nu een stuk of...
p7: Ik heb ook een samsung		p5: Ja..
27 R: Ja, iets wat, smartphone valt onder, Iphone valt eronder, samsung valt eronder,	67	p3: Negentien een telefoon ofzo?
P4: Nokia		p5: Nu een en twintig, en vier niet
R: alles waarmee je apps en internet hebt vind ik een smartphone		p3: dat zijn jullie twee...
p4: Ipad?		p5: S___
R: Ipad kan je niet mee bellen dus dat is officieel geen smartphone, maar vaak doe je wel dezelfde soort dingen erop	72	p6: A___
32 p5: Apple computer?		p5: En ja...
p7: Het enige wat ik op mijn telefoon doe is		p4: S__ heeft er volgens mij wel een
		p3: B__ heeft hem ook nog niet
		p7: Heeft Sterre eentje?
		p5: Nee B__ heeft hem wel
		[00:04:01]
		p4: Nee B__ had er een maar toen is die kapot gegaan
		p5: Ja maar dan heeft ie er wel eentje
		p4: Hij had een samsung twee
		p5: Is dat zo'n telefoon waar je nog op die knopjes moet drukken?
		p4: nee dat niet maar

	R: Knopjes, wat zijn dat? p5: Ja met zo'n uitschuifding en dan... 77 p5: die had je op de BSO en dan kon je alleen een plaatje van een lieveheersbeestje bekijken p3: Mijn broer en zusje zaten een tekenfilm te kijken, en toen eh, mag ik effe je mobiel zei ik, kwam er zon oud ding uit de tas R: Ja mijn eerste telefoon was zo'n flippone, die kon je openklappen. Dat was heel fancy, 123 toendertijd R: Ook met knopjes. En je kon er snake op spelen 82 P7: Oh ja snake. Dat oude spel R: en jullie hebben er beide geen... Missen jullie het heel erg? Dat jullie geen smartphone hebben? P4: Nee... P5: Nee... [00:04:59]	p7: We hebben skirt en moes? gemist door de masterklas! p5: Oooohh, toch niet kahoet! p3: ik heb ooit met koot en kahoen een keer een milka chocolade reep gewonnen R: en hebben jullie het idee dat, degene die een smartphone hebben, er teveel op zitten? (p3: hij is nog steeds niet op) p1: Ehm, ja. R: Want hoelang zitten jullie ongeveer per dag erop? p1: Twee en een half uur ofzo? Drie? p7: ligt eraan, half uurtje, eigenlijk niet zovaak omdat ik een computer heb p3: het ligt er ook een beetje aan op welke dag het is, op sommige dagen is het al naar een half uur weg leggen dat ding p3: en andere dagen... p7: dan ga je zo *doet na alsof ze op haar smartphone zit*
87	P5: ja wel notities, dat je junt kijken even bij de agenda even kunt kijken p5: Soms dan... p6: is dat handig? p5: jaa... zaterdag had ik een feestje van dames 1 ballenmeisje en toen ben ik die vergeten p7: Ballenmeisjes is toch niet zo leuk 92 p3: Ik krijg dus zo ongeveer elke dag voor een gebeurtenis krijg ik zon melding, van infoavond grundel morgen R: en jij zegt, eigenlijk wil je er wel een? P4: ja. R: Maar heb je het daar met je ouders over gehad van...? P4: Vaak genoeg 97 p5: Krijg het voor de selfie kant(??) gelach p5: Oh nee p5: voor de middelbare school p4: Wat dat klopt echt niet 102 p5: de zelfkant? p4: Telgekant R: hebben je ouders een reden waarom je geen smartphone mag? 142 P4: Ik denk dat ik er anders te veel op zit ofzo? p5: Hij is nu al verslaafd aan fortnight Gelach p7: Ik heb echt super trollerig bij die masterklassen ding, die website heb ik heel trollerig op de website van andere scholen gekeken [00:06:11] R: Jullie spelen ook nog op het andere, je hebt een ipad? p3: Ja, en tablet 143 R: Mogen jullie die ook op school gebruiken, die tablet? Sommigen: nee p3: Wij hebben nu net chromebooks. R: dus laptops enzo	[00:07:04] R: en dan insta en snapchat en dergelijke? p7: Ik heb geen instagram of facebook p5: Ik heb snapchat verwijderd omdat het echt saai was p1: Instagram is wel leuk p3: Jonge, ik word echt helemaal volgespamd op snapchat p5: Ja daar had ik het over, kijk, mijn buurmeisje, ik zat niet meer op inst... eh snapchat p5: en toen ging ik er een keer weer op en toen was het echt HEEL lang p3: Bij een persoon, bij sommige krijg je gewoon 3 berichtjes per dag, op snapchat p5: Mijn buurmeisje is zeventien. Weet je hoeveel snapjes je dan krijgt? p4: Ja, elke dag, twaalf uur! 3 uur 3uur 5 uur... p5: Ik word wakker, ik ga naar ballet, ik ga naar dit, ik ga naar dat. R: Jij (p7) wou ook wat zeggen? p5: Ik ben terug. Ik ben dronken [00:08:03] p7: Maar mijn ouders laten me bijna niets doen, ik mag geen YT accounts, geen instagram account, geen fb account p7: Alles wat met privacy te maken heeft mag ik niet. En mijn vader twijfelde zelfs nog of ik fortnight mocht spelen p7: omdat er wapens inzitten p3: Fortnite is het minst erge schiet spel wat er bestaat p4: ja het is gewoon een soort van tourdag?? p5: eh minecraft p4: Minecraft, nou... R: Ik zou het geen schiet spel willen noemen, Minecraft p4: minecraft is echt van, *doet boog na* piew, piew
107		
112		

152	p4: zombies p5: Dat deed jij vroeger he, oeh mindcraft! p4: ja toen bestond fortnight nog niet R: en naast je smartphone wat doen jullie nog meer? p3: spelletjes 157 p2: gamen R: behalve fortnight spelen p2: nou... p4: Dan niks p5: Instaa [00:09:00] p4: instaa 24/7. Monster planet! R: Nou oke we hebben een wijd verspreide groep hier dat is wel heel erg leuk START INVULOPDRACHT UITLEG	36	jullie nog meer voor positiefs opgeschreven? p6 ehmm p7: liedjes luisteren R: inderdaad dat is hetzelfde wat p5 had p5: Je hebt altijd wat te doen p6: Je kunt het overal mee naartoe nemen p7: niet altijd, als de batterij leeg is dan is het rip p1: niet altijd, als hij leeg is p5: online R: als hij leeg is dan kun je hem wel meenemen. Maar inderdaad je hebt altijd contact met het internet [00:04:05] R: waren dat al jullie positieve of hadden jullie nog meer? P5: ehm, vanalles op downloaden p1: van alles p5: ehm overal mee naartoe nemen p1: je kunt niet downloaden dat je opeen grotere billen hebt ofzo gelach
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### Transcript:

RUMOER	[00:02:02]	50	Zeg maar de eerste twee en waarom het zo is. p6: het is handig, want het is handig om te bellen en te appen.
5	p6: het is leuk omdat de spelletjes leuk zijn p5: Niet alle spelletjes zijn leuk p3: ooh rekt	55	p5: Niet alle spelletjes zijn leuk p3: ooh rekt p6: maar die zou je dan ook niet downloaden
10	R: en p5, jij had daar wat over opgeschreven toch discussie over naam p5: Ehm, je kunt er liedjes op downloaden en luisteren, spotify, en foto's dan heb je herinneringen.	60	R: en p5, jij had daar wat over opgeschreven toch discussie over naam p5: Ehm, je kunt er liedjes op downloaden en luisteren, spotify, en foto's dan heb je herinneringen.
15	R: de jongens hebben meer over de playstation wat opgeschreven p2: Ja	65	R: de jongens hebben meer over de playstation wat opgeschreven p2: Ja
20	R: Wat? p1: Leuk	70	R: Wat? p1: Leuk
25	R: Leuk. Waarom is het leuk? p1: Gamen is leuk haha	75	R: Leuk. Waarom is het leuk? p1: Gamen is leuk haha
30	R: waarom is gamen leuk? p1: Omdat gamen heel leuk is Gelach p4: beste rede ooit	80	R: waarom is gamen leuk? p1: Omdat gamen heel leuk is Gelach p4: beste rede ooit
35	R: Nou duidelijk, leuk. Hebben de andere jongens een reden waarom gamen leuk is? p4: Omdat als je iemand killt, dan voel je je cool	85	R: Nou duidelijk, leuk. Hebben de andere jongens een reden waarom gamen leuk is? p4: Omdat als je iemand killt, dan voel je je cool
40	p3: Als je wint p2: jonge als je wint met een kill dan voel je je cool	90	p3: Als je wint p2: jonge als je wint met een kill dan voel je je cool
45	p5: hij heeft nog nooit een win gehaald p3: wie?	95	p5: hij heeft nog nooit een win gehaald p3: wie?
50	p5: hij! p4: Wel! Ik heb er genoeg gehaald	100	p5: hij! p4: Wel! Ik heb er genoeg gehaald
55	p5: nee, nog nooit een solo win p1: zeker vijf disco nomination??? ofzo	105	p5: nee, nog nooit een solo win p1: zeker vijf disco nomination??? ofzo
60	R: oke we zijn weer bij p6, en p7, wat hadden	110	R: oke we zijn weer bij p6, en p7, wat hadden

	p5: ja jij bent altijd van, kut zooi! verdomme! [00:06:14]	p5: speelt die fortnight dan?
80	p7: iets met obbie, bij het laatste opstakel ga je dood, moet je helemaal opnieuw gaan, aaaahh Door elkaar	p6: nee maar daar heb ik het ook niet over
	R: zijn er nog meer negatieve?	p6: dan zit ik bijvoorbeeld op de bank en zij staat helemaal daar bij de tv, dan zeg ik, X ga je weg
85	p1: eehh verslaving	p6: en een paar seconde later dan staat ze er weer
	R: dat je er dan te veel...	p4: ik zit dus altijd zo, en p5 duwt me dan naar achter dat ik zo op de bank zit
	p1: ja dat je dan bij de laatste gesniped wordt...	p5: ja anders zit het gewoon niet fijn voor mij
	R: en jullie hier?	p5: dan zit ik zo naar achter en jij naar voren en dan denk ik zo van, rgh
	p4: slecht voor ogen, rage, rage	R: je bent in mijn bliksveld
90	R: ook rage	p6: mijn broers en zusje zitten ook altijd te springen
	p5: jij zit er altijd zon (10 cm met vingers) stuk vanaf van de tv	R: hebben jullie nog meer negatief? [00:07:45]
	p3: echt?	VEEL door elkaar heen, INTERESSANT PUNT nog: [00:10:20]
	p4: niet	p6: mijn moeder zat zo televisie te kijken en zei, dat is helemaal mijn programma, en een minuut later zat ze
95	p5: jij doet altijd zo *leunt voorover*	p6: alleen maar zo op dr telefoon te kijken
	gelach	
	door elkaar	
	[00:07:05]	
	p6: dat doet X ook altijd	
	p5: wie is X?	
100	p6: mijn zusje	

## C.4 13 november 2018

### Transcript:

[00:00:23]	p6: ja ik heb gewoon gevraagd tot ik er eentje kreeg
Goedemorgen, uitleg	p2: Ja dat was eigenlijk ook bij mij zo ik heb net zolang gevraagd tot ik uiteindelijk inderdaad gewoon
Begin voorstel rondje	p2: maar ik kreeg altijd gewoon de mobiel van mijn ouders eerst, ja
p2: Ik ben nog aan het kijken hoelang ik een smartphone heb	[00:06:04]
5 p2: Alleen een telefoon of echt een smartphone?	p6: bij ons ging het echt van moeder op broer op broer op broer
R: Nou, vanaf wanneer een telefoon en wanneer het 36 ongeveer een smartphone werd?	gelach
p2: Vanaf groep 6 had ik alleen een nokia, dat is zeg maar, zon bak telefoon	p6: nee maar echt
p2: en vanaf groep 7 tot en met nu heb ik een smartphone	R: allemaal tweedehands telefoons
p2: oh misschien moet ik mijn naam ook zeggen. Ik 40 ben p2, en ik heb voor vijf jaar al een smartphone	R2: vijfde hands
10 p1: ik ben p1, en ik heb toen ik 8 was had ik een nokia, alleen ik deed er niet zo veel mee, behalve spelletjes spelen enzo	R: ja ik had er ook eentje van mijn vader, toen ik hem weg deed was die tien jaar oud, omdat hij al zolang
R: Snake	R: door de familie heen was gegeven
p1: die er dan al opstond	p6: bij ons was het alleen in het gezin, dan was ie al tien jaar oud
[00:04:12]	R2: en waarom wilden jullie dan een smartphone?
p1: en eh toen ik 9 was kreeg ik een oude telefoon van mijn vader, dat was een galaxy s2.	p6: gewoon om te appen met vriendinnen, om af te kunnen spreken. Anders stond je daar op school, kunnen we spelen? dit en dat
15 R: ik ben R, ik heb nou een telefoon sinds groep 7 denk ik, dat is dertien jaar geleden ofzo,	R2: maar dat voelt ouderwets dan of?
R: en een smartphone sinds 4 jaar	p6: ja, nou nu wel
p3: ik ben p3, ik had zon klein ?? telefoontje sinds groep 4, en ik heb sinds groep 8 een smartphone	R: iemand anders nog een andere waarom dan alleen willen spelen?
p4: ik ben p4, en sinds groep 8 heb ik mijn smartphone gehad, dat was een iphone 4s.	[00:06:58]
p6: precies	R: ja p4,
20 gelach	p4: nee ga jij maar (p1)
[00:05:02]	p1: Ik vond het ook altijd want iedereen had er al eentje bij mij op school, dus dan wilde ik er ook graag een
p5: ik ben p5, en ik heb sinds groep 7 of 8 een telefoon	p1: dat was dan cool als je er een had
p6: ik ben p6, ik heb sinds groep 8 ook een telefoon	R: en p4, jij had ook wat?
p7: ik ben p7 en ik heb ook sinds groep 8 een telefoon	p4: ja in groep 7 had iedereen in mijn klas had al een telefoon en in groep 8 kreeg ik er dan een en iedereen zat dan in zon whatsapp groep
25 p8: ik ben p8 en ik heb sinds groep 7 een telefoon.	p4: en toen hadden ze ook op school van, wie heeft er allemaal whatsapp en iedereen stak zijn vinger op maar ik niet
R: en waarom hebben jullie ooit een telefoon gekregen, is dat door je ouders of ...?	p4: ja daarom
p1: Ik ging heel veel de buurt in altijd, met vriendinnetjes enzo, dus ja mn ouders vonden het dan wel fijn als ik hun kon bereiken	R: ja we hebben deze workshop ook met een aantal basisschool leerlingen gedaan en dan zijn er een of twee die dan geen smartphone hebben
R: dus bereikbaarheid, hadden andere ook bereikbaarheid als argument van de ouders?	R: en dan was het van, iedereen zit constant op whatsapp en wij kunnen er niet aan meedoen
Geknik	R: herkennen jullie dat dat iedereen in de whatsappgroep zit en daar ook alle communicatie zeg maar...via gaat?
30 p6: Ook. Wij gaan heel vaak op vakantie en het was gewoon als we terugkomen als we wat later zijn, daarom hadden wij hem	Sommigen: ja
R: maar wilden jullie zelf ook een smartphone?	p2: nou ja, dat had ik ook, ik had vroeger ook een communicatie probleem om dat zeg maar iedereen
	p2: was in een bepaalde groep en dan werd er iets

	afgesproken en dan werd ik als laatste persoon daarvan ingelicht	p1: X Y?
65	p2: dat was, het was heel erg irritant eigenlijk	p2: nee, ja die [00:10:07]
	R: dat kan ik me voorstellen	p3: ze heeft het over de andere X
	R2: alleen omdat je geen smartphone hebt [00:08:10]	p2: oh dan niet
	R: en nu, zitten jullie veel op social media...	p7: hij zat bij mij op de basisschool
	p3: jup	p6: en bij mij
70	p6: ja	R: dus hij heeft iedereen gehad Gelach
	p2: ja	R: als jullie nou een maand lang zonder een beeldscherm zouden moeten leven, zouden jullie dat overleven denken jullie?
	p1: nog te veel	p6: Nou nee, want ik heb echt heel veel...
	p3: te veel ja	p3: ik zou het wel overleven maar
	R: ik hoorde je zeggen, ja te veel	p2: geen telefoon of echt totaal geen beeldscherm
75	p3: ja ik eh, ik heb een iphone en die houdt bij hoe lang ik op insta zit bijvoorbeeld	R: helemaal geen beeldscherm
	p3: nou ja, ik zit gemiddeld soms zes uur op insta. Niet per dag, maar per een paar dagen	p2: een maand lang?
	p3: ja dat is wel veel. En alleen insta	p4: ook geen televisie?
	p2: ik ben waarschijnlijk de enige persoon hier die geen social media enzo heeft	discussie
	p7: ik ook niet	iets met uitdaging
80	p2: jij ook niet?	R: oke, met handen wie zou zeggen, dat gaat me sowieso lukken?
	p7: nee	stilte
	R: maar wat doe je dan met je smartphone?	p6: nee
	p7: spelletjes	p3: nou het zou wel moeilijk zijn maar...
	R: wat voor spelletjes speel je?	p4: ik had een keer, mijn telefoon was, vorige week volgens mij, afgepakt, en toen was ik hem vergeten op te halen
85	P7: clash of clans, en verder youtube [00:09:00]	p4: en toen had ik echt de hele dag mijn telefoon niet en toen voelde ik echt die drang in mijn hoofd
	R: en ik hoorde fortnight, vooral de jongens spelen jullie dat ook?	p4: ik wil op mijn telefoon zitten maar het kan niet [00:11:00]
	p7: niet meer	R: maar wat wilde je dan op je telefoon doen?
	p3: speelde	p4: youtube kijken, gewoon heel veel op instagram, ofzo even kijken
90	p7: het is geschreven als een krab	R: en had je aan het eind van de dag, nou dit wil ik nooit meer, of was het ook wel rustig?
	p8: soms	p4: het was wel rustig, ik kon een keer gefocused leren want altijd als ik aan het leren ben
	R: vroeguh	p4: dan ligt mijn telefoon naast me en dan denk ik zo van ik wil even een youtube videotje kijken
	R: soms hoor ik hier naast me	p4: en dan zeg ik, oke, dit is de laatste video maar dan blijf ik toch kijken
	p8: ja. vroeger speelde ik nog wel een stuk meer maar dat was een jaartje geleden ongeveer	p4: en dan is het al heel laat s avonds en dan moet ik nog beginnen voor het leren voor een toets
95	p2: de rage is eruit	R2: ja daar heb ik ok last van
	p8: ik heb maar ?? en dat is meteen genoeg	R: ja dat is inderdaad een nadeel van de smartphone
	R: de rage onder de basisschool leerlingen speelt nog flink	R: maar hier zeiden jullie ook wat?
	p7: ook eerste klassers, die spelen vooral veel mindcraft	p2: ja ik, ik kan zeg maar een week zonder totaal geen beeldscherm maar een maand dat wordt wel heel erg lang
	p3: ja mindcraft!	R: ja dat komt natuurlijk ook omdat nu alles via de smartphone geregeld is, met magister, met huiswerk
100	p4: er zit een groepje boven in de studieruimte, die zitten dan de hele tijd mindcraft te spelen	
	p4: en op het schoolplein spraken ze dan af, he kom je dan samen op cubecraft, dat is zon minecraft server	
	p4: waarop je skywars kan doen.	
	p3: weet je waar ik dan meedelijken mee heb, iemand uit mijn team is blijven zitten en dan zit je bij hun in de klas	
	p4: ja hij zat vroeger bij mij op de basisschool	
105	p1: X zat bij mij in de klas, en die is blijven zitten, en die speelde inderdaad	
	p2: hij heeft eerst bij mij in de klas gezeten	

145 p6: dan moet je je rooster uitprinten  
 gelach  
 p3: maar je mag ook geen computer gebruiken  
 R2: ja doen moet je dat van te voren doen  
 p6: dat vindt meneer ? toch niet leuk  
 150 R: of dan moet je aan iemand anders vragen, wil je het voor me uitprinten?  
 [00:12:12]  
 p7: of gewoon zon ouder ding aansluiten  
 p3: oh ja!  
 R2: een typemachine  
 155 p7: een typemachine!  
 p3: heb je die nog dan?  
 p7: echt?  
 R: of met de hand  
 p6: mijn moeder kan dat gewoon nog he, dat hele toetsenbord weet ze uit haar hoofd  
 160 p4: wat is dat?  
 gelach  
 R: en hebben jullie nog andere dingen die jullie naast je smartphone of een ander beeldscherm nog doet, sporten...  
 p1: Sporten? Eh..  
 R: of wat anders  
 165 p1: nee laat maar  
 gelach  
 p6: ik doe ijshockey, en ik heb echt een spelletjes familie dus we doen veel bordspellen, monopoly dat soort dingen  
 p3: voetballen  
 [00:13:02]  
 170 p2: ja wij hebben echt een hele bibliotheek eigenlijk bij ons thuis als het ware  
 p2: dus ik lees heel veel  
 R: dat is ook heel leul. Dus wie leest er nog meer boeken?  
 5 handen gaan omhoog (p3, p4, p5, p7, p8)  
 R: en dan echte boeken of op een ereader?  
 175 p3: nee gewoon echte boeken  
 p8: echte  
 p3: iets van tachtig bladzijden ofzo  
 R: lekkere dikke boeken  
 p4: ik las altijd boeken van iets van twee honderd bladzijden, maar dat zijn donald duckjes  
 180 gelach  
 R: donald duckjes met tweehonderd bladzijden?  
 p8: van die pockets ofzo  
 R: oh van die...  
 p4: ja van die pockets. ik heb ook zulke grote donald duck boeken met duizend bladzijden  
 185 R: wauw!  
 [00:13:40]  
 R: p1, jij had ook nog je vinger omhoog  
 p2: Ja, nu zijn we heel veel bezig met de verbouwing, dus daar zijn we ook nu veel mee bezig  
 EINDE BEGIN UITLEG INVULBLAD

## Transcript:

meisjes met tassen discussie  
 R: goed los van de tas, mensen/meisjes met tassen, en dergelijke, we hebben allemaal dingen opgeschreven,  
 R: dus dat wil ik graag wel even horen  
 R: Ik hoorde al een discussie over stalkers en dergelijke  
 R: dus als jullie aan de overkant alvast willen beginnen met de negatieve punten, wat hebben jullie allemaal opgeschreven?  
 P3: verslavend, cyberpesten, stalken, hacken, virus, duur, niet goed leren, tinder  
 R: en waarom  
 p1: tinder?  
 [00:01:23]  
 gelach  
 1 p3: het is verslavend, gewoon, je bent er naar geneigd.  
 p4: grapje over robot meeko??  
 p5: ik ook!  
 R: oke weer even luisteren  
 P3: cyberpesten is meer, dat heb ik zelf gehad, hier op school was er een meisje en die zat me echt belachelijk te maken met alles  
 16 p3: op insta  
 p3: Stalken, stom  
 gelach  
 p3: hacken, proberen op je in te loggen, dat heb ik ook wel eens meegemaakt  
 R: ja heb je wel eens meegemaakt dat je hele account gehackt werd?  
 p5: ja mijn zus heel vaak  
 p3: ja  
 p6: ja moviestar planet toen ik klein was  
 gelach  
 p6: dat was echt een wereld ramp als dat gehackt werd hoor  
 26 [00:02:08]  
 R: en wat deed je dan, als je gehackt werd, dan van oke jammer maar helaas, of...  
 p6: nog twintig accounts aanmaken  
 p1: nee, allemaal vrienden vragen om het te rapporteren  
 p3: oh ja dat deed ik ook altijd. dan ging ik op een vrienden account, dat was simpel om te doen  
 31 p3: en ging ik gewoon ?? rapporteren  
 p3: virus. Ja, omdat.  
 p3: duur. Die dingen zijn echt fcking duur  
 p4: hoeveel kost de iphone xr die gaat uitkomen?  
 rond de duizend 500 honderd euro  
 p3: twaalfhonderd  
 p8: twaalfhonderd  
 R: maar je hebt ook een kleinere versie en die is maar 1000 euro  
 p5: MAAR?  
 gelach  
 p4: ach ja, het is maar duizend euro

41	R: ja dat is apple he, die zegt van we hebben eentje die is super fancy van twaalfhonderd... p4: er komt ook een apple auto uit, die p3: echt? p4: ja er komt een apple auto uit... p3: hoe duur is die? 46 p4: die is dan ook eh, p3: honderdduizend? p4: maaar dat je die, eh, niet hoeft te besturen [00:03:02] p3: ja mat dat kan tesla ook 51 p4: maar die wordt echt zevenhonderd duizend p3: maar zeven honderd p4: maar zevenhonderd duizend R: wat hadden jullie nog meer? P3: ehm je leert er niet goed door, dat is wel duidelijk 56 p3: en, tindr R2: waarom is tindr slecht? p4: dat zei jij! (p3) p3: maar als grap! R: dus tindr is niet echt slecht 61 p3: gebruik jij het? R: nee... gelach p5: goede informatie p7: ook hier gewoon! 66 anderen: wat? p7: hij zit altijd met zn voeten onder mijn stoel gelach R: oke wat hebben jullie (p5/p6)? p6: ja wij hebben bij negatief... of moeten we positief doen? 71 R: nee eerst nog negatief p6: wij hebben onzeker, want je kan want je kan onzeker worden van mensen die heel knap zijn op insta p3: *valt van zn stoel* gelach *Intermezzo* 76 [00:04:36] R: oke we gaan verder met negatief, we hadden onzeker gehad? p6: op insta kun je knappe meisjes ofzo zien en dan voel je je daar... ja p6: en eh, cyberpesten. je kan gepest worden ofzo via social media p6: je hebtpedo's en die kunnen je, gewone mensen die kunnen je berichten sturen en dat soort dingen 81 p6: niet goed voor leren hadden wij ook, snel afgeleid, het is verslavend, en sommige foto's en video's kun je niet leuk vinden later p6: of het komt ergens terecht waar je het niet wilt hebben p4: dat mensen het opslaan ofzo p1: oh ja als je dan een baan krijgt en je bent heel dronken geworden op een feestje ofzo	86 9 96 10 106 11 116 121	p1: en dan staat een foto online dan kunnen ze dat vinden... R: ja, het is dus lastig om je online persoonlijkheid goed te beschermen [00:05:26] p4: je kan het op prive zetten, p2: je kan het ook ergens anders op doen.. p3: maar mensen die jou wel volgen die zijn bevriend met hem, kunnen wel, dat.. p3: een foto maken p4: ja en ze kunnen wel een scherm afbeelding maken R: ik hoorde dat als je snapchat hebt, dat als iemand dan een afbeelding maakt dat je dan... p4: als je, als je bijvoorbeeld een ja, een nude stuurt ofzo, en iemand maakt er een screenfoto van... p5: lacht p4: ja ik wil het op een normale manier zeggen p4: en je maakt daar een screenshot van, dan zie je dat, of als je het gesprek aan het screen recorden bent, p4: dan staat het er ook p1: ja ik was een keer, op een gegeven moment, was er iemand die ik ken, en die was me aan het appen p1: en toen maakte ik een screenshot, alleen ik was vergeten dat er dan staat dat er een screenshot is gemaakt p1: ik maakte een screenshot van het gesprek R: en dat was op snapchat ook p1: ja [00:06:16] R: en whatsapp heeft dat niet volgens mij p1: nee R: dus daar maakt iedereen screenshots p3: dat zouden ze wel doen toch? p4: ja dat zouden ze wel doen p3: dat zouden ze doen, hebben ze nooit gedaan p5: nee dat is gewoon niet chill p3: jawel p5: moet je gewoon geen gekke dingen sturen p2: ik ga geen namen noemen, maar ik heb een keer een screenshot gemaakt van een gesprek dat bewijst dat iemand gewoon een echte bitch is p1: ik maakt op de basisschool allemaal screenshots. de meiden uit onze klas zitten nu ook bij therapie enzo p1: ze gingen allemaal rare dingen sturen p2: zoals? p1: haar broertje in een croptop en een onderbroek p5: en dat stuurt zij? p4: wat is een croptop p5: dat is zo'n heel kort shirtje p1: die heb ik nu ook aan maar ik heb een hoge legging erbij p4: ja ik wist niet wat dat betekende [00:07:07] R: al deze woorden zijn magie
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	p3: maar meiden hebben echt honderd kledingstukken aan he. Wij hebben letterlijk sokken, schoenen, broek shirt	166	p4: dat zeg ik, vrouwen logica p3: ja precies p5: maar ze weten niet zoveel. ik heb niet zoveel op mijn intagram staan van, dit is mijn nummer...
126	p8: onderbroek mag ik hopen gelach p3: dat mag ook p4: ik ga even hier zitten *schuift op*		p4: ik heb best wel veel op mn.. maar mijn zus, die heeft het nu een paar... die heeft het nu een maandje p4: en die heeft nu al bijna meer berichten dan mij stilte
131	R: oke we gaan naar de volgende, waren dat al jullie negatieve punten? p6: ja R: ja oke dan dus dit groepje? hadden jullie nog meer bedacht wat nog niet gezegd is?	171	p8: dat is vrouwen logica R2: hebben jullie nog meer? p1: ja dat je je telefoon moet opladen...
	p8: ehm in een verkeerde houding zitten. dan wordt je rug en nek krom...		R: het kost veel energie, ja p1: en dat je snel afgeleid met je smartphone.../???
136	p6: haha iedereen gaat rechtop zitten p8: en dan kun je rugklachten krijgen p4: deze stoelen en in het bio lokaal als je daar lang op zit dan begint het echt kut te worden	176	R: ja dat je de hele tijd met andere dingen bezig bent [00:10:03]
	p7: X zit altijd zo (krom met smartphone voor zn neus) p3: X loopt ook zo R: en verder nog?		R: oke dat waren alle negatieve dingen, dan gaan we nu naar de positieve dingen. Gaan jullie door met de positieve? p1: oh ja. Je kunt eten bestellen p2: omdat... eten
141	p8: ja we hadden nog, het kost energie en geld bij bijvoorbeeld het opladen R: en aan deze kant nog? [00:08:07]	181	p1: je kunt kleding bestellen p7: maar dat is anders aan digitaal dan in het echt, zegt mijn moeder altijd p1: wat zei je? p7: van dat mijn moeder nooit online gaat shoppen omdat ze zelf de stof wilt voelen
146	p1: ehm, je wordt heel erg afgesloten van de wereld, en ehmm R: en waarom? of waardoor?	186	p1: deze hele outfit allemaal online gekocht p3: ja dat is toch handiger? p6: ik wil het altijd eerst passen p7: mijn moeder wil altijd shoppen, maar
	p8: je komt een andere wereld in p1: soms dan heb ik, dan zit ik op mijn telefoon en dan zegt mijn moeder iets en dan hoor ik het niet		R: Dan gaat het meer over het shoppen dan... p4: maar dat is zo saai p1: ik vind online ook leuk maar ik vind naar winkels gaan ook leuk
	p2: je gaat zeg maar de virtual world in en dan merk je niet zoveel van wat er om je heen gebeurt	191	p3: weet je wat het leuke is aan online shoppen? je ziet gewoon iets leuks, je koopt het, en als je het haat dan stuur je het gewoon terug
151	R: wilde jij daarop reageren (p4) p4: ja dat mijn moeder als ik op mijn telefoon zit en ze vraagt iets dan hoor ik dat dan inderdaad ook niet p4: maar als ze zegt, wil je een koekje, dan hoor ik dat ineens gelach p1: vroeger vroeg mijn moeder altijd of ik een snoepje wou en dan ging ik niet reageren en toen *iets met huisarts en geld*	196	p3: anders moet je weer naar die winkel rennen p1: ik had een keer wat besteld en voor het terug sturen moest IK drie euro betalen p5: iets met de bruna
156	[00:09:02]		p2: ik ben waarschijnlijk een van de meisjes die gewoon shoppen en passen gewoon echt niet leuk vinden
	R: officiële dokters, eh, ja volgens mij is ze echt oost indisch doof		R: ik vind het eerlijk gezegd ook vreselijk. p5: ik vind shoppen helemaal niet zo erg
	R: oke, verder nog?	201	p7: ik heb zeg maar mijn basketbal schoenen... [00:11:18]
161	p1: ja vieze mannetjes... omdat het gewoon eng is p1: maar ook wel grappig p3: eng, jullie reageren er juist op.		R: ik heb het liefste gewoon, winkel in, snel dingen passen, en dan zo snel mogelijk er weeruit p2: ja eigenlijk, het liefst mogelijk wil ik
	p1: ja dat is juist grappig. p2: ja... p3: wat is er dan eng aan?		gewoon eigenlijk passen een ding, kijken, is dit de juiste maat

	p2: ja oke dan haal ik gewoon allemaal dingen van die kleding soort, die mijn maat zijn	236	p5: robots
R: gewoon met verschillende kleuren en dan klaar			p6: robots haha
206 p2: ja dan denk ik, klaar, ik vind het altijd wel goed zo			p5 super zielig
p3; mijn moeder koopt altijd mijn kleren, ik heb daar geen problemen mee.	24		p4: zijn vrienden zijn gewoon mensen die met ??
p6: mijn moeder doet het wel voor de jongens mij voor mij doet ze het niet			R en nog meer?
p4: vroeger had ik daar geen problemen mee maar nu wil ik echt geen hemden meer dragen hoor			P3: pizza.
p3: maar dit heb ik van mijn moeder gekregen, dat is gewoon mooi			R: eten bestellen
211 p1: oh ik krijg kleedgeld	248		p3: ja eten bestellen
R: oke verder nog positief?			p3: contact dat je met mensen kunt bellen enzo
p1: je kunt makkelijk dingen opzoeken. makkelijk contact met andere mensen			p3: foto's
p1: het is een goede bezigheid voor als je je verveelt			p3: als je er niet eentje hebt dan hoor je er niet bij, maar als je er wel eentje hebt dan hoor je er wel bij
[00:12:06]			p3: en informatief. dat had hij opgeschreven
216 p1; en p2 had nog gedaan, dat je er blij van wordt	25		p4: ja dingen opzoeken
p2: ja want je hebt spelletjes, je hebt altijd wel iets			p3: oh dat
p1: en het helpt je met je agenda, met zon eh plus notificatie			R: volgend groepje?
R: hebben jullie nog meer positief?			p6: dat je makkelijk contact kan hebben, afspreken, dat soort dingen, voor inspiratie van dingen op het internet
p4: ja dit heeft hij opgeschreven, maar gesponsord worden	256		p6; eten bestellen hadden wij ook
p3; ja, op insta heb je wel eens dat mensen jou sponsoren, voor nike bijvoorbeeld,			p6: foto's, herinneringen ophalen
p3: die sponsort jou dan, en dan moet jij foto's maken en dan krijg je...			[00:14:08]
p5: dan moet je heel veel volgers hebben			R: en het laatste groepje?
r2: een soort van baantje is dat	26		p8: we hadden nog, bedrijven kunnen er heel veel geld aan verdienen
R: ja en youtube heeft dat ook volgens mij dat als je heel veel kijkers hebt dat je dan eh...			p8: nou ja games op telefoons zijn ook wel populair
226 p1: ik had teenheart? die had, dan krijg je kleding op gestuurd en dan moest ik daar foto's van maken	266		p8: want ??games was heel veel rijker geworden
p1: alleen vond ik de kleding niet leuk dus toen ben ik gestopt			p8: tijdverdrijf, omdat het vermakelijk is
[00:12:58]			R: ja dus je kunt er altijd wel wat op doen als je tijd over hebt
R: ja dus het is een manier om geld te verdienen inderdaad. nog meer?	27		p7: (zachtjes) ook als je geen tijd over hebt
p4: ja dit hebben meer volgens mij meiden maar internet best friends. maar dat hebben volgens mij meer meiden			R: ook als je geen tijd overhebt inderdaad discussie over laatste punt
231 p? ik niet ??			p8: fortnight winst posten op snapchat
p4: ja X, al zijn vrienden zijn online			p1: wat?
p3: al zijn vrienden zijn niet eens mensen			p? fortnight winst posten op..
			p1: dat doe jij toch niet
			p3: is dat positief of negatief?
			p7: positief
			p7: als je twee kills hebt, dan is dat een record
			p4: wie doet dat?
			[00:15:06]
			p4: omg ik heb gewonnen met nul kills
			de rest: gewonnen
			R: maar op zich dingen delen die je heel leuk vindt of die je hebt bereikt met andere mensen is natuurlijk wel positief
			PAUZE

## C.5 16 november 2018

### Transcript:

[00:00:00]		
INTRO en UITLEG over de workshop		
R: dus hebben jullie een smartphone?	40	R: want zitten jullie allemaal in dezelfde klas?
sommigen: ja		Allemaal: nee
R: misschien is het leuk en ook voor mijn informatie om even een soort van rondje te doen van	5	R: allemaal andere of zijn er wel mensen?
R: de naam en hoe lang je een smartphone hebt]	45	p6: wij vieren wel, zij niet
R: dus als we hier links beginnen		R: en eerste of tweede klas?
P1: ik ben X, ik heb ehm, ja wel drie jaar miss drie jaar...		Allemaal: tweede
R: oke		[00:04:12]
10 [00:02:13]		R: en jullie broers en zussen? Gebruiken die ook smartphones?
p2: ik ben X, en ik heb nu iets van twee jaar, ofzo, een smartphone	50	p6: heel veel
p3: ik ben X, en ik heb iets van anderhalf jaar een smartphone		p6: veel meer
p4: ik ben X, en ik heb ongeveer twee jaar een smartphone	55	p2: oh!
p5: ik ben X, en ik denk dat ik hem, 2 een smartphone heb		p3: minder dan ik
15 p6: ik ben X, ik heb iets meer dan twee jaar een smartphone		p6: dat is echt waar!
R: nou ik ben L, en ik denk dat ik nu zes jaar een smartphone heb	60	p3: mijn broer zit meer op de playstation
gelach		R: en jij zegt veel meer dan ik?
R: en daarvoor had ik een flipphone, die alleen maar snake kon en die niet, nee wel op het internet kon	65	p6: ja mijn zus.
R: maar als dat gebeurde dan dat kostte dat heel veel geld dus dan was je van nee stop doe het niet		p3: facetime
20 R: en hoe lang, hoe veel denk je dat je hem gebruikt op een dag?	70	p6: nee dat doe ik op mijn ipad
Stilte en gelach		p2: oh ja
p3: te lang		R: en wat doen jullie dan op je smartphone? Instagram, snapchat?
R: hoe lang is te lang?		p6: ja youtube kijken
[00:03:01]		p3: social media, echt, alleen maar social media,
25 P3: ten minste de hele dag als ik niet op school ben		p2: facetime, appen
R: oh wauw		R: en jij (p1)?
p3: en niet slaap		p1: oh gewoon whatsappjes sturen
R: dus 24/7 in de online wereld		R: en andere schermen? Playstation?
R: en de anderen?		p2: Ipad
30 p2: ja ik gebruik hem nooit zo heel lang achter elkaar meer als ik een appje moet sturen ofzo	80	p6: ik heb een computer en een ipad
R: ja precies. Anderen ook?		p5: ik ook
p6: ja rond de twee keer een half uur per dag ofzo?		p4: ik ook
p2: ja ik ben echt meer van, 8 keer 2 minuten ofzo		75 p3: en daar hebben we alle drie overwatch op [00:05:02]
R: ja eventjes snel tussendoor, even kijken	85	R: ja ik hoorde fortnight bij heel veel andere groepjes
35 R: ja dat heb ik ook wel, zeker als ik iets heel belangrijks aan het doen ben		p1: jaa...
R: oh een appje, die moet ik even bekijken, want het is natuurlijk heel belangrijk		p2: allemaal
R: want mogen jullie hem in de klas?		80 p6: ik speel niet heel veel meer

## C.6 Other interesting moments

### Transcript:

05-11-18		p5: ja, af en toe vind ik het wel jammer, want toen vroeger als je zeg maar
2	[00:04:25]	p5: een nieuwe telefoon, heel veel kinderen bij ons in de klas hadden heel snel al een telefoon
R: Maar je zegt wel, op school doe je niks, maar als jullie pauze hebben, zitten jullie dan niet stiekem...		p5: en dan gewoon door dingen die gebeuren zeg maar en dan wordt dat opeens heel interessant
p1: Nee mag niet		p5: en dan denk jij van, maar wat is er dan zeg maar belangrijker
p5: maar af en toe, zijn er wel meisjes bij mij in de klas, en nee daar ben jij geen onderdeel van	37	p5: en dan zie je hoe leuk het is en wat het allemaal kan, en dan wil je er ook een
p5: alleen er zijn wel een paar meisjes die stiekem binnen blijven (noemt aantal namen)		p5: maar als je dan met zn alle aan het buitenspelen bent dan, dat is eigenlijk ook wel gewoon heel leuk
p1: bij mij nemen ze hem gewoon mee naar buiten		[00:10:27]
p5: en dan gaan ze gewoon op het digiboard filmpjes kijken		R: ja jullie hadden het er al over dat het soms wel een beetje vervelend is dat iedereen constant op een smartphone zit
p5: en dan zetten ze het daarna allemaal weer terug		p7: ja...
p5: dus dan denk ik wel af en toen van, er is ook een andere vorm van verslaafd zijn	42	R: merken jullie dat ook bij je ouders, of bij oudere broers en zusjes
12 [00:07:54]		p5: ja
R: en gaan jullie ook nog buiten spelen? voetballen enzo		p7: nou ik merk het niet echt bij mijn ouders
P5: jawel maar het is gewoon, heel veel mensen bij ons in de klas zitten dan wel op hun telefoon	43	p5: mijn ouders zeggen dan van, je moet niet zoveel op dat ding zitten
p5: en als je het dan in je eentje moet doen dan is het echt saai		p5: dat moet je niet doen dan word je verslaafd, en zelf zeg maar als we een spelletje aan het doen zijn dan
17 p5: en dan denk je, ja dan ga ik er ook wel op		p5: dan oh, mijn moeder krijgt een appje en dan even kijken, zeg maar, omdat niemand er bij hun iets van zegt
R2: dus eigenlijk zorg je ervoor dat jullie allemaal op je telefoon gaan		p5: dan gaan ze zelf wel gewoon door en dan denk je van waarom moeten wij er dan mee stoppen?
p5: ja dus een iemand begint ermee en dan gaat iedereen het doen en dan ben je niet meer buiten	52	[00:10:53]
[00:08:17]		p7: wij hebben bij ons thuis afspraken gemaakt...
p6: woensdag wij ehm vorige week woensdag hadden wij, toen hadden we met zn achten ofzo afgesproken		p1: waarom zeg je er dan zelf niets van?
22 p6: op het schoolplein,		p5: omdat ze dan zeggen van ik kijk alleen even
p5: ja er waren er maar vier		p7: wij hebben bij ons thuis afgesproken dat de telefoon bij ons niet aan tafel mag
p6: het waren er maar drie of vier gekomen de rest die zei dat ze niet konden		p7: en als je bijvoorbeeld iets vraagt dat je hem dan weg moet leggen
p6: of bijvoorbeeld S uit onze klas maar die ging gewoon fortnight spelen op de playstation		p7: of bijvoorbeeld als je je eraan ergert dat jij er niet op mag maar bijvoorbeeld mijn vader of moeder wel
p5: ja vijf minuten later kwam een foto binnen, oh een win!	53	p7: dan mogen we dat gewoon zeggen en dan moeten we het gewoon weg leggen
27 p7: ik kwam wel!		[00:11:18]
p6: hij zei echt zo van, ik ga met mijn moeder naar de bieb, bibliotheek, en s2 uit onze klas		p2: maar soms zit ik er dan te lang op en dan zeggen ze, ga je ook nog wat anders doen
p6: die kwam een halfuurtje later en die moest nog dingen doen en die had ook op de playstation gekeken		p2: en dan rond ik het ding af en dan ga ik muziek maken ofzo
p6: en toen was hij gewoon al direct online		R: en denk je dan zelf ook van, oh ja, dat je niet eens zelf door had dat je er zo lang op zat
[00:08:57]		R: of denk je van, nah laat me gewoon lekker bezig
32 R2: en wat vinden jullie daar dan van?	62	

p2: nee ik heb wel vaak dan wil ik eigenlijk wel stoppen maar dan is het nog even dit, [00:11:57]	108	p6: nu zit ze gewoon instagram te checken he p4: nee nee ik ben aan het kijken hoe lang ik er op zit p5: iets met een beeldscherm
p2: iets met koptelefoon, dat vind ik ook altijd wel fijn		p2: oh daar ben ik ook wel benieuwd naar p6: op youtube...
R: even in je eigen wereldje		p4: op youtube heb ik gisteren iets van 4, 5 uur op gezeten
p7: ja mijn broertje die gaat altijd over de bank, over mijn schouders heen hangen en zo	109	R2: en wat vind je daarvan? p3: ja dat is echt veel te lang, mijn ouders zitten er ook over te zeuren, ze willen dat ik huiswerk maak enzo
p7: ik heb dan oortjes in en dan zegt ie, wil je de oortjes uit doen, en dan zeg ik, neee		R2: maar het is moeilijk om...
p7: of zelfs met schermtijd, bijvoorbeeld, dan heeft ie zelf zijn schermtijd op, en dan wil die met mij meekijken		p3: het is heel moeilijk om hem weg te leggen p6: ik had afgelopen week maar twaalf uur...
p7: nee, wil je alsjeblieft weg gaan, en dan af en toe dan komt ie op mijn kamer	110	R: maar herkennen jullie dat, dat het moeilijk is om hem weg te leggen, of te stoppen, of...
p5: ja dat doet mijn broertje ook, of dan gaat ie er stiekem toch nog op		p1-p3: ja p6: nee
p5: zeg maar, dan mag die er maar een uur op, omdat ie er anders veel te lang op zit		p6: ik ben mijn telefoon drie weken kwijt geweest p2: maar dan hoor ik dat mijn telefoon een berichtje krijgt
p7: ik mag een uur op een normale schooldag maar twee uur in het weekend.	111	p2: maar ik mag er niet op p6: mijn moeder had mijn playstation een keer in een kluisje gedaan
p5: je broertje was een keer bij ons thuis en toen hadden ze een uur op de playstation gezeten		p5: nee! p6: ja met de controllers erbij, daar was jij bij
p5: en toen mocht ik een filmpje kijken en toen ging hij helemaal bij mij meekijken		[00:09:30]
p5: en toen zei ik tegen hem, wil je niet zo in mijn nek hijgen, en toen werd hij gelijk heel boos	122	R: en hoe zit het dan met jullie ouders, zitten die ook heel lang achter hun smartphone? iedereen: ja!
09-11-18	123	p2: heel erg p6: mijne zij van nee, ik zit er niet veel op...
[00:00:00]		p4: maar mijn moeder heeft zegt maar facebook, en dan vraag je wat, en dan... ik heb het gevoel dat ze je negeert
L: Wat ga je doen als je je telefoon vergeten bent dan?		p6: he? vraag je wat? de rest: ja ja ja
p4: dan ga ik dood		p4: want dan zit ze gewoon zo *immiteert iemand die op de smartphone zit*
p5: eeeeehh		p4: en dan zeg ik mam, en dan zegt ze, huh... p4: en dan vraag ik wat en dan gaat ze helemaal boos doen dat ik haar stoer
p5: dan kijk ik of ik mijn portemonai bij me heb, en als ik die voel dan komt het goed	132	p6: mijn moeder, die zit dan zo, en dan vraag ik wat, en dan zegt ze niks, en dan zeg ik zwijgen is toestemmen...
p6: dan gaat ie een telefoon kopen		*gelach*
p5: nee dan ga ik naar de alberthein dan koop ik een zak chips en dan ga ik huilen		p5: mijn vader zit eigenlijk alleen maar achter zn computer, gewoon dingen te editen
[00:07:42]		p5: en hij gaf mij voor mn verjaardag een monitor en hij zei, dan hoef je niet de hele tijd beneden een monitor te pakken, dan kan je gewoon boven op je kamer zitten
R: hoe lang zitten jullie er zo ongeveer op? Smartphones of iets met een beeld?		p2: mijn moeder moest me gisteren overhoren, alleen, we zaten dus een uur boven, en van dat uur had zei een half uur
p3: oh dan zit ik er echt heel lang op		p2: ze pakt haar telefoon, gaat ze snaps (snapchat berichtjes, red) voor haar verhaal
p2: ehmm		
p3: gemiddeld meer dan twaalf uur, ofzo, ik ben echt erg		
R2: per dag?	133	
p3: ja...		
p4: mijn ouders vinden in ieder geval veel te veel		
p3: ja		
p2: ik had vijf uur, dat valt wel mee		

	en dan gaat ze op insta zitten, en dan zeg ik, mama ga je me nog overhoren, dan zegt ze, ja dat doen we zometeen wel	R2: en nemen jullie je telefoon ook mee naar bed?
	p2: en dan komt mn vader boven en dan zegt ie, hebben jullie wiskunde ook al gedaan, en dan zeg ik, nee, toen zat mn moeder op haar telefoon, hij helemaal boos op mn moeder, van je moet haar wel overhoren!	bijna iedereen: ja
142	p2: de telefoon kan later	p6: nee, mag niet
	p4: maar is je moeder dan echt erger dan jij, of?	p5: ik ben bijna altijd boven, ik zeg hoi, ik ga naar boven
	p2: soms wel, soms wel	p4: hoe eet je dan?
	p4: ik zou het echt verschrikkelijk vinden als mijn moeder snapchatte	p5: ik ga tijdens het avondeten weer naar beneden
147	p6: mijn moeder voelt zich helemaal stoer als ze twintig volgers heeft *afkeurend gekreun*	p6: nee ik pak mn bordje en dan neem ik die mee naar boven
	p1: mijn ouders vinden facebook al slecht	p6: ja er liggen nog vijf of zes borden boven *afdwalen over schimmels*
	p4: maar ik ben wel blij dat mijn moeder geeeen insta heeft	R: en gaan jullie ook nog naar buiten?
	p5: mijn vader is wel echt erg, die zit dan van een uur of 11, 12 tot 5u s nachts achter zijn computer	p2-p3: ja!
	p2: dat is toch niet gezond!	p5: ja
	p1: omg	R: sporten, of...
	p5: hij kijkt ook heel veel CNN en alle leuke programma's van CNN komen pas om, tussen 2 en 5u snachts	p6: wat is buiten?
152	R: maar zoiets als opnemen, heeft ie daar niet van gehoord?	13-11-2018
	p5: ja maar..	[00:01:21]
	p6: ja maar dan ziet ie het niet live, dus net zoals die daar altijd die bands checken	R: gebruiken jullie je telefoon ook als wekker?
	p3: ja maar ik denk niet dat wij zo erg zijn als je vader die er de hele tijd op zit	sommige ja, sommige nee
	p4: ik doe het niet midden in de nacht, want ik moet wel slapen	p7: nee, ik mag hem niet boven hebben anders zit ik er de hele tijd op denk ik
157	p5: oke mijn vader kookt wel en gaat naar de winkel maar als ie thuis is zit ie meestal achter zn computer	[00:7:55]
		R: en hoe lang zitten jullie er ongeveer op per uur?
		p4: dat weet ik niet, mag ik dat bekijken?
		R: ja, dat mogen jullie bekijken
		*sommigen pakken telefoon*
		p1: maar op zich, ik zit er niet heel lang op, ik doen alleen heel vlug iets
		p1: ja daarom had ik zoveel dingen opgeschreven, want de ene keer doe ik dat, en dan doe ik dat echt voor een paar seconden,