

Master's Thesis

**The Internet Unleashed – A Qualitative Study on the
Influence of Smartphone Technology on Attention and
Sociality in the Lives of Dutch Twenty to Thirty-year- olds**

Written by

Raoul J. Sarfaty

Submitted to the Department of Cultural Anthropology and
Developmental Sociology at Leiden University as part of the requirements
for the Degree of Master of Science.

Supervisor

Metje Postma

Utrecht, October 2019

Abstract

The purpose of this research was to generate insight into the personal relationships of Dutch adults aged twenty to thirty and subsequently how these relationships mediate and affect social engagement and attention. In total, over twenty participants helped to provide data, which was gathered using qualitative methods such as interviews and video recordings. Additionally, quantitative methods were employed such as the installation of apps to track the smartphone usage of participants. The findings prove that the largest part of smartphone use consists of social engagements, which induce feelings of safety, productivity and belonging. Additionally, the findings show that most participants experience adverse effects from their smartphone engagements because of social pressure, unclear expectations, a struggle to compartmentalise their life and addictive smartphone habits. This leads to resistance in the form of self-restraint, avoidance and the creation of friction.

Keywords: smartphone, attention, sociality, communication, cognitive compartmentalisation, addiction, affordances

Acknowledgements

I would like to thank all participants for sharing their thoughts and feelings with me. In particular those who granted me a very personal insight into the relation with their smartphone by agreeing to install usage tracking apps. Without their openness, this study could never have been as thorough as I wanted it to be. A special thanks goes out to Timo, Arne Jan, Richard, Harro, Eva, Simon, Timo and Amber who also allowed me to make video recordings of them.

Furthermore, I want to thank Metje Postma, who guided me over the course of the year. I appreciate her openness and creative way of thinking, which motivated me to strive for a deeper understanding of the topic at hand. I also want to express my gratitude towards Juul Hesselberth and Margreet Rutte, who both supplied me with valuable feedback during the designing phase of this study. Lastly, I want to thank Yara Sarfaty for supplying me with valuable feedback during the final stage of writing this master's thesis.

Table of Contents

Abstract	1
Acknowledgements	2
Table of Contents	3
Introduction	5
I. Conceptual Framework.....	8
I.a Affordances	8
I.b Attention.....	9
I.c Sociality	12
I.d Habit(us)	13
II. Research Description	16
II.a Methodology	16
II.b Positionality and sampling.....	17
II.c Research Limitations.....	18
III. Attractive Affordances and Attention	19
III.a General Usage and Phone Model.....	19
III.b Apps.....	20
III.c Social Activity	23
III.d Entertainment.....	27
III.e Perception of Affordances	28
IV. Smartphone Sociality	31
IV.a Sociality in the Web	31
IV.b The Web in Our Pocket	35
IV.c Just Send Me an App.....	37

V. Negotiating the Challenges of Smartphone Sociality and the New Attention Landscape	41
.....	41
V.a Social Pressure to Conform	41
V.b Unclear Expectations.....	44
V.c Blurred Boundaries.....	48
V.d Unwanted Smartphone Habits.....	52
V.e Resistance.....	58
Conclusion.....	65
Bibliography	69
Appendix – On Film	77

Introduction

As a relatively late adopter, I bought my first smartphone somewhere during 2014. I remember thinking to myself: I shouldn't become one of 'those people who are always on their phone'. Fast forward to now, and I use my phone daily because it's of great use. It helps me plan more, forget less, know more, be bored less, communicate more, be alone less. However, I became aware of a growing frustration with my own (and others') smartphone related behaviour. For one, I get frustrated by the amount of time I spend idling on my phone which makes me feel as if I have a lack of self-control. Add to that the increasing levels of stress resulting from the many disruptions throughout the day, the *perceived* need to be responsive and a feeling of constantly "being on". And then there is the (growing) disruptive influence of smartphones in face-to-face social interactions. This duality inherent to smartphone technology sparked a personal motivation to find out more about how peers cope with their smartphones and how our phones change us.

Over the past decade and a half, smartphones permeated our world¹, all the while continuing to increase in speed, features and versatility. Even though the smartphone as a technology might not offer a lot of new tools in and of itself, as a culmination of the human toolmaking skill, they offer us extended possibilities to act in the moment. Smartphone technology brings tools together in a single, handheld device. This makes it possible to use tools in a synergetic way: not only can you take a photograph, it is instantly developed, *and* you can edit it *and* you can send it to others *and* you can gauge their reactions, all from the same device and without leaving the place you are in. As a part of increasing the accessibility and mobility of pre-existing tools, smartphones offer permanent internet access, which is arguably the most seminal and transformative quality (Vorderer, Krömer, & Schneider, 2016).

And transform us they do: From buying less gum while queuing in the store to contributing to a boom in on-demand working², smartphones have a profound impact on

¹ In the Netherlands, over 99,2% of the people aged 18 to 35 currently have a (smart)phone with internet access (CBS Statistics, 2018).

<https://opendata.cbs.nl/statline/#/CBS/nl/dataset/83429NED/table?dl=158BE> (Visited 09-11-2019)

² <https://www.vox.com/2017/6/26/15821652/iphone-apple-10-year-anniversary-launch-mobile-stats-smart-phone-steve-jobs> (Visited 09-11-2019)

how we act as a species. “In the streets” there seems to be a growing discontent with how smartphone technology affects us. It is a known fact that many tech companies design their apps specifically to exploit biological vulnerabilities in the way our brains are wired³, resulting in all kinds of problematic outcomes such as social media addiction⁴. Some tech companies seem to react to these sentiments by assuming (partial) responsibility. During 2018, Google and Apple both introduced apps that allow the user to gain more insight and exert more control over their smartphone usage⁵. Google even published a website where they acknowledge how troublesome our relationship with technology can be and that is meant to help you reflect on your “digital wellbeing”⁶. This shows that some transformations are unwanted and coping with them is an ongoing process.

Within academic walls, researchers from a myriad of disciplines already study the use and effects of smartphones. Although some research has a primarily positive approach with topics regarding empowerment (see Juris, 2008; Lundy & Drouin, 2015), the bulk of the research gravitates towards a negative and pessimistic perception of the impact of smartphone technology on our lives. Common themes are anxiety, addictive smartphone behaviour, impaired mental health and functioning in general, and the (negative) influence of smartphones on posture. (see Ahad & Lim, 2014; Alshahrani, M Aly, Abdrabo, & Asiri, 2018; Bauer, Loy, Masur, & Schneider, 2017; Bianchi & Phillips, 2005; Cheever, Rosen, Carrier, & Chavez, 2014; Elhai, Dvorak, Levine, & Hall, 2017a; Elhai, Hall, Levine, & Dvorak, 2017b; Jung, Lee, Kang, Kim, & Lee, 2016; Jung et al., 2016; Kim, Kang, Kim, Jang, & Oh, 2013; Lee, Chang, Lin, & Cheng, 2014; Lundy & Drouin, 2016; Roberts, Pullig, & Manolis, 2015; Van Deursen, Bolle, Hegner, & Kommers, 2015; Veissière & Stendel, 2018). Add to this a relative scarcity of research that goes into the practical experiences of life with a smartphone, and it becomes clear that the place smartphones have taken in our lives is deserving of ethnographic research. Ethnographic research can add to the mostly quantitative research, by providing insights on the lived experience of

³ <https://medium.com/thrive-global/how-technology-hijacks-peoples-minds-from-a-magician-and-google-s-design-ethicist-56d62ef5edf3> (Visited 09-11-2019)

⁴ <https://www.linkedin.com/pulse/practical-guide-fixing-your-social-media-addiction-jayadevan-p-k/> (Visited 09-11-2019)

⁵ <https://support.apple.com/en-us/HT208982> (Visited 09-11-2019)

⁶ <https://wellbeing.google/> (Visited 09-11-2019)

individuals *vis-à-vis* their smartphone. This helps to understand the impact of smartphone technology in a more personal *and* broader cultural sense. Even though smartphones are highly personalised⁷ and individual engagements differs strongly, collectively, smartphone technology changes our social and cognitive environment. Starker even, I would like to argue that smartphones have effectively become our environment for an average of over two hours per day⁸, thereby granting them strong transformative powers.

In order to generate insights, I made use of the following research question: How do personal choices related to smartphone technology reflect individual relations with the smartphone as a tool and how does the smartphone mediate and affect attention and social engagement with the world for twenty to thirty-year-olds? An answer to this question is formulated by looking for answers to three sub-questions. The first being: What affordances do twenty to thirty-year-olds perceive regarding their smartphones and how does this shape their attention? This is supplemented by the second question: How do smartphones affect social engagement? The third question: In what ways do people negotiate a changing attention landscape and changing ways of social engagement?

In this article, the first section will present an outline of important theoretical concepts, global developments and lines of thinking that influenced the research. This is followed by the research description in section two, which touches on methods used, positionality and limitations. Section three until five are based on empirical data gathered during the ten-week data collection period allotted for this research. In the first section I start with outlining the perceived smartphone affordances and how these shape use and influence attention. The second section is dedicated to showing how smartphone technology changes the way we exhibit sociality, while the third and final empirical section presents how the apparent influence of smartphones on conceptualisations of sociality, time and place are negotiated by the participants. In the conclusion, the findings are summarised in order to answer the main research question.

⁷ The apps and the way they are organised on the phone are often highly personalised and might even be individualised to the extent that they are one-of-a-kind configurations.

⁸ Research into time spent on smartphones by *Stichting Internet Domeinregistratie Nederland* (Translated: Foundation Internet Domain Registration The Netherlands). https://www.sidn.nl/downloads/68qEO2uhSxmnSd9aLQY1uw/68eb230c09be1d364a62b3d16b044165/SIDN_Trends_in_internetgebruik_2018.pdf (Visited 09-19-2019)

I. Conceptual Framework

Smartphone technology could be considered a new paradigm (Vorderer, Hefner, Reinecke, & Klimmt, 2018, pp. 3–8). As pointed out in the introduction, it ties into many spheres of life and can hardly be studied in its totality. I set out to study the individual relationships twenty to thirty-year-olds have with their smartphones and how this affects their cognitive and social engagement with the world. This open-ended question proved hard to answer within the confines of a master's thesis and led to a focus on the interplay between attention and sociality. Therefore, the following section is meant to look at the smartphone as a tool that offers certain affordances. This is a point of departure to elucidate how smartphone technology relates to our attention and sociality and to bring these concepts together in the context of habit formation and habitus.

Currently, the lion's share of literature and research on smartphone technology stems from disciplines such as psychology and communication studies, rather than anthropology (e.g. Elhai, Dvorak, Levine, & Hall, 2017; Oulasvirta, Rattenbury, Ma, & Raita, 2012; Veissière & Stendel, 2018; Vorderer et al., 2018). This results in a relatively interdisciplinary approach to this conceptual framework.

I.a Affordances

As described in the introduction, the smartphone is primarily a tool. And nothing speaks more for its attractiveness than its nigh unanimous adoption. Except for other kinds of computers, it's hard to think of a tool that is so extensive in its (multi)functionality. And it's portable! In short: Smartphones are convenient. So many functions packed in such a tiny device is unprecedented. On top of that, cross-functionality, like sending a picture immediately after taking it, open entire worlds of new possibilities and conveniences.

These possibilities and conveniences can be described as *affordances*. This term finds its origin in the work of James Gibson (1979) on the psychology of visual perception. He originally defined an affordance of an object as 'a specific combination of the properties of its substance and its surface' in light of what it offers, provides, or furnishes for the animal that perceives it (Gibson, 1979: 67–8). Since then, the concept of affordances has become a topic of discussion (Boyle & Cook, 2004; Conole & Dyke, 2004;

McGrenere & Ho, 2000) and has been adopted by the social sciences to be applied beyond physical objects, e.g. movements, eating habits and emotions (Keane, 2014, p. 7). In the context of this research, it's important to note that every item we engage with, needs to have certain affordances that enable us to engage with it. It needs to afford us an ability to do or achieve something. Regarding smartphones then, affordances are the possibilities to do something that we weren't able to do before or enable us to do something with greater speed, ease, precision or efficiency.

As can be deduced from the original definition, the perception of smartphone affordances is highly personal. Keane (2014, p. 7) writes "they only exist as affordances relative to the properties of some other perceiving and acting entity." As people have different perceptions, personalities, values and beliefs this means that what is an affordance to one, can be "nothing" or a hindrance to the other. Or what is an affordance at one moment in time, is a hindrance at another moment. This is most strongly reflected in the huge variation in smartphone related behaviour (Brown, McGregor, & McMillan, 2014, p. 225; Falaki et al., 2010, p. 194; Lundy & Drouin, 2016, p. 273; Soikkeli, Karikoski, & Hammainen, 2011, pp. 3-4) Any relation between smartphone use and personality traits is mediated by many conditions (Bauer et al., 2017, p. 159), such as location (Do, Blom, & Gatica-Perez, 2011), gender and sex (Lee et al., 2014, p. 379). For instance, women generally make more use of the social affordances of smartphones, while men tend to focus on non-social activities (Lenhart, Purcell, Smith, & Zickuhr, 2010).

I.b Attention

The perception of affordances plays an important role in what we direct our attention to. Only when something might afford us an action or an experience, it can become a focal point of attention. This creates an attention landscape that changes as our priorities and perceptions change. On a micro-level, this landscape changes from hour to hour or from one social environment to the next, while on a macro-level it changes throughout an individual's life. Regarding humanity at large, the attention landscape is subject to change as well. Over the past centuries, these changes largely take place against a backdrop of globalisation processes (Eriksen, 2007).

Processes of globalisation are often driven by technological advancements and bring about shifts in how we perceive the world around us. Examples of these processes are a growing interconnectedness (Eriksen, 2007, p. 69) and increasing speeds of data transfer. One of the results is a compression of time-space, which shifts our conceptualisation of space and how it relates to the time that is needed to traverse this space (Eriksen, 2007, p. 35). Smartphones technology plays into these processes, for instance by enhancing the acceleration that is part of globalisation: New phones bring increases in processing speeds that in turn accelerate data-accessibility. Eriksen (2007, p. 39) points out that acceleration brings obsolescence, which seems to result in a shift towards immediacy that challenges ideas about what is shareable, tellable and meaningful (Von Pape, 2018). In a world of live feeds and constant updates, knowledge moves to the realm of obsolescence faster than before⁹. Before the rise of the smartphone, you could only communicate an experience or your thoughts with others *post facto*, while it is now possible to share photographs, videos and ideas in the moment. This development drastically increases the available information and adds to the emergent attention economy. This idea was brought forth by Herbert A. Simon, who proposed that information consumes attention (1971, pp. 40–41), which could thus be considered a finite resource.

As a point of access to the internet, smartphones provide us with a nigh endless stream of information, while at the same time allowing global parties to put a bid on our attention. Over the past few years, it has become clear that tech companies and app developers had a front row seat and have been exploiting weaknesses in our neurological wiring in order to claim as much of our attention as possible¹⁰ (Harrigan, Collins, Dixon, & Fugelsang, 2010). This reflects an adoption of policies based on the concept of an attention economy, where economical value is derived from our attention. David Vallance¹¹, a digital strategist, notes that apps are frequently gamified in order to increase their use. In practice, this increasingly frequently leads to compulsion and addiction,

⁹ The same goes for the physical smartphone (Do, Blom, & Gatica-Perez, 2011, p. 360), where the next model is already being engineered before you buy the newest phone.

¹⁰ <https://www.bbc.com/news/amp/technology-44640959> (Visited 09-17-2019)

¹¹ <https://blog.dropbox.com/topics/work-culture/do-designers-need-a-code-of-ethics-> (Visited 09-13-2019).

which is not accidental, but “the result of conscious design decisions.” In this regard, design serves two masters. On the one hand it is meant to make it easy for the user to interact with the software; to make sure that when they put their attention to it, the intended outcome is quickly achieved. On the other hand, now that attention itself is of value, design is used to hold the attention

An example of how design impacts our behaviour can be found in the “infinite scroll”, designed by Aza Raskin in 2006. Before then, websites and apps were limited to a certain amount of data that could be shown before requiring the user to request more data. The infinite scroll removed this requirement by loading new data as the user scrolled down, thereby also removing a cue to re-evaluate what you are currently doing. According to Raskin: "If you don't give your brain time to catch up with your impulses, you just keep scrolling." In 2018 he even admitted regretting he ever designed the infinite scroll¹², although realising it would have been only a matter of time before someone else invented it. The example of the infinite scroll shows an opposition between our impulsivity system and our reflective system, where we follow our impulses when we have little time to reflect and conscientiously choose our actions (Lee et al., 2014; van Koningsbruggen, Hartmann, & Du, 2018, p. 55). A possible result of these conflicting systems can be seen in multitasking behaviour (David, 2018; Xu & Wang, 2018). Smartphones offer unprecedented possibilities to multitask (Xu & Wang, 2018, p. 79) by enabling us to (quickly) switch between tasks. This allows us to take immediate action on impulses, and as attention is a finite resource, multitasking causes breaks in our concentration on a single task (David, 2018, p. 85). Even though the impact of smartphone-related multitasking on social and psychological well-being remains unclear (Xu & Wang, 2018, p. 80), it could be perceived as unwanted or could lead to impoverished performances. For instance, when we experience illusory perceptions such as ringxiety (Kruger & Djerf, 2016; Tanis, Beukeboom, Hartmann, & Vermeulen, 2015). Other examples are texting while driving or when multitasking is due to compulsion. These situations raise the question in how far we can control our minds and our own behaviour and show how attention relates to both the conscious and the subconscious.

¹² <https://twitter.com/aza/status/1012550693431857153> (Visited 09-17-2019).

I.c Sociality

In general, the perceived affordances of smartphones pertain to internet connectivity (Vorderer et al., 2016). Because of that, many people dedicate more of their attention to the online world and could even be considered Permanently Online and Permanently Connected (POPC) (Vorderer et al., 2018)¹³. According to Veissière and Stendel (2018), human sociality is one of the main underpinnings of smartphone attractiveness. They state that “smartphones (...) provide a hyper-efficient extension of deep evolutionary urges for connection with others, learning from others, but also comparing ourselves to and competing with others” (2018, p. 2). Veissière and Stendel coin the term hypernatural monitoring for this affordance of increased sociality and continue to argue that it is the main cause of compulsive or even addictive smartphone behaviour. This coincides with the findings of Klimmt et al. (2018, p. 22), who mention that some people will keep track of the online proceedings to such a extent that they “maintain a frequently updated, near-live state of knowledge about their online social sphere.” This repetitive checking for updates can be a part of a POPC lifestyle and can even be as short as one second (Oulasvirta et al., 2012, p. 112).

The term sociality requires some more explanation in an anthropological context. A recent work on sociality in an anthropological context is Amit's (2015) *Thinking Through Sociality: An Anthropological Interrogation of Key Concepts*. In the introduction, Amit bluntly states that “[s]ociality (...) cannot be separated out as a distinct analytical category; rather, it is the ontological ground for a wide range of domains that can be investigated” (2015, p. 4)¹⁴. It is a concept so broad and fundamental to being human, that it can barely be studied on its own. Considering this, a clear-cut definition of sociality doesn't seem to exist within anthropological thought, which was not the point of Amit's writing either (2015, p. 14). Therefore, I use sociality in this broad sense: as the sociation between humans, be it associative or dissociative.

¹³ In my opinion the notion of a POPC world is a paradigm shifting idea when it comes to interhuman relations and how we cognitively compartmentalise our social interactions. It is discussed in-depth in the work of Vorderer, Hefner, Reinnecke, & Klimmt (2018).

¹⁴ Interestingly, the word “smartphone” can't be found in Amit's book. “Communication technology” only a handful of times.

When it comes to sociality, identity is another concept that can't be glossed over. It could be conceptualised as being a dialectical construction that exists between the individual and the social world that person inhabits, based in part on personal characteristics. As such, identity strongly influences the perception and attribution of meaning by an individual and is an important factor in the interaction between an individual and the social world. Smartphones influence processes of identity development in several ways. For one, identity is partly constructed and expressed in the particular behaviour individuals exhibit in the context of being POPC (Vorderer et al., 2018, p. 6). Thus smartphone related behaviour can be an expression of a self-concept *id est* a conceptualisation of one's own identity and personhood (Klimmt et al., 2018, p. 127; Vorderer et al., 2018, p. 6). This directly impacts how an individual displays sociality. Taking into account the visible and public aspects of smartphone use, ideas about ascribed and achieved statuses add to the influence of smartphones on identity development and the way we exhibit sociality (Kottak, 2011, p. 127).

As explained before, smartphones grant us enhanced mobility in what we can pay attention to. Because mobile- and smartphones offer increased communication possibilities and accessibility thereof, they allow us to engage more freely with people across space, ideologies and socio-economic classes (Jordan, 2018, p. 167). This means we can engage with a larger social space which ties into the increasing global interconnectedness mentioned previously (Eriksen, 2007, p. 69). A need to physically be present is removed, as smartphones allow us to be stationary and sedentary while still engaging (socially) with the rest of the world (Alshahrani et al., 2018; Jung et al., 2016; Kim et al., 2013). This opens up the possibility to have a bigger number of more diverse interpersonal relations and find or receive more information that we perceive as meaningful (Von Pape, 2018). This way there is an ongoing change in our attention landscape and how we can engage socially.

I.d Habit(us)

As previously mentioned, sociality is considered to be the outcome of an evolutionary drive (Veissière & Stendel, 2018). The evolutionary underpinnings of our behaviour also

find their reflection in the concept of habitus. Pierre Bourdieu describes habitus as “a system of schemes of perception and thought” (1977, p. 18), with an emphasis on the personal experiential history of the individual. Even so, in an evolutionary fashion, it is (re)produced through successive generations in reaction to conditions in the environment (Bourdieu, 1977, p. 72, 97). Foundational to habitus are principles of cognitive organisation such as classifications and categorisations. These transcend conscious cognition (Bourdieu, 1977, p. 97) and often defy direct description. However, because of this depth, habitus profoundly impacts our actions and the perception of meaningfulness.

The concept of habitus can be extended to habits. When looking at habits at a fundamental level, they are what we frequently pay attention to. We build some habits conscientiously, in order to improve ourselves, while others might come to be in a more passive, subconscious manner. We might even have to actively resist habits we perceive to be bad. Regardless of being beneficial, benign or detrimental, habits play a significant role in what we pay attention to. In a sense, they standardise a behaviour, often shifting our attention more towards the subconscious. That way habits help form the attention landscape and frequently obscure the original motivations from which the, now habitual, behaviour arose. In the light of current research on addictive smartphone behaviour, anxiety and impaired mental health (Cheever et al., 2014; Elhai, Dvorak, et al., 2017; Harrigan et al., 2010; Van Deursen et al., 2015), I deem it worthwhile to at least provide some context on the inner workings of detrimental habits.

Compulsive or addictive behaviours find their origin in the reward centre of the brain, where the neurotransmitter dopamine is released when striving for or actually participating in behaviour that is evolutionary advantageous. This gives us the feeling of being rewarded and reinforces the behaviour (Bolhuis & Giraldeau, 2005). As a bridge from a beneficial or benign habit to addictive behaviour, Berridge and Robinson (1993) introduced the Incentive-Sensitisation Theory of Addiction. They make a distinction between “wanting” and “liking”, where *wanting* is the motivation, a cognitive desire, a craving or urge and *liking* is the feeling of reward when this desire is consumed. According to Berridge and Robinson (2016, p. 1) it is an excessive amplification of *wanting* that is the essence of addiction. The actual *liking* might defy a proper description of what exactly

makes the behaviour pleasurable as it “goes beyond mere sensory properties” (Robinson, Fischer, Ahuja, Lesser, & Maniates, 2015, p. 3).

From this point of view, compulsive smartphone behaviour could in many cases be considered addictive behaviour and isn't different from other forms of addiction¹⁵. Additionally, smartphones offer affordances to indulge in a variety of other addictive activities wherever we are (Van Deursen et al., 2015, p. 417) and to a greater extent than naturally would be possible. Hypernatural social monitoring (Veissière & Stendel, 2018) is an example of this, and so are gaming, watching erotica or porn, gambling or shopping (Klimmt & Brand, 2018). Smartphones then, change our environment and subsequently how we cognitively compartmentalise certain aspects of life. This affects our habitus and has the ability to affect our way of being on a fundamental level. Regarding sociality, I want to argue it is mostly engrained in our habitus as something positive and to strive for, as words like a-social or anti-social often express a negative state and successful socialisation is the intended outcome of an upbringing.

Concludingly, smartphones offer affordances that have, in a sense, made our minds and attention more mobile through ubiquitous internet accessibility. In general, heavy use of smartphones is becoming normalised, which could lead to a collective stabilisation in behaviour that would previously have been defined as addictive or problematic (Gonzales & Wu, 2016; Hall, Baym, & Miltner, 2014; Klimmt & Brand, 2018). Meanwhile, a POPC culture and the formation of compulsive behaviours appear to contribute to the rise of “technostress” (Lee et al., 2014). This is stress that is experienced by always being “on”; from the disruptions caused by smartphones and the possibility of exclusion when not participating in a POPC culture as much as others do (Knop-Huels, Winkler, & Penzel, 2018, p. 135; Lee et al., 2014). People increasingly feel there is a social obligation to immediately deal with incoming messages, especially in a professional setting or when dealing with family members (Klimmt et al., 2018, p. 21). At the same time, smartphone technology offers a great number of affordances making the effects of smartphones on cognitive compartmentalisation, human identity and social relations highly complex (Hall et al., 2014, p. 148).

¹⁵ <https://www.psychologytoday.com/gb/blog/the-fallible-mind/201511/ambivalence-in-addiction>

II. Research Description

II.a Methodology

In order to collect data, I used two staple methods of anthropological research: interviews and (participant) observation (DeWalt & DeWalt, 2011). In total, I spoke to about twenty people, five of whom I interviewed in depth multiple times. In addition, I used smartphone apps to track usage data¹⁶. First, because self-reports are known to have a low reliability and can be problematic when taken at face value (DeWalt & DeWalt, 2011, pp. 122–123; Do et al., 2011, p. 354; Lee et al., 2014, p. 379). Second, because I could use the quantitative data to reflect upon with the participants, granting me and them better insights into their factual behaviour. Participants made multiple screen recordings of the data within the apps so I could analyse this at a later stage. This combination of qualitative and quantitative data gave me insight into overt and observable behaviour while also revealing more tacit knowledge through questions related to drives, feelings, self-concepts and conscientiousness.

Doing research among peers and within your own cultural context can be challenging. Lacking an outsider perspective can easily lead to oversight, which I wanted to control for in some way. For this reason, I limited my smartphone use to only the basic functions for a month. During the first week, I only used my phone for calling and sending SMS text messages, with the only exception being a tracking app that allowed me to see how much time I spent on my phone and how many times per day I picked it up. During the three subsequent weeks, I allowed myself to re-enable apps when they became relevant to my direct needs. This included apps for an alarm, banking, travel planning and rain forecast. The method of what I would like to call reverse-participant-observation, granted me new insights into my own smartphone related experiences which in turn allowed for a deeper understanding of smartphone use in general.

Additionally, because I myself fall within the sampling criteria and there are no privacy concerns in monitoring my own behaviour and feelings, I also employed an auto-ethnographic approach. This allowed me to deeply reflect on the relationship I have with

¹⁶ Apps used were Apple's Screen Time, Android's Digital Wellbeing and Mute for iOS.

my smartphone and the way this shapes my attention. I frequently wrote evaluations and reflections on how certain aspects of my smartphone use made me feel. These not only helped me with the analysis of what others said, but also provided me with insights which can be found throughout this work.

From early on, I wanted film to be part of the final output, because it fits the screen mediated nature of smartphone usage. Additionally, Pink (2012, p. 14) argues that “the visuality of the Internet is experienced at an interface between everyday materialities, the technologies through which we access the Internet and the place of the visual in the multi-sensory experience of the screen.” Because of the (visual) role the smartphone fulfils as a portal to the online world, I think film is an excellent medium to convey this. In practice however, this turned out to be a challenge that resulted in me abandoning an almost completed film and creating a new film that stands largely on its own. I expand on this in the appendix: On Film.

II.b Positionality and sampling

I was highly aware of the duality inherent in smartphone affordances that might turn into hindrances. By showing a big variety in behaviours, the literature paints a clear picture about the personal nature of affordance perception (Brown et al., 2014, p. 225; Falaki et al., 2010, p. 194; Lundy & Drouin, 2016, p. 273; Soikkeli et al., 2011, pp. 3–4). My own position on smartphones had been shifting prior to this research as I started to view them more critically. As mentioned, I am also a relatively late adopter of smartphones and used my phone about one hour per day, which is (apparently) less than average¹⁷. This introduced a potential for a selection bias. For these reasons, I partly selected for people who had a certain stance toward their smartphone that could be considered as extremes of the proverbial spectrum. This included participants who use their smartphone over five hours per day to participants who don't even (want to) own a smartphone.

¹⁷ https://www.sidn.nl/downloads/68qEO2uhSxmnSd9aLQY1uw/68eb230c09be1d364a62b3d-16b044165/SIDN_Trends_in_internetgebruik_2018.pdf (Visited 06-10-2019)

II.c Research Limitations

Limitations for this research are manifold. Most impactful was the short time span of ten weeks in the field, which resulted in a small sample of under twenty participants. The sample predominantly consisted of highly educated Westerners, which is mostly the result of me using snowball sampling to find participants (Boeije 2010, p.40). I made efforts to counter this bias, but it produced little results. Even so, there are some participants included with lower levels of education, be it a minority.

Difficulties in sampling were increased by the enormous diversity in smartphone related behaviours I encountered. As mentioned, the literature is quite clear on the existence of this variety, but it still surprised me. Even within this small sample, the time spent on the phone and daily pickups varied with factors of 1:100. Additionally, the diversity in apps used by the participants and different operating systems make generalisations of these aspects of smartphone use almost meaningless with this sample size. The following section provides an in-depth presentation of these findings.

III. Attractive Affordances and Attention

Before taking a deeper dive into smartphone sociality, I think it is necessary to first concretely show what it is that people do on their smartphone and what they perceive as affordances. Fundamental aspects of smartphone use, such as the time we spend on our phone, the apps we use and how many times per day we pick up our phone, say a lot about the role our smartphone plays in the attention landscape. Therefore, this section serves to grant a better understanding of what smartphone usage can mean in the lives of twenty to thirty-year-olds. Subsequent references to individual cases of smartphone use can be better understood in the context of this section, which consist of general statistical findings combined with qualitative ethnographic details.

III.a General Usage and Phone Model

Regarding the time spent on their phone and daily pickups, the relatively small sample of informants showed a huge diversity (See image 1a). However, most participants use their phone between one and four hours per day. Considering phone pickups, the variation measured is large as well (See image 1b). Where the highest frequency means there is on average only two-and-a-half minutes between pickups (assuming sixteen waking hours). I want to stress that numbers like a few minutes to over eight hours are by no means outliers and reflect regular use by certain individuals, measured over the timespan of a week. The same goes for numbers like 378 pickups, with that person picking up the phone on average 290 times every day. In short, these behaviours are habitual.



Image 1a. Diversity in daily usage time

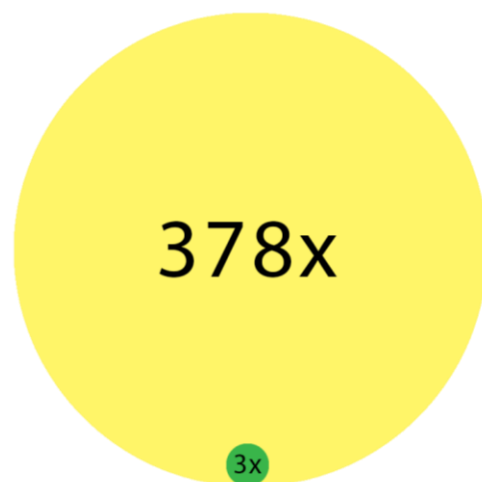


Image 1b. Diversity in daily pickups

Additionally, Yoel Roth, a technical engineer with Twitter, says the following: “The diversity in behaviours that we see are more wild than you can possibly imagine. And it’s international, it’s different communities of people on Twitter.¹⁸” This suggests the diversity can be considered a hallmark of engagement with (smartphone related) technology in general.

The same goes for the phone model. Only a few participants in this research had the same model of phone¹⁹. Phone model choice seems to be mostly pragmatic, which isn’t surprising considering the current similarity in functionality between smartphones. Even so, participants expressed varying reasons to buy a certain model. Britney (23) bought an iPhone, because she is used to Apple products and the transition to a newer model iPhone instead of a different brand smartphone is easier. Karen (22) instead, expressed a marked *dislike* of Apple and didn’t want an iPhone for that reason, while Arne Jan (28) bought his phone because he would get a free headphone with it. Most others said their phone choice was primarily based on considerations regarding budget, camera quality or screen size.

III.b Apps

Arne Jan, a system administrator, uses his phone about an hour per day on workdays and under half an hour during the weekend. When driving to clients he uses Google Maps to navigate, Flitsmeister to be notified of speed cameras and Spotify to play music. Once he arrives at work, he records his mileage in an app. During the day he regularly calls with clients and uses a password manager to keep track of passwords. Multiple authenticator apps function as added security for accounts he needs access to. Sometimes, when he needs to get into dark corners to replace cables, he uses his flashlight for light and his camera as a third eye or to take a picture and record what the situation looked like before he began. When the cables are numbered, he will record it in his notes app. A network scanner app helps him find the best settings for setting

¹⁸ Who is Manipulating Twitter? - Smarter Every Day 214 <https://youtu.be/V-1RhQ1uuQ4?t=1282>

¹⁹ The iPhone 5s (2013) was particularly popular.

up wireless networks. Arne Jan told me that before smartphones, you had to buy a separate network scanning device *and* pay a yearly fee to use it.

Using a smartphone = using apps. Installation of other apps than those that come preinstalled, further personalises the smartphone experience and gives an insight into what affordances users see in a smartphone. As people can choose exactly the apps they want, it is not surprising that all participants do this. Apps extend the functionality of the smartphone and can often replace entire devices. This way, smartphones become the nucleus of functionalities and activities, where before these were less centralised, less mobile and often *more* expensive.

The exact number of apps installed again varies strongly, from just a few to over seventy. Every single participant uses WhatsApp daily, except for Simon (26) who is the only participant who doesn't own a smartphone. Apps that fall into disuse are uninstalled by some, but most participants keep them on their smartphone as contemporary smartphones often contain enough space to store over fifty apps. A complete list of apps used would be too comprehensive, as I've encountered 150+ individual apps. They range from an app to shop for clothing to the network scanner that Arne Jan uses; from a game in which you play Kim Kardashian to an app through which you can fill in your tax forms; from guitar tuners to a digital college ID. I recommend the use of big data techniques to generate more insights on this aspect of smartphone use, which was beyond the scope of this research.

Timo (21) is the treasurer of the cultural anthropological study association at Utrecht University. He uses his phone mostly for WhatsApp, Reddit and playing games which amounts to an average of over four hours per day. He tells me he used to organise his apps. Back then, he even took his muscle memory into consideration when choosing where to place an app. His use was so habitual that he would automatically tap a certain part of the screen to start an app he frequently used. However, if he had moved desktops in between, he would start the wrong app. "I find that very annoying, then I have to quit that app and that costs time." His solution to this problem was to put an app - that he wants to check frequently anyway - in that spot on the second desktop.

So many apps, so many ways to organise them. Some participants, such as Arne Jan, neatly organise the apps into made-up categories, while others leave the apps in their original location (See image 2).

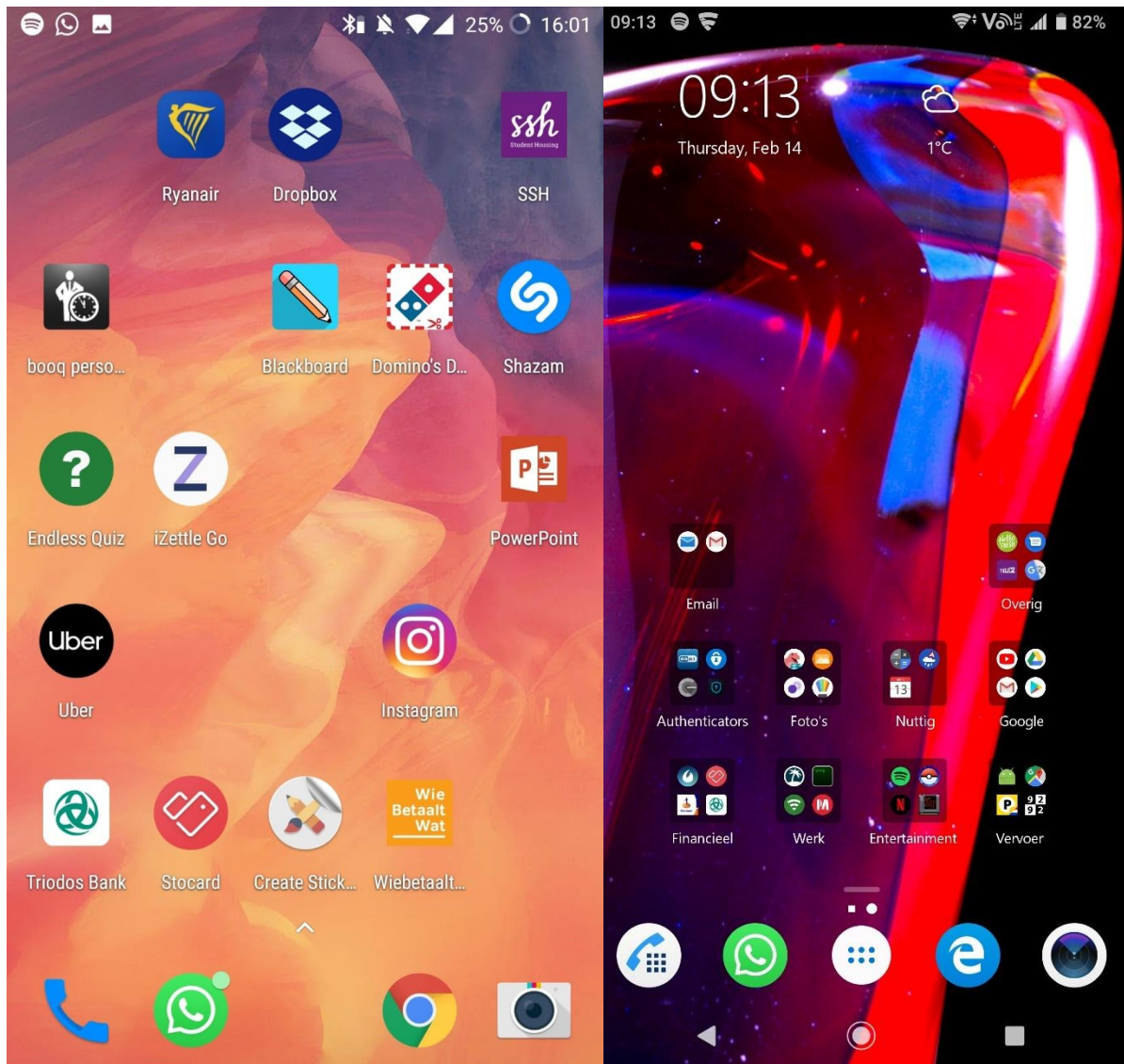


Image 2. Two screenshots show vastly different approaches to organising apps.

As for the actual time that is spent using apps, people mostly gravitate towards social apps. Entertainment apps, such as Netflix, Spotify, Reddit, 9GAG or games make up another large portion of use for the most people. I will further elaborate on these two categories in the following paragraphs. Practical apps, such as notes, maps, flashlight and the camera take up least of the time. In contrast to many social and entertainment apps, they don't ask for our attention, they are merely there when we need them and often

have a clear function. These apps do however, afford something quite distinct compared to social and entertainment apps: an increase in self-sufficiency. By extending the multi-functionality of the smartphones, apps allow for an increase in our individual potential for action. This means that we don't have to engage socially anymore, but can rely on the capabilities of our smartphone to provide us with the information and functionality we need.

III.c Social Activity

“...you see something funny that somebody else will like as well. Then you tag that person and you have some kind of contact. You think about that person and that person reads that and thinks about you. That's kinda fun.” – Britney

All participants spend fifty to ninety percent of their smartphone time on WhatsApp, Facebook, Instagram and Snapchat. This goes to show that smartphones use truly is predominantly a social endeavour. The great extent to which sociality can be a driving factor in smartphone use, becomes clear in the life of Britney (23), an anthropology student from Utrecht. She spends between six to nine hours per day on her phone, of which 25 hours a week on Facebook and WhatsApp combined (See image 3).

Besides tagging people, Britney stresses other affordances of smartphone communication as well. Sometimes she wants to have a second opinion on a text conversation she had. Without having to retype what happened, she makes a screenshot of the entire conversation and sends this to her friends to get their opinion. Or during lunch with her mother, she can take out her phone to show pictures of her holiday to her mother. These pictures were partly taken by herself, but also by her friend, who then immediately shared them with her through WhatsApp. Another friend took polaroid pictures of which she made digital copies by photographing them with her smartphone. This way she has all the pictures of her holiday.

Britney tells me her father is a pilot who lives abroad and often is away from home. This makes it hard for them to call each other. She takes out her phone and opens the Find your Friends app on her iPhone. A map pops up with two round bubbles in which a photograph of her father and stepmom are shown. With her thumb and index finger she swiftly zooms in on Italy, only to stop when she reaches street level. The two bubbles float around the house. "Both are just at home now, so I could call now", Britney concludes.

Eva (22) has taken a more critical stance toward smartphones than Britney and did a so-called Nokia challenge. She explains that in order to complete the challenge, you must buy a Nokia phone without internet capabilities and use that for a month instead of your smartphone. Even so, she appreciates the affordances her smartphone gives her.

"With Facebook I really value that almost everybody has it and you can stay in touch with people around the world."

Eva is connected to Facebook friends whom she met during holidays. And even though she doesn't meet these people anymore and contact with them isn't close or frequent, Eva would contact them again if she visits those places. She cherishes the interaction with people that she shares good memories with. That the contact doesn't go deeper than a



Image 3. Britney's usage statistics

quick message doesn't bother her. To Eva, a message is a momentary sense of connection and nostalgia that is shared instead of felt alone.

Another example of the affordances related to sociality, can be found in the world of social media influencers such as Amber²⁰ (23) from Nijmegen. Currently, Amber has over 8500 followers on her Instagram profile @am_blurr, where she presents herself as a "Dutch girl traveling the world and posing for pictures". She posts multiple times every day, ranging from a text with a question or something that discloses more about herself (See image 4) to a photo of a cup of coffee or a short video of her and her boyfriend somewhere abroad. Most of the posts however are of Amber herself, often with a focus on clothing, some accessory or the location. Amber estimates she uses her phone for about four to five hours per day. During this time, she spends



Image 4. A post by @am_blurr on Instagram.

about two hours on Instagram creating posts, sharing them and engaging with followers who left reactions to her posts. At this moment, she gets regular requests from brands to promote their items. If Amber likes the items, she will get these for free in return for one or more posts of her wearing the items. To Amber, @am_blurr is mostly a hobby that hopefully will grow into an occupation when her following is big enough to start getting paid in coin for her promotions.

²⁰ There is no clear-cut definition for this, so I asked Amber what she would call herself.

Having spent quite some time on Instagram myself, I came across profiles like those of Amber a lot. Often of young, relatively attractive women who show off clothing and seem to be more abroad than in their home country. I say to Amber that I have a hard time not seeing her online representation as a dime a dozen and ask what her take is on that. She answers: "I'm not thinking about that... if I'm like all the other Insta-girls or not, because I'm busy doing things that I really dig. The clothing I'm wearing is clothing I really dig. The trips I make are not so I can put them on Instagram, I make them because I just like traveling. So, yeah... I'm actually completely not thinking about how I'm different or the same as all the others, because I'm doing things that I like."

Much like the smartphone affordances related to utility, those related to sociality also tie in with a sense of productivity and accomplishment. Eva expressed this concisely when she said: "Everything goes way faster if you can communicate quickly with each other, because communication is the most important part of doing something together or organising something together." When I asked Timo about the biggest advantage of having a smartphone is, he answered he can't imagine life without instant internet access. "That you can't look something up immediately, that you can't WhatsApp somebody immediately. Then you have to send an SMS. That was possible in the past, but people were just much less connected. And now you just expect people to react immediately...".

Both Eva and Timo mention faster communication as a social affordance that enables them to be accomplish more. Concludingly, the affordances to exhibit sociality seem to be perceived as a boost to productivity. At the same time, they help us affirm our social standing by enabling us to connect to more people and stay in contact with them. Additionally, smartphones can also help us feel safe and create a portable safe space. This was expressed most explicitly by Sanne (23), a veterinary student who mentioned she feels markedly less safe when she gets out of the door *without* her smartphone. With a smartphone and an internet plan, you are never truly alone.

III.d Entertainment

Britney tells me that she just really likes to chat and mentions a group app where about five hundred messages would be sent in a timespan of three hours. "I'm the one who sends the most messages," she says. She walks further down memory lane. Nine years ago, when she didn't have a smartphone, she got an iPod touch. This device was meant as a music player, but it was also possible to install apps on it. So, Britney installed a chatroom app, in which she chatted with people from all over the world. There would almost always be someone online to chat with. Most of the time they chatted about superficial topics, but Britney still has contact with some of these people today, nine years later.

As this vignette shows, sociality can be entertaining and a hard distinction between sociality and entertainment should be considered spurious. This is also apparent in the case of Amber's Instagram profile. The sociality she displays there is entertaining to her and is in fact utilitarian as well, since she is given items and wants to make it a job. Nonetheless, there are smartphone affordances that fall more strictly in the realm of entertainment.

Bram (28) and Dianne (27) are a couple who live in Utrecht. Bram is a structural engineer and works at an architectural firm. Dianne has a master's degree in world religions and just started a traineeship in credit management. Both estimate their smartphone use to be somewhere between one and two hours per day. Bram thinks most of this time is spent browsing "entertainment before going to sleep". He uses the app 9GAG for this entertainment so he can "look at stupid stuff", as he calls it. Dianne thinks she spends most of her time on email and entertainment as well, but uses the app Imgur instead of 9GAG. Both apps provide users with pictures that are funny, interesting, adorable or relatable in some sense and often serve to provide quick entertainment. I see a reflection of myself when they tell me they often pick up their phone on the toilet, just to entertain themselves.

“Sometimes you will hear me laugh on the toilet, that happens”, Bram admits while Dianne laughs in agreement.

Besides content apps, there exist many other options for entertainment, such as YouTube and Spotify. Even though Arne Jan uses his phone in a mostly utilitarian way and doesn't use social media like Facebook, Instagram or Snapchat, he does frequently spend time on Reddit. To him this is a form of entertainment and a source of news. He specifically appreciates that he is able to have contact with people who didn't have a voice before. News can come to him directly from the people who live it and it is not mediated by media companies with their own interests.

Other participants find entertainment in gaming apps. Timo for instance, plays Grepolis, a Massive Multiplayer Online game. This is a game in which you must build buildings and army's in order to conquer new lands and other players. To do this most efficiently, the game requires you to interact with it every few minutes. While Timo describes it as a great “distraction game” that gives him something to do, he also questions what it gives him besides distraction. A question to which Karen (22), a Liberal Arts and Sciences student from Utrecht, found an answer. Karen who, like Eva, did the Nokia challenge found that distraction can be valuable. She uses her smartphone for about two-and-a-half hours per day and while this is mostly for WhatsApp, she likes to play what she calls “a very stupid game”. She uses this game as a form of meditation to clear her mind, because she noticed she would often be completely “on” in the morning.

All-in-all, entertainment is an important aspect of smartphone affordances. The apps or websites are manifold and there seems to be something for everybody. Additionally, the content can often be tailored to your personal likings and by giving feedback on what you like specifically, algorithms will provide you with more of what you like. This makes your smartphone a world that revolves around you.

III.e Perception of Affordances

As I've tried to convey, there exists an enormous diversity in perceived affordances of smartphones and this lies at the basis of the behaviour individuals show *vis-à-vis* their smartphone. It is obvious that many tasks nowadays become harder without a smartphone, because of lessened communication possibilities and having to use more

separate (and less accessible) tools to achieve the same outcomes. Even so, there are some people who see a more limited number of affordances.

The brothers Richard (28) and Harro (27) live together in Zwolle. Richard works in logistics after quitting his chemistry education in the final year and Harro started his own business in custom furniture after obtaining a degree in Industrial Product Design. Both brothers have smartphones, but don't have mobile internet access outside of the house. Richard doesn't have Facebook, Instagram, Snapchat or LinkedIn and thinks he uses his phone on average about ten minutes per day. Harro does have Facebook and LinkedIn, but uses them mainly for business purposes. He estimates his smartphone use to be between one and one-and-a-half hours per day. During our talks, they expressed concerns about possible carcinogenesis through cell phone radiation and the upcoming 5G network.

Despite their scepticism, Harro and Richard *do* see merit in the more practical functionalities of a smartphone. "The flashlight comes in handy in the dark sometimes", Richard remarks. Harro laughs and adds that he regularly uses notes for his shopping list. He also uses his phone to take pictures of the work he did, so these can be sent to the client and to keep track of progress. Additionally, Harro says he frequently spends time on Spotify to browse through the 'discover weekly' list. Spotify generates this list based on Harro's listening history, so he can discover new music. Richard on the other hand barely uses his smartphone for entertainment. He doesn't like to look for entertainment and relaxation in rushed moments and wants to deliberately take time for this. "Why would I watch Netflix on my phone if I've got a 24-inch screen over there?"

To conclude this section, Richard and Harro are critical of smartphone technology and what effects it has on humanity, but nonetheless see certain affordances. Their perception of a more limited number of affordances mostly relates to the specific qualities of smartphones. Richard for instance, perceives these qualities as less valuable than a non-smartphone alternative, thereby seeing no affordance. Others, like Eva and

Karen underwent a change in their perception of affordances, which led them to participate in the Nokia challenge. For instance, Karen experienced a change in the perception of social affordances over time. “Eventually, I ended up in a flow where I was doing everything with everybody. Continuously, every second. Also thanks to WhatsApp. At a certain moment I thought: I just don’t want this anymore. I want to go back to: I’m with myself today. And I actually really like that.” This shows how the perception of smartphone affordances is non-static and subject to change, which I will elaborate on in section VI about resistance. But first, we turn our attention to the specific qualities of smartphones.

IV. Smartphone Sociality

As we have seen, social engagement through smartphone can take many forms. Practical communication to organise something, as mentioned by Eva, or browsing through the online profile of an idol or a friend as a means of entertainment. In this section, I want to zoom in on the specific qualities of these social affordances. To start, I will look at the qualities of sociality when it is exhibited through the internet, as this is the basis upon which smartphone sociality is built. Subsequently, I show how the particular affordances of smartphones add to and change the way we can exhibit internet-mediated sociality.

IV.a Sociality in the Web

The telephone lets us talk over distance, the radio lets us hear over distance and the television lets us see over distance, the internet does all this. Functioning as a world wide web, the internet connects. It connects people to people, people to devices, devices to devices, devices to information, etcetera. This web creates a space of pure information, where physicality is left behind. In this web, we exist as online presences. Like Amber's Instagram profile, most of us develop an online presence in the form of photographs, audio, text messages or video. We build this presence by using the services of Facebook, Instagram and Snapchat or maybe just through sending emails and engaging in WhatsApp conversations. This online presence is a continuous presence, in the sense that it exists regardless of our current engagement with it, because even when we aren't online, our information still is. They serve as placeholders for our physical presence.

Now that physicality is no longer a restraint, making a connection has become easier, whatever this connection may be. It is like almost all people are in the same space and to contact people, we don't have to rely on certain physical knowledge anymore, such as phone numbers or addresses. This information often exists within the online presence of a person or is replaced by a contact button. We also don't need to have other people functioning as links between us and the person we want to contact, this role has been taken by the systems that connect us. Social media like Facebook and LinkedIn, even suggest people that might be interesting for you to connect with. These kinds of systems allow people to find a new partner through Tinder or Happn, without the need to

physically meet every single one of them. Additionally, our online presence can be outfitted with just the right information, so it makes it easier to judge if making a connection will be worthwhile. Having a non-physical presence allows Amber to connect to an audience of over 8,500 followers who are interested in what she has to offer. And even though most of her followers are from the Netherlands, her audience consists of people from all over the world. This shows how the transcendence of our physical limitations also enhance processes of globalisation, such as the growing interconnectedness (Eriksen, 2007, p. 69).

Amber feels her @am_blurr account “isn’t personal” and has a second *personal* Instagram account. She has a more business-like approach to the @am_blurr account and even feels like she was busier curating her image on her personal account. Even so, Amber acknowledges that the images that are shared on Instagram are often highly curated and thinks this might be detrimental for younger women in particular, because they might not truly understand that what they get to see is not the reality. I tell Amber it looks like she is often traveling and barely at home, as many pictures on her profile are taken in distant countries. She reacts in surprise: “I actually never thought about that you might think I’m always abroad” and continues to explain that so many posts are travel pictures, because she often feels more inspired to take pictures when traveling.

The non-physical quality of internet-mediated sociality allows all internet users to have a multitude of presences. This can be two accounts on the same platform, like Amber, but often this extends to our presence on multiple platforms. Personally, I have a presence on LinkedIn, Reddit, and multiple on Facebook, Instagram, YouTube and so on. And while non-physicality allows for many connections, the case of Amber shows that these presences are often curated and create a specific image of their real-life counterpart. This is one of the caveats of transcending physicality: It comes with a certain anonymity that makes it hard to control for authenticity. As mentioned previously, the design of interfaces of any medium we use, defines our possible actions within that medium. Additionally, this interface exists literally *in-between the faces* of actors as they both face a

screen. And these screens obscure, as they make it possible for people to hide behind them and assume anonymity.

While browsing LinkedIn, I see that a journalist shared an article with a caption that seems inappropriate to me, considering the contents of the article. I reply, asking if I can ask her about her view on it. She agrees. After two messages back and forth, she misrepresents my position by twisting my words and concludes that I don't "have the right knowledge" to be asking questions. When I point out the fact that she twists my words and in effect commits a strawman fallacy, I am promptly blocked. Here all communication ends: No way to continue a conversation, see the comments or even see her LinkedIn profile. She just disappears from one part of my online world. And I assume I disappear from hers.²¹

As this example shows, the design of the interfaces often makes it possible to create our own curated social sphere through mechanisms of inclusion and exclusion. In a sense, we can put out our own restraining orders. So, while internet-mediated sociality might seem like a room where everybody is present and approachable, we are free to ignore or even block each other. And we can do so without social stigma or being called anti-social or unreasonable. However, because everybody can contact everybody, it sometimes becomes impossible to give attention to every person who asks for it.

Amber currently replies to everybody who leaves a comment on one of her posts, but realises that this will at some point be impossible when she gets too many comments. Also, some comments on older posts aren't shown to her because of the algorithm. Amber says she doesn't exactly know how this algorithm works, but noticed that it favours Instagram users who post daily. She also saw a decrease in engagement with her posts when she didn't post for a few days.

While the internet affords Amber to grow a sizeable following, as Amber's audience grows, so does the input she receives from her followers. Eventually, this creates a

²¹ Based on research diary 09-02-2019.

disproportionate amount of input, compared to the attention Amber is willing to pay to her following. While this is nothing new when compared to famous people, what is new is that there is a contact button on her profile and a reply button under every post. This means every single person who comes across her profile or posts can send her a message on a whim. Amber's comments on the algorithm, once again show just how much design influences our perception and use by determining what is brought to our attention.

Additionally, while quality of non-physicality can lead to anonymity and obscurity, it paradoxically also enhances our ability to monitor one another, or direct our attention to people without them noticing. The online presences that are necessary to engage in internet-mediated sociality are often quite public. Even though we are given the option to make them private or to select which people can see what content, surprisingly many online profiles are open for all to see. Apart from that, after a connection is made, most restrictions regarding what we can see on that profile are lifted. This way, our online presences could be considered display stands, where we can showcase (certain aspects of) ourselves. This means that people can form a picture of us, but without the nuancing context of real life. In the case of Amber's Instagram profile, she wants to display herself and draw attention. Or considering Britney who monitors her father's whereabouts, they both benefit from this. However, it is easy to see how the semi-public nature of our online presence can be less beneficial. For instance, a 2017 study by CareerBuilder²² showed that seventy percent of employers use social media to screen candidates. Or a friend of mine dates a new girl and out of curiosity I can simply look her up and go through all her Facebook photographs and friends. In conclusion, non-physical presence also means that we have extended possibilities to pay attention to each other, even when we aren't aware of this or didn't conscientiously give consent.

²²<http://press.careerbuilder.com/2017-06-15-Number-of-Employers-Using-Social-Media-to-Screen-Candidates-at-All-Time-High-Finds-Latest-CareerBuilder-Study> (Visited 09-25-2019)

IV.b The Web in Our Pocket

“People just know with me, if they send me a message, I’ll almost always react immediately. Because I just do that consistently”, Timo tells me. People also commend him on his quick reactions and he wants to live up to the expectations because he values that. At the same time, he says that it might not be good for him to constantly be active and always be on. Towards others, Timo has the same expectations, especially when Timo messages a good friend, he really dislikes it if there isn’t an immediate reaction. “He is just a good friend and I expect that I’m worth it that he messages me back.” Lately, Timo sometimes has to wait before reacting and leaves messages unanswered, because he doesn’t yet have all the information to reply. “I really don’t like that, because then it stays in my head. I always have to be the last one who answered, in my opinion.”

As stated before, the smartphone affordances related to permanent internet connectivity are arguably the most transformative ones (Vorderer, Krömer, & Schneider, 2016). The smartphone cuts the wire and lets the internet off the leash and into our pockets. This enables Bram to look at entertaining pictures and have a laugh while he’s on the toilet, but I want to argue that the development of a culture in which we are Permanently Online and Permanently Connected, also has the potential to fundamentally change how we exhibit sociality.

Britney opens the Screen Time app on her iPhone. Her statistics show that she uses her phone on average seven hours per day. Most of that time is spent on Facebook, WhatsApp and Snapchat. I mention that she picks up her phone on average every six minutes.²³ “That’s really quite a lot”, she replies and adds that it really depends on what she is doing. “If you are continuously apping with someone, then it’s logical that you pick it up and put it away, and pick it up and put it away.” Britney emphasises that it’s mostly during other activities, like watching Netflix, that she’ll intermittently

²³ Considering sixteen waking hours.

pick up her phone. But she also likes to react quickly to people who send her a message. "Because I know people want an answer." She adds that she is a people pleaser and thinks her behaviour is an extension of this characteristic. "I really use my phone a lot. Most of the time people assume they will get an answer from me within five minutes. And that is usually the case", she says.

In order to react quickly, Britney keeps the notifications enabled for these apps. She also uses two email addresses, but only enabled notifications for the address she deems most important. For games, she turned the notifications off altogether. This way of using notifications shows how many decisions based on perceived value are made in using the phone. These decisions subsequently change the way our smartphones behave and further consolidate the way we use our smartphone. Therefore, notifications are an important aspect of app design that is deserving of a more thorough analysis, especially in the context of social engagement.

Most apps notify the user when there is something that they might want to know. In order to draw our attention, the phone beeps, vibrates, the screen lights up, a banner appears at the top of the screen, a light starts flashing or a combination of these. These notifications can be modified for each app to the user's preferences or turned off completely. I started asking people about notifications because I started to suddenly *hear* them during my research and realised how omnipresent and disruptive they were. Most people have at least one kind of notification turned on depending on the app.

I ask Arne Jan how he deals with incoming messages. "Something comes in, I want to deal with it. Period.", he answers. A sound, a vibration and a flashing light notify him of new messages. Arne Jan says his screen won't light up, but when I send him a message, his screen instantly lights up. A while ago, he turned off all notifications, but noticed he would look at it "way too much" because he will get the idea that he might miss something. "Then I'm going to refresh my email very often, then I'm going to open my WhatsApp very often. With a notification it's just: You've got something *now!* You don't even need to look."

Timo, Britney and Arne Jan all mention they want to deal with messages quickly. It gives them a nagging feeling when they know there is a message but don't tend to it. This makes place for a sense of accomplishment when they've dealt with it. As notifications repeatedly draw our attention to things that might require our attention, this seems to create a habits of engaging with the smartphone that are fundamental to a POPC lifestyle. Interestingly, when I asked other participants about notifications, most of them didn't know exactly how they configured them. Like Arne Jan, some said they turned the notifications off, but when I sent them a "test text", their screen lit up, their phone vibrated, or a banner appeared. Some just shrugged and didn't mind, but Karen and Eva, who both did the Nokia challenge²⁴, immediately asked me how to turn that off and did so. The fact that most participants have their notifications turned on or are unaware about it, shows how normalised being POPC has become. It shows an unquestioned need to be responsive or at least be notified to such an extent, that I want to argue this has already been integrated in their habitus.

IV.c Just Send Me an App

Britney recalls a dispute she had with her boyfriend over the phone. "When you are calling for three quarters of an hour, a lot is said. And to memorise everything that was said in those three quarters of an hour, that's simply impossible. It's too long, so then you'd rather have it on paper...or, well, paper..."

Britney explicitly said that she "dislikes calling", because there is no freedom to react when you want and there is no record of what was said. She knows her memory to be fallible and especially when a discussion gets heated, Britney would like to analyse what was said exactly. WhatsApp provides her with a backup of conversations and affords her to return on points that were discussed. Even though she would lose qualities like intonation, Britney still prefers WhatsApp. "I think I can convey my emotions really well using the app. (..) with emoji's, or exclamation marks, or by typing 'hahaha', something like that."

²⁴ The Nokia challenge is a challenge to disregard your smartphone and switch to a Nokia phone model that only has the most basic cell phone functions, without internet or apps.

In principle, communication apps like WhatsApp are not that different from other internet-mediated communication tools. Like email, WhatsApp keeps a literal record of all communication and thereby functions as an external memory. It even affords us the possibility to search for words and phrases that were communicated (up to years) earlier. As Britney mentioned, this affords us to transcend the limits of our physical memory. While this is nothing new, these affordances are now able to be capitalised upon in the context of a POPC lifestyle. This drastically increases the information that is routed through this medium. Combined with the affordances of cross-functionality between apps, telecommunication standards are shifting. As can be seen in statistics on mobile data usage²⁵, there seems to be a shift from spoken word to text and images.

Considering the previous paragraph, it seems that calling people is losing its charm (See image 5). In the case of Richard and Harro, they didn't get a phone call when their grandmother was hospitalised. Instead a message was posted in their family app group. According to Richard, an app message replaces a phone call. Harro added: "It's more of a news medium, for personal and local". Taking it even further, a student I spoke to said it puts people on the spot when you call them. She feels that by sending a text message

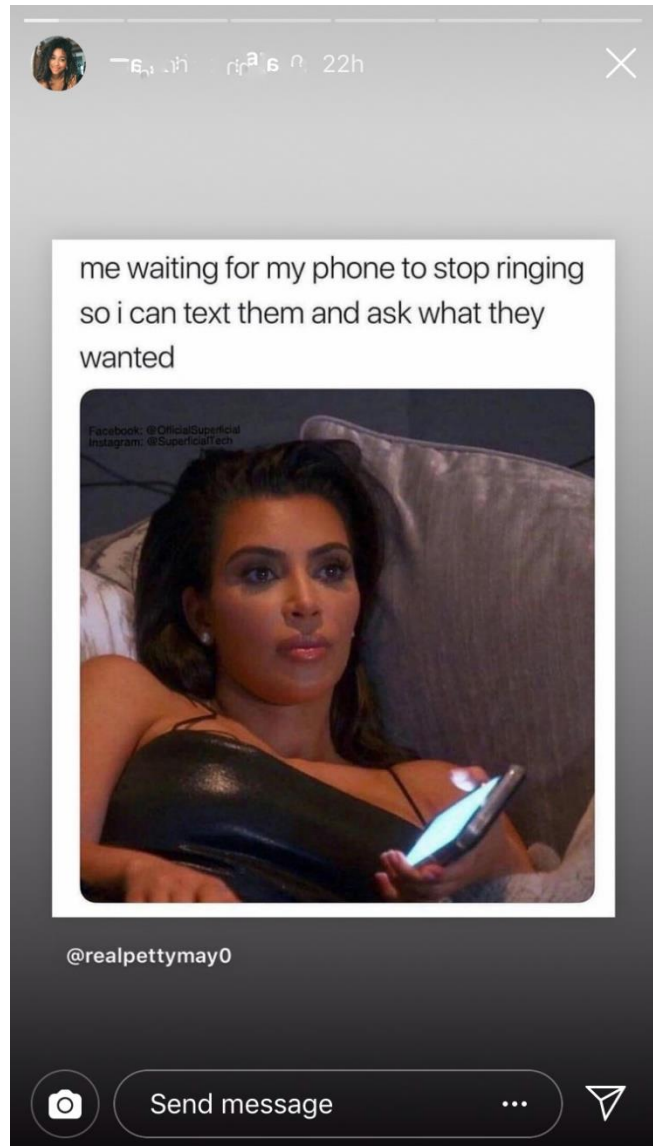


Image 5. A meme posted on Instagram.

²⁵ This is reflected in the exponential growth of mobile data usage, compared to more stagnant voice data rates: <https://www.vox.com/2017/6/26/15821652/iphone-apple-10-year-anniversary-launch-mobile-stats-smart-phone-steve-jobs> (Visited 05-30-2019)

“you give someone the chance to think about it”. The cross-functionality of apps adds to this change in communication standards. They afford users to video call or send a picture and convey ideas, feelings or references more quickly than through text or audio alone. Or like Britney, smartphones allow us to make a screenshot of conversations and sends this to others to get their opinion. Additionally, the shift towards visual telecommunication can be a welcome help to those who suffer from any degree of social anxiety. Sanne expressed that smartphones enable her to get to know new people without feeling to vulnerable. Calling or meeting new people makes her feel anxious, so when she can first talk to them through WhatsApp this helps her build familiarity.

Now that we’ve moved much of our tele-communication towards our smartphones, it is smartphone app design that leaves its mark on communications. This has mostly led to short, intermittent messages in the form of audio, image or text. Regarding text, the relatively small screens are limiting overview and space for content. The same goes for the area we type in, which often has the height of only one line, which probably encourages short messages. In addition, the smartphone touchscreens limits the user to type with only a few fingers, which decreases the throughput of information compared to using a computer keyboard (Ghoshal & Guarav, 2015). Additionally, there often is a time displayed next to every single message that was sent, increasing a consciousness of the time.

Regarding time, the adoption of new modes of communication have resulted in a change in the temporality of communication. Much of our communication has shifted to what I would like to call non-synchronous communication²⁶. With this, I mean that not all parties have to be present at the same time to continue the communications. Non-synchronous communication predates the smartphone, but through the mobility of internet access afforded by the smartphone, they are innovated. In the case of sending letters it took time. In the case of email, you required a less-mobile device than a smartphone, such as a laptop or desktop. In the case of SMS, you would be limited in amount of characters and pay for every message. Wireless internet access was available, but at costs and speeds that would be considered unacceptable by today’s standards.

²⁶ Not to be confused with asynchronous communication, which is a technical term used to differentiate between a steady stream of data and the intermittent transmission of data.

Lastly, with a rise in non-synchronous communication, more conversations take place in an online and non-physical space where all parties can leave and join whenever they see fit. Nobody has to be present at the same time as other parties. There is a temporal decoupling, that can be seen as adding to individualisation as we increasingly don't share the same temporal space in our communications. This also means a conversation can be an ongoing project with no clear end. It creates an environment where even the smallest amount of idle time can be spent contributing something new or reading up on communications that have taken place while "absent". This increases the time we can spend communicating with people, as it is no longer relevant where or when we are. Non-synchronous communication combined with a POPC lifestyle, drastically changed how we exhibit sociality as communication is inherent to social behaviour. Additionally, communications are speeded up as people will often react within an hour, if not within a few minutes. In fact, the threshold to send a message has become so low that it introduces a lot of noise, as I will further discuss in the coming section.

V. Negotiating the Challenges of Smartphone Sociality and the New Attention Landscape

As illustrated in the previous sections, smartphones offer many possible affordances that make them attractive to engage with. Their high unanimous adoption is a testament to their attractiveness and using a smartphone has become the norm. As we have seen, smartphones can be considered an addition to our environment as well as an environment in itself and with its own rules, thereby changing the attention landscape and impacting the way we exhibit sociality. These changes need to be negotiated as they might not fit in with an individual's ideas about attention and sociality. The following section aims to show how the adoption of smartphone technology gives rise to challenges and how participants negotiate these.

V.a Social Pressure to Conform

"I'm sitting in the living room at home," Richard begins. "Dad on the couch with the tablet and [my brother] is on his phone listening to something or on his pc upstairs. [My other brother and sister] might be there and will be on their phones and Harro sometimes as well. And then I'm sitting there, I've got my phone with me, but it's in my bag in the hallway. And I'm thinking like yeah..." Harro adds: "It's so easy to do it as well then. And sometimes I'm like: 'Fuck it, I'm gonna do it as well.'" Richard replies: "Yeah sure and I don't blame you. I don't blame anyone personally. It's a result of society."

As the situation of Richard and Harro illustrates, Harro conforms when most of his family members behave in a similar fashion. This could be conceived of as a passive social pressure that has come to be by mass adoption of smartphones. For some, this integration of smartphones in our society is a reason to take a step back and reflect.

Eva tells me about the developments that made her want to reevaluate the relation she has with her smartphone. The most important being the introduction of an app by Utrecht University that replaces the hard copy student card. This means that students always must have a smartphone with

an internet connection on them in order to access the library. That didn't feel right to Eva. Once she decided to do the challenge, she notified the people around her that she wouldn't use her smartphone for a while. At work, people immediately assumed her phone must be broken. "So, they came with all kinds of solutions: 'I think you can still use WebWhatsApp.'" Eva mentions that, during the Nokia challenge, reactions were quite diverse. Some people expressed that Eva was hard to reach, even though she had her phone on her always and they could just call or send her an SMS message. Some joked she was "looking for herself" while others thought it was understandable and were curious about her experiences.

Eva experienced first-hand that it is considered abnormal to voluntarily distance yourself from your smartphone as her colleagues immediately thought she *couldn't* use her phone, as if it couldn't be a voluntary choice. This shows how normalised smartphone use has become. Because of this normalisation and high adoption rates, people like Arne Jan feel an added pressure to keep up with smartphone technology. His phone is important for his work in more ways than functionality alone. "I genuinely can't do without my smartphone, because I have to stay up-to-date with technology." Working in IT, he needs a smartphone to better understand the problems his clients have regarding *their* smartphones and solve these. While these examples show relatively benign and passive pressure to conform, I found many examples where nonconformity leads to more aggressive forms of social pressure, such as ostracism.

As stated before, I limited my smartphone use in order to generate a better insight into my own relationship with this technology. Part of that was to stop using WhatsApp for a month. Much like Eva's experience, people regularly said I wasn't easy to reach, even though they could call or SMS at any given moment. Additionally, I left the group app that was created by my colleague master students. In part because I grew tired of the amount of "noise" this app generated and partly because I wanted to gauge what would happen if I left an active group app. The results were sly remarks and a few unpleasant surprises. Multiple times, my colleagues discussed changing deadlines and made plans without notifying me. "Then you shouldn't have left the group app", was what one student said. Now this could have been a reflection of my social position in the group and while I don't

think this was the case, I did feel somewhat ostracised for not participating in the group app. Ostracism for non-participation was mentioned by others as well.

Sanne was a member of a group app with all her student colleagues, except for one. That student didn't join the group app for the first one-and-a-half years of their study. Within the group, this was a topic of gossip and people didn't react positively to it. "I think I would find that problematic," Sanne says. "To say to a project group: 'Oh yeah guys, I don't have WhatsApp, so with all communications you want to share with me, you have to pay extra attention that you want to share it with me and then send an email. (...) It has a factor of social exclusion. So, I'm glad I don't have that, that I've got a smartphone, so I don't have to suffer from that."

What these examples illustrate, is that the pressure to conform often is a pressure to go along with communication standards, and that nonconformity in that regard frequently leads to ostracism.

Sanne doesn't have internet data in her phone plan, so from time to time she asks people the way. In reaction, Sanne regularly gets the question if she doesn't have her phone with her. To this, she often answers that her battery is dead rather than admitting she hasn't got internet data in her phone plan.

In fear of ostracism, Sanne presents a false image that she thinks is more acceptable. While this could be projection on her part, the initial counter-question if she doesn't have her phone with her is quite telling. The expectation that we can rely on our smartphone to be more self-sufficient seems to be another driver of social pressure. As stated before, smartphones provide many affordances that enhance our self-sufficiency, diminishing the potential for failure and our reliance on others. Eva thinks this is one of the reasons why most people are scared to try the Nokia challenge themselves. Doing things will cost more time and life might suddenly get a bit harder. She experienced this herself on multiple occasions. For instance, when she needed to go to an exam and had to look up the route beforehand. She tried to memorise it and was confident she would make it in time, but somewhere along the way she got lost and ended up kilometres off track.

Dianne told me she sometimes feels judgemental when people ask her questions to which they could have googled the answer. Bram, her partner, completely agreed and added that he deals with this by theatrically looking up the answer on Google. And I too, must admit frequently feeling a bit annoyed when people ask questions to which Google would have given them a clearer and more accurate answer. As Bram, Dianne and I noticed, the expectancy of self-sufficiency leads us to judge those who don't make use of the smartphone affordances that we perceive. Regarding sociality, this increase in self-sufficiency also seems to diminish social engagements with others in public spaces. Asking for help like Sanne, oftentimes isn't needed anymore and as can be seen from the amount of people looking at their phone screen, sociality in public places has been altered quite drastically smartphones.

Furthermore, the comments Eva and I received about our reachability were non-sensical when taken at face value. But in a social system where WhatsApp is the dominant way of tele-communicating, distancing yourself from that requires other people to go 'out of their way' in a sense. Others seem to consider it an inconvenience and retaliation takes the form of them exerting different kinds of social pressure. All-in-all, mass adoption and ostracism both function as pressures to conform to smartphone use and smartphone communication. As we have seen, negotiating this social pressure can take many forms and is often dependent on the specific situation. We conform, resist, ignore or lie. But it is clear that, at the very least, it feeds into a sense of obligation to conform. However, in reality it often isn't very clear what exactly we need to conform to which induces feelings of unease, as the following paragraph will show.

V.b Unclear Expectations

"If I don't post for two or three days on my Instagram or Snapchat, people will think: Where are you? Are you dead? Are you on vacation? You always have to let them know what you are doing. Every day. That's really a job. (...) You know, when we are done and I get home, I'll still get on Instagram and look at what happened today. Because I missed a lot, right, because I wasn't on my social media today, I'll still look at what kind of messages I got. So outside of work, after the recording, I'm still busy with work."

This was said by vlogger DieTim²⁷ (formerly SnapKing) who has 160.000 followers on Instagram and 434.000 on YouTube. It illustrates how maintaining an active online presence can add to a sense of obligation to interact. In the case of DieTim this might be exaggerated because his following is relatively large, and his income is dependent on maintaining that audience. However, Eva also expressed that the continuous contact she keeps through social apps, gives her a feeling of obligation as well. A sense that she has to keep up, more so for others than for herself. Both Eva and DieTim, feel there are expectations they must live up to. It seems that once the obligation to continuously engage with others and react quickly to messages is established, it is hard to break out of that pattern. This results in a situation where people feel they must behave in a certain way to stay consistent and not let people down.

However, even though the pressures to conform and a sense of obligation to interact exists, it often isn't clear *what exactly* it is we need to conform to and what interaction should look like. Especially considering the highly individual nature of smartphone usage, this seems impossible to determine and often leads to feelings of fear, uncertainty and doubt (FUD). FUD²⁸ mostly seems to relate to the non-physical quality of smartphone sociality. Adding to FUD is the loss of physical cues such as intonation and facial expressions, which provide nuance and feedback. Additionally, in smartphone communications it is hard to backpedal and move over something as words literally remain on the screen. The temporal decoupling that is inherent to non-synchronous communications, creates an environment where conversations aren't always quickly resolved. Combined with unclear expectations this can create FUD.

As mentioned earlier, the curated nature of online representations can create false expectations about reality and can be of detriment to the self-image. Eva sought to resist this by creating an Instagram account²⁹ on which she would only post pictures of people *not* having a good time. Even so, a bias towards positive representations probably is the nature of the beast and helps to instil FUD about our own standing, be it on a

²⁷ Quote taken from *Dit is niet mijn wereld vriend* (translated: This is not my world, buddy) by PowNed <https://youtu.be/k8OAr1bq9yQ?t=921> (Visited 05-30-2019)

²⁸ Even though mostly used in the context of marketing, I employ the FUD abbreviation because it concisely describes a specific set of feelings.

²⁹ https://www.instagram.com/straks_lijkt_het_nog/ (Visited 09-27-2019)

subconscious level. These social comparisons are made exceptionally treacherous through the quantification of our social engagement. This aspect of app design can be found not only in the notification that shows how many messages we received, but also in the amount of friends, likes, shares and posts. Everything is quantified and this facilitates comparison with others and with our previous self. Amber mentioned that a sudden decrease in likes wouldn't hurt her so much, as it would make her feel uncertain as to what caused the decrease in engagement. Another example is a friend who came to me and jokingly told me she had a battle for Instagram followers. She wanted to have more followers than a friend of hers at a certain point in time. While this could be considered benign, it shows how the quantification allows for competition and might increase feelings like FUD. This warrants further research into the influence of quantifying social engagement on perceptions of social standing and self-worth, especially in youth.

Additionally, the influence of app design in inducing FUD and creating unclear expectations can be found in reading confirmations. Blue ticks were introduced by WhatsApp in 2014. When you send a message to someone through WhatsApp, you will first get one *grey* tick: Message sent. Then another grey one: Message delivered. And at a certain point they turn blue: The receiver has *seen* your messages. "It doesn't give you the freedom to answer when you want to answer", Karen says about this. This feeling is echoed by Dianne: "It gives you a sense of obligation to react when the other knows you read it." This *knowing the other knows* creates a situation where there is room for interpretation, especially because there is no other communication at that point. It also introduces a sense of being monitored and possibly failing that examination by not reacting quickly enough. Karen realised these thoughts might not be realistic, but because expectations regarding communication differ from person to person, the blue ticks make communication more complex for her. The blue ticks seem to be despised by most participants and they turned them off. However, there are other monitoring mechanisms that can't be switched off and that can also feed FUD. WhatsApp shows it when someone is online and when someone is typing. I noticed that seeing someone is typing, creates the expectation of an answer. This anticipation essentially is a form of stress, especially when the typing takes a while, or the answer isn't coming at all. The

same goes for seeing someone is online but doesn't reply to a question you asked: Unclear expectations lead to FUD.

Lately I realised that the ease of communicating, introduced by smartphones, makes it so the flow of information is enormously expanded. All my contacts combined, generate hundreds of new messages, posts, requests, shares or photos a day. What I get to see is first selected by the person who posts it, then by obscure algorithms³⁰³¹ and then by myself. I regularly mute contacts online, so I don't get to see what they post. This is often because they post about topics I'm not interested in and with such a high frequency that they clutter up my feed. These people don't know that I censor them, and I sometimes feel guilty.³²

On top of algorithms manipulating what we see, the stream of information puts us in a weird place where we might start to actively censor people in our personal online sphere in order to stop them from taking up too much space and drowning out others whom we care (more) about. Again, it becomes hard to judge what we can expect from each other in internet-mediated communications. At the same time, I feel a pressure to keep up. To see everything or I might miss something important. That's the fear of missing out (FOMO). FOMO made Arne Jan check his phone repeatedly when he disabled the notifications and it is mentioned explicitly and implicitly by almost all other participants as well.

The conversations turns to WhatsApp. Richard mentions he sometimes doesn't check his phone the entire day, only to discover he received a bunch of messages, often in the family app. "Sometimes I read it, sometimes I don't." Richard says. "You catch some key words", Harro adds. Richard



³⁰ A statement from Facebook on how they filter your feed doesn't reveal too much: <https://newsroom.fb.com/news/2018/01/news-feed-fyi-bringing-people-closer-together/> (Visited 05-30-2019)

³¹ More on how defining algorithms might be in the creation of our online world can be read here: <https://medium.com/the-mission/youre-already-a-cyborg-b95ead28f1be>

³² Taken from my research journal.

expresses annoyance about what he calls “a hundred pray-to-god-smileys” that are frequently used by the, mostly religious, family members.

Harro and Richard are the only non-religious members of their family and both struggle to think of an occasion when they themselves sent a message. Nonetheless, they stay in the group app. Richard says: “It keeps you in the know about important things that are also shared in there, things you’d rather not miss.” Even though Richard and Harro don’t like being in the group, it seems like FOMO is the deciding factor to stay in the group app.

Karen tells me there had been a few deaths of people close to her and since then she felt she always had to be reachable in case something bad happened. By doing the Nokia challenge, Karen also wanted to get rid of that fear of being without her phone. Luckily for her, the challenge helped her realise: “I can go to bed without my phone.”

The FOMO felt by Karen is clearly related to personal incidents, she noticed it and successfully fought it. However, the unclear expectations that lie at the roots of FUD and FOMO seems to be an important driver of POPC behaviour and the cultivation of a checking habit. With a shift towards immediacy (Von Pape, 2018) and acceleration leading to obsolescence (Eriksen, 2007), I want to argue that in the context of a POPC lifestyle, FOMO can already be instilled by getting to know something “too late”, whatever “too late” may be in the mind of the user. This, in effect creates a feedback loop through which the dominance of the online sphere is increased. In the following paragraph, I will discuss the challenge that is created by having a presence in both an online and an offline world.

V.c Blurred Boundaries

“If you look at how it was in the past, you came home and then you were at home. That was it. If you are at home *now*, you bring everything you do at university with you, because you can continue doing it at home. But it doesn’t only work like that with work, but also with friendships. Everywhere, the entire time, you can be in continuous contact. And I realised that I want to have places where I just am. Without constantly

being in some kind of virtual world [where I] keep on going with subjects or conversations (...) When I'm home, I'm home."

This quote by Karen shows how she had the feeling of being split. The affordances of her smartphone broke down the borders between what had previously been distinct cognitive and physical spaces. This made it so she couldn't compartmentalise her life in a way that worked for her. She had the feeling of being in two places at once and wanted to reintroduce a clear distinction. By putting the affordances of non-physicality in our pockets, smartphones allow us to keep paying attention to other spheres of our lives and blur the boundaries that existed between them. This has never been the case to such an extent and negotiating this change seems to be one of the biggest challenges that smartphones bring. At the same time, even within smartphone communications, boundaries can become vague as everything happens through the same device.

Eva refers to a time when she was chairman of a student organisation and they had a group app with the board. Entire discussions would be held on WhatsApp, with off-topic messages in between. She felt obligated to read the important messages but would have to sift through the noise. Later they switched to Slack, a communications app, that allows for multiple channels that can be dedicated to certain topics or communications. Additionally, using SMS gave her a sense of freedom, because nobody could see if she had read a message or if she was online. This removed a sense of obligation to react quickly and she felt free to react on her own time.

Bram and Dianne told a similar story.

The conversation turns to group apps. Dianne says: "I sometimes get crazy because of the family apps for instance. Of his family and my family. We both have big families, so people constantly post stuff, but on the other hand...we barely see them." Bram tells about his work-related group app where people post personal messages about a child being born or birthdays. "You can't get in when you want, and you can't get out when you want. You have to be added." He adds that these messages are frequently sent in private time.

It seems like a sense of obligation and FOMO make Eva, Bram and Dianne feel they must keep up, meanwhile making it hard for them to keep boundaries intact. They would rather direct their attention to other things. The underlying challenge is a struggle for attention between the online and offline world. This creates a friction between these spheres that can be hard to navigate.

Karen tells me that she was in a group chat with people she had known for a while. She wanted to leave but struggled to do so. "Some people said: But we are a group of friends, right? To which I thought: We've had good times, but we all went our own way. The only bond we have left is this ephemeral contact. If we didn't have that, we wouldn't have a friendship. But because we are in an app group, we stay connected. (...) In my eyes that isn't human, to stay directly connected to so many people. It simply doesn't work. Not for me at least."

A sense of obligation and the ease of staying in touch with people made it hard for Karen to set boundaries. In some sense, she removed the ease to stay in touch and used the Nokia challenge to break free from this group. Through the affordance of non-physicality, the natural end of some relationships through geographical distance is partly ruled out. This starts to challenge our previous conceptions of what a relationship is. As staying in contact is exceedingly easy, the average lifespans of relationships might be extended, or we might accumulate larger numbers of "friends" over our lifetime than before. These changes in sociality, again move us into uncharted territory where the expectations might not align or become unclear. This has the potential to have an adverse effects on our relationships.

As mentioned, Arne Jan likes to answer messages as they come in, but he thinks dealing with incoming messages can go too far. He expressed dissatisfaction with the smartphone behaviour of his previous girlfriend. She was on her phone more than he was used from other people, and it was throughout the day. Arne Jan sometimes ignores messages to finish what he is doing, but she would pick up her phone with practically every incoming message. Even when they were together, she would frequently interact with others on her phone and sometimes for longer periods. This gave him a feeling of distance. Arne Jan has trouble understanding why people would mix two social activities

and it doesn't fit the way he likes to interact with people. Even so, he thinks it could be worse and recalls an evening with a friend who was so engaged by his phone that he only mumbled something in response to questions. "Those people are completely unapproachable while they're on their phone."

Some people will pick up their phone when I talk to them. It immediately gives me a sense of them not listening. Even the sound or sight of notifications will now annoy me to a certain extent. Mostly because I have started to see them as emblematic of societal and individual shifts in *modi operandi* that, in my opinion, aren't beneficial to the progress of our society or the well-being of the individual.³³

Both Arne Jan and I noticed that smartphones can exert a strain on our offline relationships. By enabling a POPC lifestyle, smartphones increase the prominence of the online world in our daily lives. In many cases, our online lives start to permeate into our offline lives to the extent that we are cognitively online and think about what is happening in our online world. Increasingly, we also engage with the online world, even when we are in a qualitatively different and offline situation. In this process, the smartphone functions as our connection to the online world or rather "as a portal [we] can always open" (Klimmt et al., 2018, p. 20) This way, they constantly provide us with a choice: do we pay attention to the offline or the online?

Through their accessibility and affordances of non-physicality, smartphones blur the boundaries between the online and the offline. Additionally, by allowing for continuous communications and the monitoring of our online presences, smartphones cause a renegotiation of what is public and what is private by blending these worlds. As Deleuze & Guattari (1983, p. 251) wrote about the television, smartphones advance "a making public of the private so much as a privatization of the public".

While talking to Richard about online profiles, he references a video he saw online in which a small child doesn't pay any attention to his grandparents but

³³ Taken from my research journal.

is solely focused on the screen³⁴. He thinks social media can lead to a shift in priorities in which the online world becomes more important than the real world. He supposes this has to do with the size of the audience and the illusion of attention. Richard supposes it might look like you get a lot of attention online, but people mostly like and view your posts out of habit and addiction. “Even the people who don’t leave a like or dislike, do give you a view.” He sees in this the biggest pitfall of social media. “If you fall for that, you are fucked I think.”

The story of the child who is more focused on the online proceedings than the physical offline world, could be considered an extreme. However, as I have tried to convey, smartphones *do* have an enormous power to disrupt. By blurring boundaries, they disrupt not only concentration or offline interactions, but also challenge our habitus by affecting our conceptions of social spaces, notions regarding friendship, ideas about inclusion etcetera. As I will argue in the following paragraph, many of our smartphone related behaviours have become habitual, further obscuring the impact they have on our lives.

V.d Unwanted Smartphone Habits

“I think over half of the usage time isn’t really goal oriented. You don’t pick up your phone because you want to do something, but just... because it is there,” Dianne says. For her, this results in reading the news on the toilet, but she ends up opening the app so frequently that there is nothing new to read anymore. I wonder aloud why it is that we use our phone in those moments. Bram replies he thinks it’s mostly out of boredom. “You have to wait. What do you have to do when waiting? You do it every day, it’s not really exciting the next time you do it. I’ve just got too short of an attention span to calmly sit still for thirty seconds or a minute.”

³⁴ For an example of this behaviour see: <https://www.youtube.com/watch?v=VXzwKymKtGI> (Visited 09-27-2019)

Bram and Dianne both express how they employ the affordances of their smartphones to avoid boredom. At the same time, it shows the cultivation of a checking habit. Many others, like Timo, said the same thing: "If I'm just a bit too bored, I'll look at it time and again." As I've shown in the paragraphs on general usage, regularly checking the smartphone could be considered relatively standard smartphone practice. Timo guessed he checks his phone between fifty and a hundred times per day and allowed me to track it so we could compare it later.

After about ten days of tracking, we discover that Timo's actual use is on average four hours per day, an hour less than he estimated. "That's not so bad, but it's so completely woven throughout the day that it seems to be incredibly long," he says. Timo is right in that regard as I tell him that with almost 300 pickups per day, he underestimated this by 200. This means he picks up his phone on average every three to four minutes³⁵. Timo draws a conclusion: "I'm very excessive. I want to check everything. Or I go from app to app to app. (...) So actually, I never really feel rest, because you're busy with things the entire time." A few months later, I send him a message to ask for some extra details and Timo tells me he broke down. First, he thought it was due to the pressure of being a board member. But it was only when he drastically reduced the time he spent on screens, that he felt he could rest. "So, then I discovered it was mainly all the stimuli from a screen and that I didn't bring my head any rest that way."

The comparison between Timo's estimation and his actual use shows an unawareness of the extent of his checking habit. I had a similar experience when I started tracking my own usage. With an average of about one hundred pickups per day, I had grossly underestimated my pickups by about fifty percent. I want to argue that the cause of this unawareness lies in the habitual nature of our engagements with our phones. Additionally, I want to argue that this habit often isn't as benign as it may seem. During the research, I started to notice how much attention I paid to my smartphone. As all the notifications left me in a state of constant choice-making, I became so distracted that I

³⁵ Considering sixteen waking hours.

almost didn't have time to think. While it became easier to go with the flow, it started to feel like a loss of agency and I wondered how it had come to that point. What is it that makes me, and the other participant *want* to engage with our phone so much?

What I found, is that I and most participants are actively being conditioned by engaging with many of the affordances provided by smartphones. This means we have come full circle and can look again at *how* smartphones shape our attention, which was addressed in the first empirical section. Positioning myself as a circumstantial activist (Marcus, 1995), I think it is imperative that we understand this system and the underlying mechanisms before we can fight it. To begin understanding how smartphones condition us, I first turn to the sense of reward that seems inherent to most smartphone engagements.

As mentioned, apps like the browser, to-do list or camera allow us to quickly complete small tasks, and to do so anywhere and frequently. Multiple participants expressed they got a sense of accomplishment from performing these actions. On top of that, multiple participants expressed that replying to messages, looking at new posts in their Instagram feed or clearing the red "new messages" notification also gives them a sense of accomplishment. As most apps are designed to notify us of possibly important events and there are social rewards associated with being responsive and available, the number of possible engagements is endless. With an ongoing stream of notifications, the work never ends, and we quickly build habits through a feeling of reward every time we clear things up. The accessibility and quick reward combined, allow us to follow our every impulse, further consolidating a habit of frequent smartphone use. As previous examples show, this habitual use can easily be to our own detriment.

While there doesn't seem to be malicious intent behind this conditioning, I realised multiple app developers include mechanisms of conditioning in their design on purpose, making them even more habit forming than need be. As these apps are mostly free, I want to postulate that many of these companies use an advertising revenue model. In the advertising revenue model, the company earns money by selling advertising. So, we can use their services for free because our attention allows them to sell advertising, or in the case of Facebook, our data (Amer & Noujaim, 2019). I found two conditioning mechanisms that are employed, the most notable of which is operant conditioning, where

certain behaviour is associated with a reward or punishment. This tends to result in repetition or avoidance of that behaviour (Campbell & Reece, 2015, p. 1238). Important to note is that changing the time between behaviour and reward leads to different outcomes (Bolhuis & Giraldeau, 2005, p. 150). For instance, a fixed interval schedule uses a fixed time interval between possible rewards. The first response after the interval has passed will produce a reward. When Timo told me about his distraction game Grepolis, I recognised that the game developers made use of operant conditioning by making gameplay the most efficient if players react as quickly as possible after a ten-minute interval. That way, players must stay engaged to make the most progress.

Social apps however, often function like a variable ratio schedule, which is also at play in gambling. A variable ratio schedule means that every engagement has a *chance* of generating a reward. As the reward is infrequent, this in turn stimulates the cultivation of a checking habit. Considering that the message (or notification) is in effect the reward, I realised this kind of conditioning is practically everywhere. It manifests itself in our email inbox, on our Facebook, Snapchat and Instagram feed, on WhatsApp etcetera. Additionally, I started to see how both LinkedIn and Facebook found ways to somewhat artificially generate notifications in order to keep them coming, even when actual social engagement is low. LinkedIn does so by sending advertisements through the personal chat. This results in a notification that makes it seem like somebody I know sent me a message. Facebook found a way to generate random rewards in the form of notifications by lowering the bar for what justifies a notification. In the beginning, I only got notifications for direct engagements with friends or comments and likes related to my posts. Now, I get notifications for comments of people I don't know if I liked the post they react to; concerts and musical events; new posts in groups I don't engage with and I even get notifications when my page has "new views", meaning someone just looked at my page. I have started to see this situation as if these companies are giving us free candy while they turn a profit on the dentist bills. And much like restraining ourselves in the face of free candy, it seems to be very hard to control our own behaviour, especially when it is based in a habit.

After completing the Nokia challenge, Eva immediately changed notification settings and removed the Facebook and Instagram apps. "Because when I had

it on my phone, I would spend more time on it than I'd like. It was way easier to just click that Facebook app. And instead of just a short check, you would be on it for a long time." Eva feels that visits to Facebook regularly ended in "an endless scroll. It is so much information, that I just don't know what is relevant and what is not." However, within a month or two after completing the Nokia challenge, Eva picked up some of her old habits. Her current smartphone use is 1,5 to 2,5 hours per day, with over eighty daily pickups. "Holy shit," Eva says as we look at her statistics. "Holy shit," she repeats. "When you go back to the smartphone, there is something that is apparently so seductive that you will download and use those kinds of things again. And at a certain point you realise: Shit, I've been on Instagram for an hour. (...) And then you will remove it again, and then you will download it again. In some way you are sensitive to that."

Eva's situation clearly shows that even in the case of someone who critically re-evaluated the relationship with her smartphone, controlling one's behaviour can be hard. It bothers Eva that it's hard to keep a grip on this, but she doesn't want to ban social media or online profiles from her life completely. The inability to control their own behaviour was also mentioned by other participants. Timo, for instance, realises some things won't get done as easily when you are constantly distracted by your phone. So, if he sets a deadline for himself, he will put his phone to the side, "but still... if a message comes in, I want to read it as soon as possible."

Timo says he likes to read. The e-reader he carries with him is a testament to the truthfulness of that statement. He can really lose himself in the stories but struggles to remain lost for more than half an hour. "I *have* to look", he says. He feels a *wanting* to check his phone for messages at least every thirty minutes but can't express what exactly it is. "I don't know. I feel the urge to see if I've got a message."

The need to monitor his phone seems to be dominant over many other activities for Timo. Even when he must concentrate, he will look at his smartphone less, but keeps it in sight so he can see it if a message pops up. He describes an urge to look at his smartphone

that closely fits the description of *wanting* in the Incentive-Sensitisation Theory of Addiction (Berridge & Robinson, 2016; Robinson et al., 2015). This urge, cognitive desire or craving, impacts his ability to concentrate and considering the “breakdown” he mentioned, it seems to be debilitating to a certain extent. Britney has a somewhat similar usage pattern as Timo, so I asked her if she encounters problems with her concentration as well.

Britney answers that she has a short attention span and really likes having her phone close so she can pick that up. “But sometimes I’ve got to say to people: ‘Yes, please shut up, because I have to study.’ Because if there are apps coming in, I want to read them right away. If someone keeps chatting for a long time, I tell them: ‘Yes, sorry, but I really have to study right now, so I’ll talk to you later.’ Then they’ll have to stop, otherwise they’ll keep apping and I keep wanting to look.” I summarise that she mostly puts the responsibility with the other not to app her in order to stay concentrated. “Yes, because I almost always react immediately. So even when I’m studying, I’ll react immediately. (...) I can’t flick the switch like: ‘Ok, now you’ll study and not react.’ I’d rather just react immediately, because then it’s done.”

It appears that the habit of smartphone engagement is very hard to break once established, especially when it leads to a sense of instant gratification. And it seems that most people, like Britney, externalise the control over their own behaviour by trying to change their environment. Eva and Karen both physically removed the smartphone from their lives by doing the Nokia challenge. Britney tells others to stop messaging, otherwise she will look anyway. I had to uninstall or block apps in order not to use them. The “wanting” that is felt by many participants frequently contrasts with what they consciously want. However, the accessibility and ease of use, as well as the extensive functionality, make it very easy to engage with the smartphone. In fact, the smartphone puts many addictive things in our pocket making them accessible everywhere and leaving practically all resistance to self-restraint. It seems that to overcome our own habits and impulses we must create a certain friction, as it is hard to control ourselves.

The possible effects and outcomes of these unwanted habits are numerous and if left unchecked, smartphones can create a constant barrage of stimuli, which makes it hard to find clarity and focus. The stories of Britney and Timo show this very clearly, who both on average engage with their phone every few minutes. In the case of Karen, she even lost herself in it to a certain extent and took relatively drastic measures to regain control. A steady stream of messages can become a flow in which some people will go along. With tens to hundreds of messages per day and the urge to react as quickly as possible, it becomes hard to concentrate, as well as to evaluate every single message critically and not take them all at face value. Considering the popularisation of fake news, it is easy to see how this can have consequences that are a danger to society.

On a more personal level, these unwanted habits are stressful. Notifications actively draw our attention, meanwhile claiming some mental capacity to make a decision. Should you open it? Should you ignore it? In either case, you get to know that you must act sooner or later. In order to overcome this, I disabled my notifications, so I get to keep the agency to direct my attention to my phone in due time. However, as I've mentioned, most other participants have notifications enabled. Or, like Arne Jan, they experience FOMO when they disable their notifications and will excessively check their phone anyway. These unwanted habits seem to chip away at our concentration, rest and agency, while reinforcing themselves through the very same mechanisms of conditioning that brought them into existence in the first place. By spending more time in a curated world where social comparison is exceedingly easy through quantification, it might even be detrimental to our self-image.

V.e Resistance

Throughout this work, we have seen different forms of adoption and resistance to negotiate the changes in our sociality and the attention landscape brought forth by smartphones. In this final paragraph I will dive deeper into these forms of resistance and pay specific attention to the motivations behind them. To do so, I first want to look at Simon, the only participant who does not have a smartphone.

Simon (26), a Future Planet Studies student, doesn't own a smartphone but has a Samsung cell phone. We meet at his house, an anti-squatting apartment in Amsterdam North. He tells me that he owned a smartphone for about a year, but when it broke down, he decided against buying a new one. This makes Simon somewhat of a rarity³⁶ and the absence of a smartphone in his life is regularly brought up by others. According to Simon, people often say they would like a life without a smartphone as well, but somehow don't see it as a realistic option. He thinks one of the reasons he steers clear of smartphones is because he "likes to be different". This is reflected in the way he spent the past couple of years. During those years he travelled across the globe by himself, living in Australia for over a year and traveling through Indonesia. At the end, he spent five months as an apprentice furniture maker in a solitary cabin in Sweden, where he wouldn't see other people for days. Simon also sees a link with his self-ascribed title as a "nostalgist". The LP records on the wall, his big ornate leather armchair, woollen sweater and flat cap all attest to this title.

Simon's choice to steer clear of smartphone technology stands in stark contrast to participants like Timo and Britney who both seem to have embraced it. His avoidance is a form of resistance that is reflected in the choice by Eva and Karen to do a Nokia challenge. Even though it proved to be hard for Eva to control her behaviour, she still feels the Nokia challenge helped her be more conscious about the way she uses her smartphone and how she wants to use her smartphone. It seems that taking a step back or not engaging with smartphones at all, helps to reflect on the relationship one has with smartphone technology. By stopping the constant input of stimuli, Eva regained a sense of control and agency, even though she didn't realise this from the start on.

At first, Eva missed the functionality of WhatsApp: "It's so easy to reach ten people at once like: 'Hey, I'm eating at home tonight. Who wants to eat with me? I'm at the store right now.'" That way you get reactions pretty quickly

³⁶ Both he and I couldn't think of any peers that don't have a smartphone.

compared to when you call ten different people.” Not having access to WhatsApp changed the way Eva made decisions. “You start to think: Who didn’t I see for a while? Who do I want to eat with? Ok, I’m going to call that person.”

During the Nokia challenge, Eva started to realise she felt empowered by having to make more conscious choices. “By not having that, all those group apps (...) you are actually much more in control *yourself*.” At this moment, Eva also tries to memorise and calculate more herself, instead of deferring these tasks to her smartphone. She thinks it’s handy to use tools for important things, but wants to be able to trust herself with calculations and remembering shopping lists. She sees this as a challenge and accepts that she sometimes might forget one or two items.

As this shows, the affordances of smartphones change what is meaningful to memorise and what we need to pay attention to. Because of this, people start ascribing a certain knowledge and wisdom to their smartphone, handing over different tasks like memorisations, calculations or navigation. Resulting is a form of authority whereby people seem to hand over agency to the device which can be interpreted as “relieving the individual from the strain of permanent decision-making” (Vorderer et al., 2018, p. 6). However, it also builds a dependence, as Eva noticed when she tried to navigate without her phone and ended up kilometres off track. Eva’s choice to remember shopping lists and do calculations herself, can be seen as an act of resistance against this dependency.

Instead of avoiding the use of a smartphone at all, most participants employ methods of self-regulation. For instance, by deciding not to use their phone at certain times or by simply trying not to use their phone as much. However, as we have seen, self-control regarding smartphones is very hard for most people. Therefore, many of them create friction between themselves and their smartphone. This friction can be the uninstalling of apps or using the various settings on our phones to make them less accessible and less attractive. Personally, I have been using flight mode for a long time as a way for me to let my bed be a space where I sleep and won’t be bothered by the online sphere. I now realise, this helped me to better compartmentalise my life and avoid certain boundaries to become blurred by my smartphone.

Additionally, during my month without WhatsApp, I created friction in order to stick to my goal of not using any smartphone functions besides the phone and SMS. To

do this, I used the Screen Time app that was recently introduced by Apple. It allows the user to block apps for a certain time every day, so I set it to block apps for the entire 24 hours. On top of that, I uninstalled all apps that I perceived as “bad habit apps”, like Instagram and Facebook in order to make them even less accessible. Interestingly, and somewhat unexpectedly, I also created friction for people who wanted to contact me by requiring them to use SMS instead of WhatsApp. I clearly experienced a raised threshold for others to send me a message, as I received only a fraction of the amount I would normally receive. On the one hand it might be that people are much more particular about when and what they will send in an SMS, because of the limitation in length and possible additional fees. On the other hand, it could be that the friction of sending an SMS is so big, they simply wouldn't do it. After going back to using my phone normally again, I noticed the tendency to check my phone increased again. I checked less often, but still noticed a fragmenting effect on my concentration, which led to stress. To fight this, I enabled grey scale, which desaturates your screen, making it is less attractive to interact to look at. These options are available to most smartphone users, however I don't know anybody personally who uses them. Most people seem to rely on self-restraint, including Amber.

Even though Amber needs to be on her phone to properly use Instagram³⁷, she wants to limit the amount of time she spends on her phone. For instance, Amber tries not to pick up her phone first thing in the morning. “Then you immediately see the email you have to answer, you immediately see the apps you need to answer, you immediately see what happened on Instagram, so I don't think that's very healthy to get all those impressions immediately.”

Amber implies that the stress of instantly being in the *busy* online sphere after waking up feeds her resistance, as she is overwhelmed by things that seemingly require her immediate attention. The stress of answering messages was also mentioned by Karen, but she noticed that after the Nokia challenge, her attitude towards replying to messages

³⁷ There are a few third-party computer applications that allow posting on Instagram, however Instagram is meant to be a service that runs exclusively on smartphones and Amber uses it that way.

had changed. Now, she doesn't reply as quickly as before and isn't as involved in group apps anymore. Karen said she tries to live more in the moment as she thinks it's more valuable when you can experience the passing of time instead of it going by unnoticed through a stream of information.

The value of being conscious of the passing of time was also mentioned by Simon when he explained that entertainment, just to kill time, feels bad to him. He wants entertainment to feel constructive in some sense and thinks the value of entertainment is influenced by the speed of the activity. Watching the news report or reading it on the website, doesn't feel as good to him as reading a newspaper. This extends to entertainment possibilities offered by smartphones, which Simon sees as a way of escaping. Simon also expressed that SMS messages feel more personal compared to Whatsapp messages. He thinks the lower frequency of SMS is what makes it more special, because people might pay more attention to typing an SMS than they do typing a Whatsapp message. Continuing Simon's line of thought, smartphones might diminish the value of interpersonal contact compared to other forms of communication, because of the ease of contact and a certain saturation of social contact. Much like the basic rule of supply and demand, the enormous supply of social engagements made possible by smartphones appears to lead to a devaluation of those engagements for some participants.

This saturation can also lead to ephemerality and obsolescence. As mentioned by Amber, the algorithms governing what is shown and what is pushed back on Instagram, often reward frequent uploaders by giving them more exposure. This creates an incentive to continuously create new content. On Instagram, I noticed myself that about ninety percent of engagement is within the first twenty-four hours. As I realised this, the value of participating in this environment became smaller to me, because I would like my creative endeavours to have a longer lifespan than just one day. Additionally, the curated quality of online presences also seems to be a source that feeds resistance. As expressed by Richard, he suspects people might develop a different worldview, because of the curated and ephemeral qualities of online sociality. For this reason, he steers clear of practically all social apps except for WhatsApp. For others, it is the perceived fakeness in these environments itself that leads to a loss of perceived value and subsequent

resistance. Eva explicitly mentioned this and acted by creating the Instagram account with pictures of people *not* enjoying themselves.

As we have now seen, it is ultimately the perception of value or meaningfulness that underlies most forms of resistance towards smartphone technology. Saturation, ephemerality and curation all seem to erode meaningfulness in the eyes of the participants who resist most overtly. Additionally, saturation, ephemerality and curation tie into the concept of attention, which also plays an important role in the perception of meaningfulness: Richard doesn't play games or watch videos on his smartphone, he likes to make use of his big screen and speakers where all his attention is directed towards this entertainment; Simon likes reading a newspaper in his old leather chair. According to Simon, the biggest advantages of not owning a smartphone are less wasted time, less noise and less bustle. To him it means rest. To Richard and Simon, inattentiveness is inherent to most smartphone affordances. Those related to entertainment as well as those related to the social.

I say to Richard that most people have a bigger social circle and ask him if social stimuli affect him more heavily than for instance the many logistical processes at his work. He agrees, but adds it is not in a negative way. "I really do value the interactions with others. The difference being that I don't find them important online. (...) It is a real interaction. It isn't a back-and-forth. It happens from two sides simultaneously. I just don't see the utility in the back-and-forth, because it is all in-between, at the same time with other back-and-forths with other people." Richard concludes it might simply be part of his personality that he dislikes "the stand-offish way of communicating with people".

Concludingly, all these examples show that resistance often takes the form of creating dedicated spaces which facilitate cognitive compartmentalisation, whether these are physical spaces, temporal spaces or cognitive spaces. By (re)building boundaries, a space is built where the value of dedicated attention can be realised, whatever this attention may be directed at. Some, like Richard and Simon, use avoidance of their smartphone to fortify boundaries, for instance by using devices that serve a singular purpose. Others purely rely on self-restraint, such as Amber, or aid themselves by creating friction.

Remarkably, truly taking full control of the smartphone as a device seems to be quite rare as Eva and Karen were the only ones to take immediate action when confronted with unwanted notifications. In this, they show a sense of ownership regarding their smartphone, *as well as* their attention and we can see how attention can be activism.

“[A]ctively choosing how you wield your attention is a modern-day survival skill. This is resisting the attention economy. It’s a refusal to allow market[e]ers on the internet to decide what should consume your time. It’s a refusal to allow the act of consumption [to] consume your life.” – Minda Honey³⁸

³⁸ Minda Honey interviews Jenny Odell https://blog.dropbox.com/topics/work-culture/jenny-odell-how-to-do-nothing-attention-economy?utm_source=facebook&utm_medium=social&utm_campaign=mek-content-cpc&utm_content=odell&fbclid=IwAR20LPrHy6lhSVay0CX4fIEouu76mMj-S44Jr4iiFa-0pSNlnym3PIMgJBCY (Visited 09-30-2019)

Conclusion

This study aimed to provide an answer to the question: How do personal choices related to smartphone technology reflect individual relations with the smartphone as a tool and how does the smartphone mediate and affect attention and social engagement with the world for twenty to thirty-year-olds? As is often the case, saying something conclusive about human experiences is not easy. So, in order to formulate a somewhat concise and comprehensive answer to this main question, I answer the three sub-questions that formed the backbone of this work.

First, what affordances do twenty to thirty-year-olds perceive regarding their smartphones and how does this shape their attention? As we have seen, the perception of affordances is highly individual and therefore diverse. It is related to identity, valuations of social contact, preferences of entertainment and many other factors which were not specifically studied. The variability in the perception of smartphone affordances gives rise to different individual relationships with the smartphone. The resulting diverse usage patterns lead some to use their phone for over eight hours on some days while others keep it at a few minutes per day. This diversity is in line with previous research referenced in the conceptual framework (See Brown et al., 2014, p. 225; Falaki et al., 2010, p. 194; Lundy & Drouin, 2016, p. 273; Soikkeli et al., 2011, pp. 3–4). It also makes it hard to say how smartphones shape attention. However, from what we've seen, it mostly shapes the attention *towards* the smartphone itself as Dutch people on average spend two hours on the device per day³⁹. Taking a closer look, most of this time is spent on social engagements, while non-social entertainment accounts for another large portion of usage time. This means most perceived affordances relate to the social and to entertainment, subsequently shaping the attention of the participants towards these activities.

Second, how do smartphones affect social engagement? To answer this, we must first recognise that the most important aspect of smartphones omnipresent internet

³⁹ Research into time spent on smartphones by *Stichting Internet Domeinregistratie Nederland* (Translated: Foundation Internet Domain Registration The Netherlands). https://www.sidn.nl/downloads/68qEO2uhSxmnSd9aLQY1uw/68eb230c09be1d364a62b3d16b044165/SIDN_Trends_in_internetgebruik_2018.pdf (Visited 09-19-2019)

access. Arguably the most important aspect of internet-mediated sociality is non-physicality and being able to have multiple curated online presences. Additionally, smartphones facilitate quick access to multiple forms of communication through the integration of many tools. However, when it comes to internet-mediated communications through smartphones, non-synchronous messaging seems to be dominant, with a focus on the visual through text and images. This leads to a form of sociality in which limitations due to the location of our physical body are negated as we can instantly communicate through space and on our own time. In practice, this means that the threshold to contact others has become so low that many now live in a constant state of communication in what is known as a POPC lifestyle. At the same time, the engagement with continuous online communications combined with an increase in self-sufficiency and the accessibility of highly personalised entertainment, leads to feelings of detachment and disconnection between people in the physical and offline sphere.

Third, in what ways do people negotiate a changing attention landscape and changing ways of social engagement? At large, adoption is the norm. The possibilities of smartphone-mediated sociality give a sense of safety and belonging, while also providing the user with the practical benefits of fast communications. Regarding entertainment and utility, smartphones grant instant access to a wide array of tools and entertainment options that can be personalised and kept private. However, smartphones also give rise to serious challenges. First, with high adoption rates came a social pressure to conform that is not appreciated by all, especially when this turns to ostracism in reaction to nonconformity. Second, many of the qualities of smartphone-mediated sociality create unclear expectations on how to behave which in turn cause fear, uncertainty and doubt in general and a fear of missing out in particular. Third, unprecedented interconnectedness, communication- and monitoring possibilities and highly individualised experiences, grant users the ability to always engage or escape in other spheres of life. Combined with unclear expectations and large numbers of disruptive notifications, this makes it hard for people to cognitively compartmentalise their lives and decide what to pay attention to at a given moment. Fourth, given the rewarding nature of social engagements, completing small tasks and design choices by app developers combined with the accessibility of the smartphone, users are conditioned to engage with

their phone frequently. This creates a vicious circle of unwanted habits that proves very hard to break.

It is in all these challenges that we find the origins of resistance. Although rare, some also resist a dependence on the functional affordances of smartphones, as they feel it detracts from their agency. Additionally, the curated nature of online presences adds to a perceived superficiality for some, while the sheer volume of online engagements gives them an ephemeral quality, leading to a further devaluation of these engagements. However, resisting unwanted smartphone-related behaviours through self-restraint alone, turns out to be exceedingly hard because most of them are grounded in habit and arguably even in addiction. This leads users to employ methods of avoidance and the creation of friction between themselves and unwanted behaviours by making them less accessible and attractive.

The results of this study show that smartphone use truly is predominantly a social endeavour. This adds credibility to the assessment by Veissière and Stendel (2018), who stated that hypernatural monitoring is one of the main drivers of smartphone addiction. Regarding addiction and sociality, I want to argue social behaviour is mostly engrained in our habitus as something positive and to strive for, as words like *asocial* or *antisocial* often express a negative state and successful *socialisation* is the intended outcome of an upbringing. This might explain why compulsive hyper-social behaviour might not be labelled as addictive behaviour, even though it seems to have the ability to harm people's wellbeing.

Additionally, this study shows that cognitive schemas are challenged by smartphones, resulting in a shift regarding the wielding of attention and the exhibition of sociality. The lines between the online and offline world are becoming blurred up to the point that the former increasingly takes precedence over the latter. I want to argue that, as people spend more time in this hyper-globalised space, smartphones implement a faster universal shift in conceptualisations about our (social) world than any technology that came before it. Starker even, I say this shift has already largely taken place in the lives of most Dutch twenty to thirty-year-olds and is integrated in their habitus.

Regarding the many studies on stress and anxiety in the context of smartphone use (Cheever et al., 2014; Elhai, Dvorak, et al., 2017; Harrigan et al., 2010; Van Deursen et

al., 2015), this research adds a concrete description of what the stressors are and shows there are several of them who seem to reinforce each other. The stressful feeling of “always being on”, is probably the result of the blurred boundaries between different spheres of life, combined with different forms of social pressure to conform; unclear expectations leading to a sense of obligation; and hard-to-break unwanted smartphone habits. Looking forward over the coming years, we will see a continuing evolution in our stance towards smartphones as the effects they have on the youngest generation will show more of the possible outcomes. Currently, the outlook is quite grim, with a decline in mental health among millennials (Patalay & Gage, 2019; Twenge, Cooper, Joiner, Duffy, & Binau, 2019). This is also where I would recommend more research, as youngsters might be especially vulnerable for the adverse effects of smartphone habits.

Luckily, there seems to be growing attention for “digital wellbeing”. This is evidenced by the integration of apps like Screen Time that allow for a better understanding and control of our own behaviour. Hopefully, this trend will continue as many people would benefit from tools that allow them to re-establish some disintegrated boundaries. In the meantime, it seems that we need to take personal responsibility and set up our digital devices in ways that allow us to mitigate the negative effects.

In the introduction I wrote that my smartphone helps me not to suffer forgetfulness, boredom and loneliness. However, along the way I found there is virtue in all of them, even if they are sometimes uncomfortable. They facilitate the conscious wielding of attention and that is valuable, as nothing but attention produced this completed thesis.

Bibliography

- Ahad, A. D., & Lim, S. M. A. (2014). Convenience or Nuisance?: The 'WhatsApp' Dilemma. *Procedia - Social and Behavioral Sciences*, 155, 189–196. <https://doi.org/10.1016/j.sbspro.2014.10.278>
- Alshahrani, A., M Aly, S., Abdrabo, M. S., & Asiri, F. Y. (2018). Impact of smartphone usage on cervical proprioception and balance in healthy adults. *Biomedical Research*, 29(12). <https://doi.org/10.4066/biomedicalresearch.29-18-594>
- Amer, K., & Noujaim, J. (2019). *The Great Hack* [Documentary]. Retrieved from <https://www.imdb.com/title/tt9358204/>
- Amit, V. (2015). *Thinking through sociality: An anthropological interrogation of key concepts*. New York: Berhahn Books.
- Asimov, I. (1980). *The Naked Sun*. London u.a: Granada.
- Badawy, A., Lerman, K., & Ferrara, E. (2018). Who Falls for Online Political Manipulation? *ArXiv:1808.03281 [Physics]*. Retrieved from <http://arxiv.org/abs/1808.03281>
- Barbash, I., & Castaing-Taylor, L. (1997). *Cross-cultural filmmaking: A handbook for making documentary and ethnographic films and videos*. Berkeley: University of California Press.
- Bauer, A. A., Loy, L. S., Masur, P. K., & Schneider, F. M. (2017). Mindful Instant Messaging: Mindfulness and Autonomous Motivation as Predictors of Well-Being in Smartphone Communication. *Journal of Media Psychology*, 29(3), 159–165. <https://doi.org/10.1027/1864-1105/a000225>
- Berridge, K. C., & Robinson, T. E. (2016). Liking, wanting, and the incentive-sensitization theory of addiction. *American Psychologist*, 71(8), 670–679. <https://doi.org/10.1037/amp0000059>
- Bianchi, A., & Phillips, J. G. (2005). Psychological Predictors of Problem Mobile Phone Use. *CyberPsychology & Behavior*, 8(1), 39–51. <https://doi.org/10.1089/cpb.2005.8.39>
- Biocca, F. (2006). The Cyborg's Dilemma: Progressive Embodiment in Virtual Environments. *Journal of Computer-Mediated Communication*, 3(2), 0–0. <https://doi.org/10.1111/j.1083-6101.1997.tb00070.x>
- Blabst, N., & Diefenbach, S. (2017). *WhatsApp and Wellbeing: A study on WhatsApp usage, communication quality and stress*. 1–6. <https://doi.org/10.14236/ewic/HCI2017.85>
- Boeije, H. (2010). *Analysis in qualitative research*. Los Angeles: SAGE.
- Bolhuis, J. J., & Giraldeau, L.-A. (Eds.). (2005). *The behavior of animals: Mechanisms, function, and evolution*. Malden, MA: Blackwell Pub.
- Bourdieu, P. (1977). *Outline of a theory of practice* (25. printing). Cambridge: Cambridge Univ. Press.

- Boyle, T., & Cook, J. (2004). Understanding and using technological affordances: A commentary on Conole and Dyke. *Research in Learning Technology*, 12(3). <https://doi.org/10.3402/rlt.v12i3.11260>
- Brown, Barry, McGregor, M., & McMillan, D. (2014). 100 days of iPhone use: Understanding the details of mobile device use. *Proceedings of the 16th International Conference on Human-Computer Interaction with Mobile Devices & Services - MobileHCI '14*, 223–232. <https://doi.org/10.1145/2628363.2628377>
- Brown, Blain. (2012). *Cinematography: Theory and practice: imagemaking for cinematographers and directors* (2nd ed). Amsterdam ; Boston: Elsevier/Focal Press.
- Campbell, N. A., & Reece, J. B. (2015). *Biology: A global approach* (10. ed., global ed). Boston: Pearson.
- Castaing-Taylor, L., & Paravel, V. (2012). *Leviathan*. Retrieved from <http://www.imdb.com/title/tt2332522/>
- Chandler, D., Munday, R., & Oxford University Press. (2016). *A dictionary of social media*. Retrieved from <https://doi.org/10.1093/acref/9780191803093.001.0001>
- Cheever, N. A., Rosen, L. D., Carrier, L. M., & Chavez, A. (2014). Out of sight is not out of mind: The impact of restricting wireless mobile device use on anxiety levels among low, moderate and high users. *Computers in Human Behavior*, 37, 290–297. <https://doi.org/10.1016/j.chb.2014.05.002>
- Chronique d'un été*. (1960). Retrieved from <http://www.imdb.com/title/tt0054745/>
- Conole, G., & Dyke, M. (2004). Understanding and using technological affordances: A response to Boyle and Cook. *Research in Learning Technology*, 12(3). <https://doi.org/10.3402/rlt.v12i3.11261>
- David, P. (2018). Threaded Cognition Approach to Multitasking and Activity Switching in a Permanent Online and Permanently Connected Ecosystem. In *Permanently online, permanently connected. Living and communication in a POPC world*. (pp. 83–93). New York: Routledge.
- Deleuze, G., & Guattari, F. (1983). *Anti-Oedipus: Capitalism and schizophrenia*. Minneapolis: University of Minnesota Press.
- Delfos, H., & Van Dijke, S. (2018). *Smartphone: Spin in het Nederlandse web. Onderzoek Trends in internetgebruik 2018*.
- DeWalt, K. M., & DeWalt, B. R. (2011). *Participant observation: A guide for fieldworkers* (2nd ed). Lanham, Md: Rowman & Littlefield, Md.
- Disconnect*. (2012). Retrieved from <http://www.imdb.com/title/tt1433811/>
- Do, T. M. T., Blom, J., & Gatica-Perez, D. (2011). Smartphone usage in the wild: A large-scale analysis of applications and context. *Proceedings of the 13th International Conference on Multimodal Interfaces - ICMI '11*, 353. <https://doi.org/10.1145/2070481.2070550>

- Elhai, J. D., Dvorak, R. D., Levine, J. C., & Hall, B. J. (2017). Problematic smartphone use: A conceptual overview and systematic review of relations with anxiety and depression psychopathology. *Journal of Affective Disorders*, 207, 251–259. <https://doi.org/10.1016/j.jad.2016.08.030>
- Elhai, J. D., Hall, B. J., Levine, J. C., & Dvorak, R. D. (2017). Types of smartphone usage and relations with problematic smartphone behaviors: The role of content consumption vs. social smartphone use. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 11(2). <https://doi.org/10.5817/CP2017-2-3>
- Eriksen, T. H. (2007). *Globalization: The key concepts*. Oxford, UK; New York, NY: Berg.
- Fabian, J. (1971). Language, History and Anthropology. *Philosophy of the Social Sciences*, 1(1), 19–47. <https://doi.org/10.1177/004839317100100102>
- Falaki, H., Mahajan, R., Kandula, S., Lymberopoulos, D., Govindan, R., & Estrin, D. (2010). Diversity in smartphone usage. *Proceedings of the 8th International Conference on Mobile Systems, Applications, and Services - MobiSys '10*, 179. <https://doi.org/10.1145/1814433.1814453>
- Fortunati, L. (2002). The mobile phone: Towards new categories and social relations1. *Information, Communication & Society*, 5(4), 513–528. <https://doi.org/10.1080/13691180208538803>
- Freire, P. (1970). Cultural Action and Conscientization. *Harvard Educational Review*, 40(3), 452–477. <https://doi.org/10.17763/haer.40.3.h76250x720j43175>
- Ghoshal, S., & Guarav, A. (2015). Comparison of Typing Speeds on Different Types of Keyboards and Factors Influencing it. *International Journal of Mechanical Engineering and Technology*, 6(6), 87–94.
- Gibson, J. J. (1979). *The ecological approach to visual perception*. Retrieved from http://www.123library.org/book_details/?id=107633
- Gonzales, A. L., & Wu, Y. (2016). Public Cellphone Use Does Not Activate Negative Responses in Others...Unless They Hate Cellphones: Cellphone Ostracism. *Journal of Computer-Mediated Communication*, 21(5), 384–398. <https://doi.org/10.1111/jcc4.12174>
- Grasseni, C. (2010). *Skilled visions: Between apprenticeship and standards*. Retrieved from <http://site.ebrary.com/id/10856061>
- Győr, A. F. (2017). Digital Ethnography: Principles and Practice - Sarah Pink, Heather Horst, John Postill, Larissa Hjorth, Tania Lewis, Jo Tacchi. 2015, London, Sage Publications. *Corvinus Journal of Sociology and Social Policy*. <https://doi.org/10.14267/CJSSP.2017.01.08>
- Hall, J. A., Baym, N. K., & Miltner, K. M. (2014). Put down that phone and talk to me: Understanding the roles of mobile phone norm adherence and similarity in relationships. *Mobile Media & Communication*, 2(2), 134–153. <https://doi.org/10.1177/2050157913517684>
- Harari, G. M., Lane, N. D., Wang, R., Crosier, B. S., Campbell, A. T., & Gosling, S. D. (2016). Using Smartphones to Collect Behavioral Data in Psychological Science: Opportunities, Practical

Considerations, and Challenges. *Perspectives on Psychological Science*, 11(6), 838–854.
<https://doi.org/10.1177/1745691616650285>

Harrigan, K. A., Collins, K., Dixon, M. J., & Fugelsang, J. (2010). Addictive gameplay: What casual game designers can learn from slot machine research. *Proceedings of the International Academic Conference on the Future of Game Design and Technology - Futureplay '10*, 127.
<https://doi.org/10.1145/1920778.1920796>

Hilbert, M. (2012). How much information is there in the “information society”? *Significance*, 9(4), 8–12. <https://doi.org/10.1111/j.1740-9713.2012.00584.x>

Jordan, A. B. (2018). Growing up online. In *Permanently online, permanently connected. Living and communication in a POPC world*. (pp. 165–175). New York: Routledge.

Jung, S. I., Lee, N. K., Kang, K. W., Kim, K., & Lee, D. Y. (2016). The effect of smartphone usage time on posture and respiratory function. *Journal of Physical Therapy Science*, 28(1), 186–189. <https://doi.org/10.1589/jpts.28.186>

Juris, J. S. (2008). *Networking futures: The movements against corporate globalization*. Durham, N.C: Duke University Press.

Kaju, A., & Maglio, S. J. (2018). Urgently Yours: Temporal Communication Norms and Psychological Distance. *Journal of Consumer Psychology*, 28(4), 665–672.
<https://doi.org/10.1002/jcpy.1051>

Karapanos, E., Teixeira, P., & Gouveia, R. (2016). Need fulfillment and experiences on social media: A case on Facebook and WhatsApp. *Computers in Human Behavior*, 55, 888–897.
<https://doi.org/10.1016/j.chb.2015.10.015>

Keane, W. (2014). Affordances and reflexivity in ethical life: An ethnographic stance. *Anthropological Theory*, 14(1), 3–26. <https://doi.org/10.1177/1463499614521721>

Kharel, D. (2015). Visual Ethnography, Thick Description and Cultural Representation. *Dhaulagiri Journal of Sociology and Anthropology*, 9, 147–160.
<https://doi.org/10.3126/dsaj.v9i0.14026>

Kim, Y.-G., Kang, M.-H., Kim, J.-W., Jang, J.-H., & Oh, J.-S. (2013). Influence of the Duration of Smartphone Usage on Flexion Angles of the Cervical and Lumbar Spine and on Reposition Error in the Cervical Spine. *Physical Therapy Korea*, 20(1), 10–17.
<https://doi.org/10.12674/ptk.2013.20.1.010>

Klimmt, C., & Brand, M. (2018). Permanence of Online Access and Internet Addiction. In *Permanently online, permanently connected. Living and communication in a POPC world*. (pp. 61–71). New York: Routledge.

Klimmt, C., Hefner, D., Reinecke, L., Rieger, D., & Vorderer, P. (2018). The permanently online and permanently connected mind. Mapping the cognitive structures behind mobile Internet use. In *Permanently online, permanently connected. Living and communication in a POPC world*. (pp. 18–28). New York: Routledge.

- Knop-Huelss, K., Winkler, J. R., & Penzel, J. (2018). Being POPC Together—Permanent Connectedness and Group Dynamics. In *Permanently online, permanently connected. Living and communication in a POPC world*. (pp. 129–139). New York: Routledge.
- Koetsenruijter, W., & Berkenbosch, R. (2009). *Cijfers in het nieuws*. Den Haag: Boom Uitgevers.
- Kottak, C. P. (2011). *Cultural anthropology: Appreciating cultural diversity*. Maidenhead: McGraw-Hill.
- Kozinets, R. V. (2010). *Netnography: Ethnographic research in the age of the internet* (1st ed). Thousand Oaks, CA: Sage Publications Ltd.
- Kruger, D. J., & Djerf, J. M. (2016). High Ringxiety: Attachment Anxiety Predicts Experiences of Phantom Cell Phone Ringing. *Cyberpsychology, Behavior, and Social Networking*, 19(1), 56–59. <https://doi.org/10.1089/cyber.2015.0406>
- Lee, C., Shin, J., & Hong, A. (2018). Does social media use really make people politically polarized? Direct and indirect effects of social media use on political polarization in South Korea. *Telematics and Informatics*, 35(1), 245–254. <https://doi.org/10.1016/j.tele.2017.11.005>
- Lee, Y.-K., Chang, C.-T., Lin, Y., & Cheng, Z.-H. (2014). The dark side of smartphone usage: Psychological traits, compulsive behavior and technostress. *Computers in Human Behavior*, 31, 373–383. <https://doi.org/10.1016/j.chb.2013.10.047>
- Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). *Social Media & Mobile Internet Use Among Teens and Young Adults*. Pew Internet & American Life Project.
- Libin, A., & Libin, E. (2005). Cyber-anthropology: A new study on human and technological co-evolution. *Studies in Health Technology and Informatics*, 118, 146–155.
- Llewellyn, C., Cram, L., Favero, A., & Hill, R. L. (2018). For Whom the Bell Trolls: Troll Behaviour in the Twitter Brexit Debate. *ArXiv:1801.08754 [Cs]*. Retrieved from <http://arxiv.org/abs/1801.08754>
- Lundy, B. L., & Drouin, M. (2016). From social anxiety to interpersonal connectedness: Relationship building within face-to-face, phone and instant messaging mediums. *Computers in Human Behavior*, 54, 271–277. <https://doi.org/10.1016/j.chb.2015.08.004>
- MacDougall, D. (2007). *SchoolScapes*. Retrieved from <http://www.imdb.com/title/tt1553287/>
- Mai, L. M., Freudenthaler, R., Schneider, F. M., & Vorderer, P. (2015). "I know you've seen it!" Individual and social factors for users' chatting behavior on Facebook. *Computers in Human Behavior*, 49, 296–302. <https://doi.org/10.1016/j.chb.2015.01.074>
- Marcus, G. E. (1995). Ethnography in/of the World System: The Emergence of Multi-Sited Ethnography. *Annual Review of Anthropology*, 24, 95–117.
- Marsh, J. P., Aizu-Daigaku, & International Conference on Cognitive Technology (Eds.). (1997). *Humanizing the information age: Proceedings*. Los Alamitos, Calif.: IEEE Computer Soc.

- McGrenere, J., & Ho, W. (2000). Affordances: Clarifying and Evolving a Concept. *Proceedings of Graphics Interface 2000, Montréal, Québec, Canada, Canada, 15 - 17 May 2000*, 179-186. <https://doi.org/10.20380/gi2000.24>
- Miller, R. (2015). *The Mobile Phone and You: Human Interaction and Integration with Mobile Technology. Anthropology Theses*. Retrieved from https://scholarworks.gsu.edu/anthro_theses/96
- Minsky, M. (1980). *Telepresence*. Retrieved from <http://web.media.mit.edu/~minsky/papers/Telepresence.html>
- Musk, E., & Neuralink. (2019). *An integrated brain-machine interface platform with thousands of channels* [Preprint]. <https://doi.org/10.1101/703801>
- Oulasvirta, A., Rattenbury, T., Ma, L., & Raita, E. (2012). Habits make smartphone use more pervasive. *Personal and Ubiquitous Computing*, 16(1), 105-114. <https://doi.org/10.1007/s00779-011-0412-2>
- Patalay, P., & Gage, S. H. (2019). Changes in millennial adolescent mental health and health-related behaviours over 10 years: A population cohort comparison study. *International Journal of Epidemiology*. <https://doi.org/10.1093/ije/dy006>
- Pels, P. (2014). After objectivity: An historical approach to the intersubjective in ethnography. *HAU: Journal of Ethnographic Theory*, 4(1), 211-236. <https://doi.org/10.14318/hau4.1.009>
- Pink, S. (2006). *The future of visual anthropology: Engaging the senses*. London; New York: Routledge.
- Pink, S. (2012). *Advances in Visual Methodology*. <https://doi.org/10.4135/9781446250921>
- Roberts, J. A., Pullig, C., & Manolis, C. (2015). I need my smartphone: A hierarchical model of personality and cell-phone addiction. *Personality and Individual Differences*, 79, 13-19. <https://doi.org/10.1016/j.paid.2015.01.049>
- Robinson, M. J. F., Fischer, A. M., Ahuja, A., Lesser, E. N., & Maniates, H. (2015). Roles of "Wanting" and "Liking" in Motivating Behavior: Gambling, Food, and Drug Addictions. In E. H. Simpson & P. D. Balsam (Eds.), *Behavioral Neuroscience of Motivation* (Vol. 27, pp. 105-136). https://doi.org/10.1007/7854_2015_387
- Robinson, T. E., & Berridge, K. C. (1993). The neural basis of drug craving: An incentive-sensitization theory of addiction. *Brain Research. Brain Research Reviews*, 18(3), 247-291.
- Scott, J., & Marshall, G. (Eds.). (2009). *A Dictionary of Sociology* (3rd ed. rev). Oxford; New York: Oxford University Press.
- Searching. (2018). Retrieved from <http://www.imdb.com/title/tt7668870/>
- Sillander, K. (2017). Amit, Vered (ed.). Thinking through sociality: An anthropological interrogation of key concepts. 210 pp., bibliogr. Oxford, New York: Berghahn Books, 2015. £55.00 (cloth): Book and film reviews. *Journal of the Royal Anthropological Institute*, 23(1), 223-224. <https://doi.org/10.1111/1467-9655.12583>

- Simon, H. A. (1971). Designing organisations for an information rich world. In M. Greenberger (Ed.), *Computers, communications, and the public interest*. Baltimore: Johns Hopkins Press.
- Smith, M. M., Sherry, S. B., Vidovic, V., Saklofske, D. H., Stoeber, J., & Benoit, A. (2019). Perfectionism and the Five-Factor Model of Personality: A Meta-Analytic Review. *Personality and Social Psychology Review*, 108886831881497. <https://doi.org/10.1177/1088868318814973>
- Soikkeli, T., Karikoski, J., & Hammainen, H. (2011). Diversity and End User Context in Smartphone Usage Sessions. *2011 Fifth International Conference on Next Generation Mobile Applications, Services and Technologies*, 7–12. <https://doi.org/10.1109/NGMAST.2011.12>
- Steinhart, E. (1989). Technological Disembodiments. *Canadian Journal of Political and Social Theory*, 14(1–3), 233–236.
- Suhr, C. (n.d.). *Descending with Angels*. Retrieved from <http://www.imdb.com/title/tt3632596/>
- Tanis, M., Beukeboom, C. J., Hartmann, T., & Vermeulen, I. E. (2015). Phantom phone signals: An investigation into the prevalence and predictors of imagined cell phone signals. *Computers in Human Behavior*, 51, 356–362. <https://doi.org/10.1016/j.chb.2015.04.039>
- Thomé, S., Dellve, L., Härenstam, A., & Hagberg, M. (2010). Perceived connections between information and communication technology use and mental symptoms among young adults—A qualitative study. *BMC Public Health*, 10(1). <https://doi.org/10.1186/1471-2458-10-66>
- Twenge, J. M., Cooper, A. B., Joiner, T. E., Duffy, M. E., & Binau, S. G. (2019). Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005–2017. *Journal of Abnormal Psychology*, 128(3), 185–199. <https://doi.org/10.1037/abn0000410>
- Van de Port, M. (2018). In Love with My Footage: Desirous Undercurrents in the Making of an Essay Film on Candomblé. *Visual Anthropology Review*, 34(2), 136–146. <https://doi.org/10.1111/var.12164>
- Van Deursen, A. J. A. M., Bolle, C. L., Hegner, S. M., & Kommers, P. A. M. (2015). Modeling habitual and addictive smartphone behavior. *Computers in Human Behavior*, 45, 411–420. <https://doi.org/10.1016/j.chb.2014.12.039>
- Van Koningsbruggen, G. M., Hartmann, T., & Du, J. (2018). Always on? Explicating Impulsive Influences on Media Use. In *Permanently online, permanently connected. Living and communication in a POPC world*. (pp. 51–60). New York: Routledge.
- Veissière, S. P. L., & Stendel, M. (2018). Supernatural Monitoring: A Social Rehearsal Account of Smartphone Addiction. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.00141>
- Von Pape, T. (2018). Living in the Moment—Self-Narratives of Permanently Connected Media Users. In *Permanently online, permanently connected. Living and communication in a POPC world*. (pp. 97–106). New York: Routledge.

- Vorderer, P., Hefner, D., Reinecke, L., & Klimmt, C. (Eds.). (2018). *Permanently online, permanently connected: Living and communicating in a POPC world*. New York; London: Routledge, Taylor & Francis Group.
- Vorderer, P., Krömer, N., & Schneider, F. M. (2016). Permanently online – Permanently connected: Explorations into university students' use of social media and mobile smart devices. *Computers in Human Behavior*, 63, 694–703. <https://doi.org/10.1016/j.chb.2016.05.085>
- Warnier, J.-P. (2001). A Praxeological Approach to Subjectivation in a Material World. *Journal of Material Culture*, 6(1), 5–24. <https://doi.org/10.1177/135918350100600101>
- Wilmer, H. H., Sherman, L. E., & Chein, J. M. (2017). Smartphones and Cognition: A Review of Research Exploring the Links between Mobile Technology Habits and Cognitive Functioning. *Frontiers in Psychology*, 8, 605. <https://doi.org/10.3389/fpsyg.2017.00605>
- Xu, S., & Wang, Z. (2018). Multitasking—Does it actually exist? In *Permanently online, permanently connected. Living and communication in a POPC world*. (pp. 72–82). New York: Routledge.
- Zannettou, S., Caulfield, T., De Cristofaro, E., Sirivianos, M., Stringhini, G., & Blackburn, J. (2018). Disinformation Warfare: Understanding State-Sponsored Trolls on Twitter and Their Influence on the Web. *ArXiv:1801.09288 [Cs]*. Retrieved from <http://arxiv.org/abs/1801.09288>

Appendix – On Film

It should be noted that I set out to create an entirely different film than the one that ended up being completed. For the first film, I set out to focus on what people think about smartphones as well as show the effect smartphones have on individuals. To do so, I filmed the interviews with six of the participants. This layer of visual description would provide a more complete representation compared to text, by showing the person, their looks, expressions and body language. However, I realised early on that a focus on the actual phone use of the participants would be hard to translate to film. Smartphone use is something public, but highly private at the same time. Filming the screen didn't feel right to me, because messages that pop up are often personal and possibly embarrassing. This was emphasised by participants who expressed cautiousness related to the data I would be collecting. For this reason, I considered it most ethical⁴⁰ to err on the side of caution and minimise the recording of phone screens. Additionally, phone use is spread over the entire day, but intermittent, which poses another challenge. Because of these challenges, I went for a more auto-ethnographic approach to filming: I recorded personal reflections in a video log style. In these scenes I reflect on life without a smartphone for a week and the process of slowly (and conscientiously) reactivating apps in the weeks thereafter. Additionally, I recorded other activities with the participants in order to reveal more about them as individuals.

Regarding the editing of this first film, I aimed to make the form fit the content and the topic. This means it is heavily inspired by modern day media like YouTube⁴¹, the bulk of which is consumed through smartphones⁴². What I found to be characteristic for this kind of media is a short playtime, the use of jump cuts, visual effects and extensive post-production. Employing these methods serves multiple purposes. First, by using special

⁴⁰ AAA Principles of Professional Responsibility <http://ethics.americananthro.org/category/statement/> (Visited 06-11-2019)

⁴¹ More specifically I was inspired by the YouTube channels of short, autoethnographic film makers, like Matt D'Avella or science channels such as AsapScience.

<https://www.youtube.com/channel/UCJ24N4O0bP7LGLBDvye7oCA> (Visited 04-30-2019)

<https://www.youtube.com/user/AsapSCIENCE> (Visited 05-29-2019)

⁴² <https://techjury.net/stats-about/mobile-vs-desktop-usage/> (Visited 05-02-2019)

<https://www.socialmediatoday.com/social-business/mobile-usage-trends-youtube-infographic> (Visited 05-02-2019)

effects in a way that could be considered extradiegetic, I aimed to layer other meanings and experiences that cannot be conveyed with the contents of the film alone (Barbash & Taylor, 1997, p. 402). Second, relatively fast pacing and effects applied in post-production were an effort to make the film fit better with the intended audience than a more traditional ethnographic film. As such it was an exercise in editing for the spectator (Barbash & Taylor, 1997, p. 386-388). I employed composed narration (Barbash & Taylor, 1997, p. 434) in the form of a voice-over. This added another layer of storytelling and possibilities of editing through sound. Additionally, it allows for a higher level of reflexivity with a meta-narrative that is critical of my own performance as a researcher *and* smartphone user/research participant (Pink, 2006, p. 32).

The biggest limitation of film is that it is very hard to convey the cognitive processes of the participants without relying on text or spoken word a lot. The screen, our eyes and hands are the only thing that show activity when using smartphones, while most is happening inside our heads. To expose what is happening there, I feel text or audio is the most fitting form. Therefore, I made extensive use of interview material, which led to repeated feedback on the “talkative” nature of my film. Combined with a struggle to identify and attach to my own film, I decided to discard the entire idea and start from scratch.

I want to clearly state that I don't regard the new and final film a scientific endeavour. Where I first tried to be as clear as possible regarding the findings of my study, I now decided to let my artistic vision play a bigger role. In my opinion, it is good practice in the arts to draw inspiration from everything, including science. However, I don't think it's right to draw art into science to this degree. Science should be done methodically and rigorously. The representation of findings should be as complete as possible, with at least some kind of concrete question it seeks to answer as clearly as possible. This is where my struggle lies, as the master's programme mostly steered towards observational cinema as a way to represent our scientific inquiry. In my opinion, the results of a study should be represented in as much a comprehensible way as possible. This means the results and findings should be presented in a manner that minimises the room for interpretation. It is in this specifically, that I found observational cinema to be severely lacking. I feel observational cinema often leaves too much unspecified, undefined and open for

interpretation, especially when dealing with internal, non-observable processes. I accept that reality oftentimes can't be boiled down to black and white representations, especially when it comes to the personal experiences of people. This is one of the challenges anthropologists must face. However, when employing film as a means of representation, so much more clarity can be gained by letting go of a mostly observational angle.

In order to stay true to my ideas on the representation of scientific research, I decided to distance myself from the way film mostly was promoted throughout the master's programme. In fact, I decided not to draw film into the sciences at all by making something that stands largely on its own. So, while the new film is still based on the findings of my research, I consider it to be an artform that should not be seen as a scientific endeavour.

Choices regarding the editing of the film reflect a more personal quest to break free of an "old school" anthropology. Mostly, because I think the impact of anthropological research can be larger when we adapt our outputs to be more in line with the mainstream (Pink, 2006). Films like Christian Suhr's *Descending with Angels* (2013), Lucien Castaing-Taylor and Verena Paravel's *Leviathan* (2012) or David MacDougall's *The Age of Reason* (2004) give interesting insights into worlds of others, but in my opinion lack a (strong) narrative or an explicit message. This is something I see a lot in ethnographic films and further adds to the argument I made in the previous paragraph. Additionally, it might detract from their attractiveness to "the masses", as is reflected by the amount of views for the trailer of Suhr's film⁴³. Even though this is not necessarily a bad thing, I'd like to see more accessible ethnographic films, that don't require extensive academic or artistic skilled vision (Grasseni, 2010) in order to fully appreciate what is shown.

The final film then, consists of multiple parts that each show a historic alternative to a specific action we can now do on our smartphone. I aimed to put an emphasis on the physical quality of the different tools that we used. I did so by separately recording sounds and excluding unwanted visual distractions through careful framing and editing. The costs of props was about 100-200 euro and were funded by me. Finally, as I consider the film to be more of an art piece, I want to leave further interpretation to the audience.

⁴³ https://www.youtube.com/watch?v=2hK_chITpMQ&t=1s (Visited 06-11-2019)